

# Guest Editorial

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The papers in this special issue of the *International Journal of Engineering Education* represent much of the proceedings of Mudd Design Workshop VII, “Sustaining Sustainable Design,” which was held on the campus of Harvey Mudd College in Claremont, California, during 28–30 May 2009. Supported by Harvey Mudd College’s Department of Engineering and Center for Design Education, this workshop brought together engineers and designers—both educators and practitioners—over three very busy days to talk about the importance of sustainability in engineering design and practice and in engineering education.

At the opening luncheon, the Chair of the MDW VII Organizing Committee, noted that sustainability issues are often driven by economic, rather than technical considerations. Nonetheless, he put sustainability squarely at the center of good engineering practice, noting that engineers had an ethical responsibility to do sustainable design. Dr. Dym also paid homage to two recently deceased friends and supporters of the MDW series, Drs. John H. McMasters and Michael Wald, and noted that their memories would be at the center of the banquet’s activities on the following evening. The keynote speaker, Malcolm Lewis (HMC ’67), Founder and President of Constructive Technologies Group, Inc., spoke on “Sustainability: The View from a Practitioner’s Perspective.” Dr. Lewis described sustainability as the ethos of meeting present day needs while at the same time not compromising the ability of future generations to meet their needs. He went on to note that sustainability must be incorporated from the very beginning of each project, and it became more complex as the size of the designed system increased, especially when there were intersections and interactions with public systems. Dr. Lewis also noted that both analytical and “squishy” habits of thought were required to properly address sustainability issues.

A broad variety of sustainability design, engineering and education issues were discussed in the next seven sessions, which were entitled: Paradigmatic Issues; Sustaining Sustainability; What Are the Students Thinking?; Curricula Matters I & II; Innovation; and, Sustainability Projects and Products.

The major themes or “Learnings” that emerged included the ideas that: sustainability may be thought of as a philosophical concept that can be used as a basis for understanding and application; thinking about sustainability requires clear definitions and terminology in order to foster and support fruitful discussion; sustainability must be considered in context; there are both methods and tools that can be wielded to do sustainable design; sustainable design has many non-engineering aspects; and, finally, that sustainability issues are myriad in the engineering curriculum in many dimensions. These “Learnings” are explicated and amplified in the wrap-up paper by J. W. Wesner and C. L. Dym .

We were once again fortunate to have two outstanding after-dinner events. In the first, Hans van Drongelen and Renske Oldenboom of the *MOTIV* Project at the University of Technology Delft, showed a video, “A Spirit of Sustainability,” that detailed how some of their students thought and felt about sustainability. After this presentation, Hans and Renske led the evening audience in a colorful and stimulating discussion directed toward understanding of the meaning and implications of sustainability in people’s professional and personal lives. At Thursday’s banquet, Alice Agogino presented a remembrance of the work of John H. McMasters and John Prados read Sheri Sheppard’s memoir of Michael Wald. Then Clive Dym opened a discussion of the roles and importance and mentors in our lives and, after briefly mentioning a few people who were importance in his own life, asked the audience to share vignettes and anecdotes (and photos, as available) of those who had been mentors to them.

Following the long-established MDW tradition, the workshop sessions were constructed to give *everyone* a chance to participate, to be heard as well as to listen. Workshop sessions were typically scheduled for two hours, starting with brief presentations by three or four panelists in each session, and concluding with moderated, open discussion. Rather than focusing on their own current research, panelists were asked to reflect on ideas and attitudes about things to be done in the future. The papers that appear here are (for the most part) the panelists’ research and position papers. Clearly, these papers represent a rich body of experience and knowledge that certainly advance our understanding of the many meanings of *Learning* in the context of *sustainability* and *engineering design*. We hope that experience and knowledge can be brought to bear in support of design education with the same intelligence and vigor that the participants brought to Mudd Design Workshop VII.

We want to acknowledge once again the support of the remaining members of MDW VII’s Organizing Committee. They worked hard to maintain the MDW’s reputation for providing an informative, stimulating and inspiring venue for discussing engineering education: Alice M. Agogino, *University of California at Berkeley*; Aaron Altman, *University of Dayton*; Cindy J. Atman, *University of Washington*; J. Edward Colgate, *Northwestern University*; John S. Lamancusa, *Pennsylvania State University*; John

McMasters, *The Boeing Company*; Chris Magee, *Massachusetts Intitutute of Technology*; Gregory B. Olson, *Northwestern University*; John W. Prados, *University of Tennessee, Knoxville*; Sheri D. Sheppard, *Stanford University*; and John W. Wesner, *Carnegie Mellon University*. The Organizing Committee's involvement once again led to an MDW that was stimulating, thought-provoking and interesting, as well as being serious, engaging and fun.

Finally, Harvey Mudd College continues to offer the MDWs a very supportive environment. Professor Ziyad H. Duron, Chair of the Department of Engineering, deserves my thanks, as do President Maria Klawe and Dean of Faculty Robert H. Cave. We *most particularly* and *vigorously* and *cheerfully* thank Sydney Torrey of HMC's Department of Engineering for unflagging organizational, logistical, editorial and administrative contributions, as well as the Department's Sue Lindley and Cynthia Wheeler for a variety of helpful administrative actions. Finally, Mr. Kevin Mapp of HMC's Department of College Relations took many photos during MDW VII, some of which appear in the Wesner-Dym summary paper.

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