Final Report
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Sabbatical Report

This is a final summary report of activities I was involved in during my nine-month sabbatical (September 2008 through May 2009). I spent the sabbatical half-time as visiting professor at Rose-Hulman Institute of Technology in Indiana. It was a very interesting and productive experience. From my interactions and observations of students, staff and faculty, Rose-Hulman is well deserving of its national ranking as number one undergraduate engineering school in the nation. Other activities include educational research and updating/upgrading my textbooks.

Among my personal accomplishments during this sabbatical were:
1. I taught a graduate engineering management course in Bloomington (in problem solving and engineering design)—which included an applications project at the students’ workplace. This was taught as a 3-hour evening class for 10 weeks during the fall term. For most of this term, I commuted to Bloomington and Terre Haute from my residence in Knoxville, TN.
2. In between the fall and winter terms, I co-taught the one-week MBA course in Singapore in entrepreneurship, for the University of Nottingham.
3. During the winter and spring quarter, I assisted Dr. Gibson in the senior design course by advising five ME design teams. This required periodic visits to the project sponsors, including Rolls-Royce, as well as to some entrepreneurs.
4. In my interaction with engineering design faculty, I learned about the CATME program, a computerized team management system. Time permitting, I will explore how this could be implemented at Michigan Tech.
5. I co-authored a paper to ASEE on teaming with Dr. Chenoweth of Rose-Hulman and also with Josh Loukus, Jason Dreyer, and Monika Lumsdaine. The paper was presented at the 2009 ASEE conference in Austin, Texas, in June 2009.
6. I completed the third edition (with updates and numerous small improvements in readability) of my book on Entrepreneurship from Creativity to Innovation (in print). Prof. Martin Binks of the University of Nottingham, UK, is co-author but was not involved in the update. The book has been selling well in Shanghai, in the UK, and in South Africa.
7. I explored the possibility of working with Dr. Moore of Rose-Hulman to establish a program with Korean University of Technology and Education and with Seoul National University.
8. Also, I started initial discussions on writing a book on Engineering Management for CRC with Dr. Mason of Rose-Hulman.
9. Although I was not involved in teaching the Fall 2008/Spring 2009 capstone design class at MTU, data was collected on the teaming experience (including the HBDI used for forming teams). Then in April 2009, Monika Lumsdaine and I analyzed and summarized the HBDI
results and prepared several mini-reports for MTU administrators: President Glenn Mroz, Engineering Dean Timothy Schulz, and you. These reports were:

  HBDI Results at Michigan Tech, 2008/09 (including analyses and PP slides)
  A. Degree of Left-Brain Thinking versus Grade Point Average
  B. Capstone versus Enterprise Students
  C. Differences in HBDI Profiles of Male and Female Engineering Students

10. During the spring term, I also started to research the format for new creative problem solving/engineering design book by benchmarking a number of more recent editions of engineering design books. The new book will focus on developing the students’ whole-brain thinking skills and their application in a structured design process—and it will be accompanied by PowerPoint lectures for the instructors. Due to time constraints and two moves, progress has been rather slow. Major topics will be: conceptual design and innovation; teamwork, design for X, the Pugh method, and QFD. Level: juniors (and multilevel/multidisciplinary). Targeted size: 200-300 pages max.

11. In May 2009, Monika and I attended the Blue Ridge Mountains Christian Writers Conference—a very different but inspiring experience for an engineering professor. We were able to learn many useful skills for two non-academic books in the works. We hope to be able to resume these projects next summer. This event was in lieu of having a big fiftieth wedding anniversary party.

I was impressed by the student teams at Rose-Hulman who were a real delight to work with. They were talented, respectful and appreciative of faculty help. I also experienced what happens when student teams are self-selected—one of my teams had serious problems which only began to be resolved when I gave the team members an opportunity to take the HBDI. Also, I found a difference at Rose-Hulman in that industrial sponsors are not charged for student teams working on company projects. This allowed the students the freedom (with proper guidance) to be creative and flexible in their projects.

I expect to use the insights I have gained during my sabbatical, especially in engineering design, in the pilot of MEEM 3900. So far, it has been much more work than expected to adapt the materials previously used in MEEM 4900 to this one-semester junior course.

Sincerely yours,

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