

**AC 2008-2826: ADVANCING THE GLOBAL CAPACITY FOR ENGINEERING
EDUCATION RESEARCH: A YEAR OF INTERNATIONAL DIALOGUE**

Jack Lohmann, Georgia Institute of Technology

Erik De Graaff, Delft University of Technology

Advancing the Global Capacity for Engineering Education Research (AGCEER): A Year of International Dialogue

Abstract

AGCEER is a joint initiative by the *European Journal of Engineering Education*, published by the Société Européenne pour la Formation des Ingénieurs, and the *Journal of Engineering Education*, published by the American Society for Engineering Education. The goal is to significantly advance the global capacity for engineering education research through moderated interactive sessions offered in a series of international engineering education conferences between July 2007 and December 2008. The sessions address fundamental questions facing the development of a global community of scholars and practitioners in engineering education research.

A Joint Journal Initiative

The vitality of any discipline depends on a vibrant community of scholars and practitioners advancing the frontiers of knowledge through research and innovation. Just as engineering excellence depends critically on engineering research and development, excellence in engineering education depends critically on research and development in engineering education. However, globally, engineering education development is a more mature field in comparison to engineering education research which is still in its infancy, both in terms of its philosophical structure and physical infrastructure. Because research and development are mutually complementary activities each enhancing the other, there is a need to enhance the global capacity for engineering education research to better leverage the global developments in engineering education innovation.

In a fashion similar to the American Society of Engineering Education's recent initiative, "Advancing the Scholarship of Engineering Education: A Year of Dialogue,"^{1,2} the *European Journal of Engineering Education* (EJEE) and the *Journal of Engineering Education* (JEE) have joined in collaboration to promote an international dialogue on the role of engineering education research to help advance global engineering excellence.³ The initiative involves a series of moderated interactive sessions offered at a number of key international engineering education conferences between July 2007 and December 2008. The initiative has four goals:

- (1) build a network among the community of scholars and practitioners who participate in the AGCEER sessions;
- (2) produce a report which characterizes the nature of engineering education research, its areas of inquiry, and its role within scholarly inquiry and practice of engineering education based on the discussions in the sessions;
- (3) identify the critical infrastructure needed to encourage and sustain a global community of researchers and practitioners in engineering education research; and
- (4) initiate action to organize a major international summit in 2009 on the current state and future directions of engineering education research worldwide.

The interactive sessions involve a few short presentations by recognized scholars and practitioners in the field of engineering education research followed by a moderated dialogue designed to address goals (2) and (3), which eventually will be used to set the agenda for the international summit (goal 4). Each session is divided into three parts. The session begins with a brief explanation by one or both of the journals' editors of the purpose of the initiative, the format for the session, and the questions to be discussed. The second part of the session includes two to four international engineering education scholars who provide more specific background information related to the questions to be discussed. In the third part, participants are divided into small breakout groups to discuss the questions posed. The results from the breakout groups are used as the basis for a concluding discussion by the group as a whole. Written materials generated during the breakout groups and audio recordings of the discussions are used to capture the results.

Two questions are presented in common to all sessions, and additional questions may be posed depending on the conference setting and participants. The two common questions are:

- (1) What makes engineering education research different from other forms of innovation in engineering education? Is it the problems studied? The methods and approach employed? The knowledge base needed? The qualifications of the researchers?
- (2) Which structures and mechanisms already encourage and support engineering education researchers? Which ones need to be created and implemented?

The year of international dialogue will be summarized and published jointly in EJEE and JEE in early 2009. Dr. Maura Borrego from Virginia Tech is serving as the principal ethnographer for the initiative. The project has received IRB approval.

Conference Schedule

The past and future international engineering education meetings in which sessions have been held or are planned, including the session chairs and speakers, are the following.

