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Workshop Reflection: Did you teach your dog, Spot, how to whistle?

The workshop entitled "Did you teach your dog, Spot, how to whistle? A brief exploration of teaching and learning styles" was presented by Prof. Alton Banks on November 21st, 2006 in a room on the second floor of Clark Hall. The workshop introduced the Felder-Silverman learning styles (Active-Reflective, Sensing-Intuitive, Visual-Verbal, and Sequential-Global) and described how these styles represented the different means by which people acquire, process, and relate information. The workshop participants (seven individuals) also indexed their own learning styles on a worksheet, and the results were compared with statistics gathered from various NC State populations. For the most part, Prof. Banks lectured on the learning styles using highly visual slides with intermittent questions and responses from the audience.

Perhaps the most important and personally motivating piece of advice that I took from this workshop was that teachers should remind their students of what the students already know. I was already familiar with the Felder-Silverman learning styles prior to the workshop, but this simple piece of advice presented in light of those learning styles struck me as on of the most important and yet simple things that a teacher can do. Prof. Banks offered this suggestion as part of a list of six things that he generally recommended for classroom instructors. Some of the other participants seemed familiar with the idea, and I had some vague notion of the importance of revisiting information presented in previous classes but not necessarily the importance of reviving old *knowledge* in general.

So many students in my discipline (computer science) and in many others, I am sure, often enter and leave class with the perception that they are barely learning the minimum required to pass or get decent grades. In talking with my students, they often understand surface ideas well enough, but soon forget it once the immediate need passes since these ideas have not achieved status as some form of more permanent, deeper knowledge. By having the students recall past subjects and by relating current topics to them, the students not only strengthen their understanding of the topics, but, perhaps more importantly, reminds them that they have actually *learned* something and that their past knowledge is useful and relevant. Learning styles and teaching methods are important for the acquisition of knowledge, but perhaps they are equally important for creating a *confident* learning state. Aligning teaching and learning styles and reminding students of what they already know encourages students. They are encouraged to learn because they know they are capable of doing so; and they are encouraged to participate because they are more confident in their knowledge.

I already have some experience on applying learning styles to the computer science classroom, and I have written a conference paper on that subject, but the concept of girding students' confidence in their knowledge is something I have not yet explicitly applied. I do not currently teach or TA any classes since I am nearing the completion of my degree, but in the past I did try a short review before each lecture or lab section. In some ways, I believe this was a helpful exercise in a memory-rehearsal sort of way, but I do not think it really strengthened the students' knowledge or confidence in ways that

now seem important to me. In light of Prof. Banks' suggestion, I will actively work to derive in-class problems and examples that specifically require the students to recall and apply knowledge they have previously learned. In most cases, classes proceed in a sequence new topics build upon previous topics, but I now believe that this linear convenience is not enough. Students need to be reminded of what they learned on the first day of class, of what they learned their first year, and of what they learned in other seemingly unrelated disciplines. Relating previously learned topics in the computer science discipline is a matter of examining assumptions when drawing up a problem or example. I teach software engineering, which is an accumulation of several computer science disciplines, so it is not hard to imagine discussing specific problems that incorporate a wide variety of information. Reminding students of what they know in other disciplines may be more difficult, but fortunately computers are used to solve so many problems in other fields that examples and analogies can be drawn. There are strikingly direct comparisons that can be made between programming concepts and engineering and architecture or even biology and ecosystems. Business issues are important in software engineering, as are literacy and communication skills. The connections to the students' previously gained knowledge are obvious to me now, and the necessity of tying new topics with old ideas is now clear to me. Hopefully I can now leverage this understanding to strengthen both my students' knowledge and their confidence.