Wolfgang Ketter March 17, 2006

Teaching Philosophy

I hear and I forget. I see and I remember. I do and I understand.
Confucius - teacher, philosopher, and political theorist, 551-479 BC

I attempt to use my interdisciplinary background to design innovative ways of teaching, and to integrate teaching with research. I believe that, regardless of their background, anyone can learn. Given the wide variety of levels at which I have had an opportunity to teach – undergraduate, graduate, continuing education and professional education – this belief helps me in trying to find the best way to teach similar concepts at different levels. I believe that teaching should be a learning experience for both students and instructor. While students learn concepts, methodology, techniques, and communication skills, the instructor learns from the experience of the students and their innovativeness. Consistent themes in my teaching are:

Fill in the Blanks in Curriculum While I did not plan it, I have often landed in situations where the lack of fundamental courses did not allow students to gain skills that were in demand. For example, during the dot-com boom there was a huge demand for HTML and Java programmers. Even though I had not programmed in HTML or Java before, I learned these languages and developed a highly appreciated course in 1999 and 2000. Due to the lack of good books on the topic at that time, I wrote lecture notes and provided them to the students on the web. With this I inspired a couple of my previous professors in Germany to put their complete course material on the web too. Since I work in fast changing fields, such as Electronic Marketplaces, Artificial Intelligence, and Software Engineering, I try to keep my fingers on the pulse of the market and try to design courses that can be of immediate utility to the students.

Bring Research into the Classroom In my research, I have kept the implementation and applicability issues at the forefront. My industry work has produced in many practical examples that I use in class. I have integrated many such research efforts by creating small study cases for use in the classroom.

In each of my classes, students are encouraged to ask questions and to participate in discussions. This way students are actively involved in the class instead of *just* being taught. I believe that students are better motivated in a class where the subject matter is obtained not only through the textbook but also through group interactions. I like to bring in controversial chapters or excerpts from papers or textbooks that contradict commonly accepted principles; in this way, students are drawn more into what originally might seem a dry subject. In each course I have taught I required students to work on a project. This gives students the opportunity to work on a topic of personal interest, and makes them more engaged. Since working on projects requires students to do research on their own, this helps them learning how to learn. In our rapidly changing field, people have to learn new concepts and skills all the time. Learning how to learn and how to obtain new knowledge is an ongoing theme in my classes which I believe stimulates students' professional and personal development.

Learn From and Leverage Students Expertise When I taught in the academic year 2001/2002 in the Master's program for Software Engineering at the University of Minnesota, many of the students in my classrooms were older and had in certain areas, such as databases, a higher skill set than I have, since they had daily working experience on the subject. I leveraged the students expertise to enrich the classroom environment. For example, a couple of the students presented their work with implementing data warehouses and business intelligent tools. This helped the students reflect on their experiences and connect them with the material they were studying for the course. I find that students' participation in classroom discussion is an invaluable component of their learning experience.

Additional Skill Acquisition and Practice I strongly believe that communications skills are extremely important to the success of students. Therefore, I provide many opportunities for students to exercise their writing and speaking skills and to learn how to work in a team. Writing is an essential skill in engineering and science. I believe that writing generates and reflects thinking! I believe that we do not learn the details of an argument until writing it down in detail, and in writing the details we uncover flaws in the ideas. Also writing is often the only

means to become established in the field. If the writing is bad, then even the best research ideas will never get published, since the reviewers could not follow the arguments, and this is fatal for a researcher. Presentation skills are also important. If a person does not know how to present material in a way that is appropriate to the audience, s/he will leave a bad impression and the audience will not understand the points of the talk. Almost all research and industry work is done in groups, therefore I encourage students to work with their peers.

Being Responsive to Student Needs I keep an open door policy for students. I try to meet interested students at their convenience. In the past, I have, based on students invitations, attended their group meetings and have spent time with them in the schools' computer labs to address their questions.

I provide feedback for all of these activities both formally and informally. Discussions foster students' ability to assimilate the knowledge and views of others appropriately. Also, students begin to respect others for their different backgrounds and contributions. Through this process, each student learns to contribute to the team and to appreciate and respect diversity.

As a teaching assistant I was fortunate to work with many different faculty members, but I was especially grateful to work with some of the best teachers at the University of Minnesota, Maria Gini and John Carlis, each of whom has won numerous teaching awards. Theirs are the examples by which I judge my own teaching.

Each student is ultimately responsible for his/her own learning. I am responsible for providing the content, tools and environment that fosters the acquisition of knowledge and skills to continue learning after the course has completed. Through the process of hearing, seeing, and doing, all student learning styles are accommodated and all will be successful.