- 1 — 1st SEFI-IGIP⁴ Joint Annual Conference, 1-4 July 2007, Miskolc, Hungary
Session Chairs: Jack R. Lohmann, Editor, JEE; Jean Michel, Editor, EJEE
Speakers: Maura Borrego, Virginia Tech, USA; Erik de Graaff, Delft University of Technology, The Netherlands; P.K. Imbrie, Purdue University, USA; Anette Kolmos, Aalborg University, Denmark
- 2 — 6th Global Colloquium on Engineering Education⁵, 1-4 October 2007, Istanbul, Turkey
Session Chairs: Erik de Graaff, Associate Editor, EJEE; Jack R. Lohmann, Editor, JEE
Speakers: Caroline Baillie, Queen's University, Canada; Ruth Streveler, Purdue University, USA

- 3 — 1st International Forum on Engineering Higher Education⁶, 8-10 November 2007, Hong Kong, China
Session Chair: Jack R. Lohmann, Editor, JEE (and on behalf of EJEE)
Speakers: Edmond Ko, Hong Kong University of Science and Technology, China; Nian Cai Liu, Shanghai Jiao Tong University, China

- 4 — 2007 Australasian Association of Engineering Education Conference, 9-12 December 2007, Melbourne, Australia
Session Chair: Anette Kolmos, Associate Editor, EJEE and JEE
Speakers: Maura Borrego, Virginia Tech, USA, Lesley Jolly, University of Queensland, Australia

- 5 — 2008 American Society for Engineering Education Annual Conference and Exposition, 22-25 June 2008, Pittsburgh, USA (confirmed)
Session Chairs: Erik de Graaff, Editor, EJEE; Jack R. Lohmann, Editor, JEE
Speakers: Roger Hadgraft, University of Melbourne, Australia, Sheri Sheppard, Stanford University, USA

- 6 — 2008 SEFI Annual Conference, 1-4 July 2008, Aalborg, Denmark (confirmed)
Session Chairs: Erik de Graaff, Editor, EJEE; Jack R. Lohmann, Editor, JEE
Speakers: Maura Borrego, Virginia Tech, USA, Ludovic Bot, INGENIUM, France

- 7 — 37th International IGIP Symposium, 7-10 September 2008, Moscow, Russia (confirmed)
Session Chairs and Speakers: To be determined.

- 8 — COBENGE 2008⁷, 8-11 September 2008, São Paulo, Brazil (confirmed)
Session Chairs and Speakers: To be determined.

- 9 — 7th Global Colloquium on Engineering Education⁸, 20-24 October 2008, Cape Town, South Africa (confirmed)
Session Chairs and Speakers: To be determined.

- 10 — 38th Indian Society for Technical Education National Annual Convention, 13-15 December 2008, Bhubaneswar, India (confirmed)
Session Chairs and Speakers: To be determined.

Organizing Committee

Co-chairs

Dr. Jack R. Lohmann, Editor, *Journal of Engineering Education*, USA

Dr. Jean Michel, Immediate Past Editor, *European Journal of Engineering Education*, France

Members

Maura Borrego, Virginia Tech, USA

Erik de Graaff, Delft University of Technology, The Netherlands

Duncan Fraser, University of Cape Town, South Africa

Anette Kolmos, Aalborg University, Denmark

Roger Hadgraft, University of Melbourne, Australia
P.K. Imbrie, Purdue University, USA
Ruth Streveler, Purdue University, USA

Bibliography

¹ American Society for Engineering Education. 2006. Advancing the scholarship of engineering education: A year of dialogue. Main Plenary, 2006 ASEE Conference & Exposition, Chicago, IL.

² Barr, R., J. Moshen, N.Macken, J. Stratton, S. Yost, J. Uhan, A. Karimi, R. Flori, and J. Fraser. 2007. *ASEE All-zones' year of dialogue report*. Draft 21 December 2007. Washington, DC: American Society for Engineering Education.

³ Strategic plan 2005-2010: Advancing the global capacity for engineering education research. *Journal of Engineering Education*. July 2005. pp. 283-284.

⁴ Société Européenne pour la Formation des Ingénieurs, and Internationale Gesellschaft für Ingenieurpädagogik.

⁵ Organized by the American Society for Engineering Education, Boğaziçi University, and the Turkish Engineering Deans Council.

⁶ Organized by the Hong Kong Polytechnic University and Zhejiang University, China.

⁷ Brazilian Association for the Teaching of Engineering.

⁸ Organized by the American Society for Engineering Education and the University of Cape Town.