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# Changing Faculty Teaching Techniques: A Response to Flick & Bell

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I enjoyed the article by Flick and Bell. The article's hyperlinked examples show the beginning of the advantages that will develop from online journals as a means to disseminate scholarly papers. As the authors pointed out, technology instruction should take advantage of the unique features of technology; so too an online journal should take advantage of that medium's unique features ([footnote](#)).

My primary intention in this response is to add a point to those that the authors made. Preparing tomorrow's science teachers to use technology begins by better preparing today's science education (and science) *faculty* to use technology. I believe we must think about professors using technology as much as or more than we think about preservice teachers. Sometimes the preservice teachers are ahead of their professors!

This point struck me several places within the article. In the interest of space, I will mention only one:

Preservice teachers in science education programs are often required to take a generic educational technology course taught by an instructional technology expert...the preservice teachers are supposed to develop a variety of technology-related skills....Preservice teachers typically are then left to apply their newly developed technology skills to teaching content in their subject area.

The authors then go on to discuss why this approach is backward. They are right. At the same time, though, I'm part of a committee at my university ultimately likely to recommend the generic educational technology course! How can I say I agree with the authors, yet talk about doing something different?

It relates to professors' knowledge about technology and, more importantly, using the technology appropriately in an instructional setting. In a large university, multiple faculty teach many courses taken by prospective teachers. Some faculty are currently unable to instruct students productively in effective instructional uses of technology. (I am not speaking about the faculty's technological literacy. Few faculty, for example, lack the ability to use word processors and e-mail.)

A larger fraction of the faculty lack the knowledge and skills to serve as role models, showing prospective teachers how to use technology to its best advantage in the K-12 classroom, that is, how to use technology in the kinds of ways suggested by this article's authors.

Accomplishing this point requires a combination of models and professional development. Before we—the professorate—can teach prospective K-12 teachers how to best use today's computer technology, we must be skilled *ourselves* at its use, including having an array of

instructional examples that we can demonstrate to our students.

At my home university, that kind of pedagogical knowledge is still unevenly distributed. Each department probably has one or more faculty skilled at teaching with technology (beyond having students send the instructor e-mail messages or merely telling students to look for resources on the Web). Most faculty, however, lack these skills—remember, I am not talking about personally using technology, but *teaching* using technology, applying the principles the authors discussed in this article.

What is beginning to become clear is that, without massive professional development, support, modeling, and incentives for at least the next few years, most faculty (in some departments) will strongly prefer letting others carry the technology education "burden." Changing professors teaching techniques, as well as adding to their professional knowledge, will be difficult. Accomplishing *that* is a whole different discussion.

### **Footnote**

Technology has been part of education since the inventions of pen and paper—even before we talked about "hands-on" science. Laboratory science and "practical" science, for example, existed long before Sputnik. It has become almost ubiquitous today to confuse the term *technology* with computers when discussing school or school science. Even though technically incorrect, I will continue the trend and use technology to mean computer technology, unless stated otherwise. [[back](#)]

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