Statement of Mentoring Philosophy

Cory Beard

Gracious, intentional, leadership development. That is how I would best describe my philosophy of graduate mentoring.

Leadership Development
I see graduate work not exclusively as a research endeavor. It is important to develop research products and to make substantial research contributions that affect society, but it is even more important to develop individuals who themselves will make their own contributions and train others to do the same. And those contributions will ultimately be shown in various forms of leadership – technical innovation and invention, entrepreneurship, management, marketing, etc. And graduates will carry out this leadership in technical companies, service companies, community organizations, and families.

Graduate research is usually a very new endeavor for students when they start with me. They have spent many years accustomed to the classroom with its clear demands, schedules, and directions from an instructor. Research activity, however, opens a new arena of life filled with opportunities for creativity and interaction with the best minds around the world. It also, however, can seem ambiguous, slow moving, even scary at times. It is part of my responsibility to help students of very different personality types navigate this new area of their technical and personal training. They learn about themselves, how they have been motivated and can be motivated, and how to pick up important new skills. This is essential for leadership.

I consistently press my students to develop wireless technologies with a larger end in mind; this is necessary of good leaders. For our laboratory, usually that larger end involves emergency, public safety, or critical infrastructure reliability goals. I personally find weak motivation towards technology itself unless it makes a difference in how people collaborate, interact, and serve their society. I am inspired by emergency first responders and seek to help them do their work more effectively. My NSF CAREER Award was proposed in the summer of 2001 related to emergency communications just two months before 9/11. The research community does not just demand innovative and quality work, it is looking for leadership.

Intentionality
To do my part in bringing out leadership potential in graduate students, I must be intentional. This means I need think carefully about matching the research goals and activities to the needs, potential, personality, and motivations of a student. I also have to develop my own abilities at motivating students, encouraging them when they feel they are faltering, and insisting on meeting timelines and standards of quality. For example, many of my students are electrical engineering students who are studying wireless communications. This research can involve configuration of lab equipment, development of mathematical optimization and queueing theory
models, and software development for simulation. The software development task is usually new for many of them. And frequently they are using and modifying a software tool developed by someone else. This can be daunting, confusing, and time consuming. Sometimes when I meet with students it is important for me to sit with them and develop parts of the software code along with them. They do not need to just have a meeting with me where they give me progress reports and discuss ideas; they need help to get over some of the small hurdles that seem large to them at the time. This intentionality on my part requires that I understand their verbal and nonverbal communication with me even if we come from different cultures, levels of experience, and stages of life.

Thesis and dissertation students and researchers in general need the following skills.

- **Personal discipline** – They need focus to accomplish reading tasks, setting and keeping deadlines, working well with a research team, and demanding from themselves mathematical rigor and high quality writing. Usually the work schedule of a researcher is very open, but personal discipline will make the best use of the time.

- **Reading (community engagement)** – It is very important to put one’s work in the context of others, learn from others, and show how your own work provides a valuable contribution. This involves reading the work of others, but more importantly it involves becoming part of a community of researchers in the area.

- **Creativity** – Development of new ideas is central to research.

- **Writing** – Disseminating results through papers and presentations completes the work of research and elicits help from others to make improvements.

It is common for students to be very strong in one or two of the above areas and weak in another. For example, one student may be strong in reading and learning from the works of others but reticent to develop new ideas. In contrast, another student may regularly be developing new ideas but not performing due diligence in the reading process to put their work in context.

The mentor must think carefully about each individual student’s strengths and weaknesses. Then the objective is to enhance the strengths and challenge the student to improve upon the weaknesses.

**Graciousness**
The final key to successful mentoring is grace. Students must be treated with grace and respect. This may require seemingly endless patience with the weaknesses and pace of the progress of a student’s work. I must be willing to give my time and energy and not get frustrated. Then I will be able to celebrate the successes and the completion of the work as I watch students move to the next stage of their careers. They may continue in research endeavors or they may work in industry with little connection to research problems. Either way, the mentoring process has helped propel them toward leadership and success.