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## Exploring Pedagogical Discourse on the Web: A Commentary on Bodzin

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The struggle for many professors using Asynchronous Learning Networks has been creating a meaningful educational experience, as opposed to merely meeting informational needs of...students. (Thompson & McGrath, 1999).

As student teachers of science enter the world of the high school and middle school, they are often at a loss for a sense of community and belonging. The teachers in the school to which they are assigned may be friendly; however, “intern” status is both an exciting challenge and a lonely, anxiety-creating experience for many. Using a web-based discussion forum to address the pedagogical issues that arise for preservice science teachers is a way to create a sense of community across distance and alleviate the anxiety and aloneness often experienced by student teachers.

What distinguishes Bodzin’s (2002) web-based forum is its focus on “critical incidents” in science teaching. The necessity for a focused discourse on the Web cannot be understated. Linn (1998) noted that computer technology has introduced unprecedented options for teaching, learning, and knowledge building, while expanding the opportunities for building communities of learners. It is, however, crucial for teacher educators to ask themselves how they can create effective teaching strategies to serve this new social context for communication. Computer mediated communication has been found to contribute to a sense of community (Berg, 1999). Collaborations and social discourse, attributes of constructivist experiences, look different in online learning environments than in face-to-face classrooms (Howland, 2002).

Bodzin's focus on the analysis of a specific science teaching incident or scenario directs the discourse in a way that both promotes and subsequently reveals critical reflection on practice. My own experience teaching inservice science teachers online involved engaging them in critical discourse about science-technology-society issues. Web-based discussion questions required a focus on the specific topic in a way designed to promote reflection and critical analyses. A total of 1,748 postings, including responses from the professor were examined for their content, expression, and depth of meaning. The cross-replies are included in this total. What emerges from these data is a pattern of expression that exceeds usual classroom dialogue and probes, often rhetorically, for deeper meaning. The mean length of a posting was 12.5 lines per student. Some were much longer, depending on the context. Each online class experience had its own context, depending on the professor prompt, assigned readings, and response expectations that were explicated initially (Koch & Barriere, 2001).

### **Considerations for Web-Based Discourse**

Like Bodzin, I found that asynchronous web-based forums have the potential to promote more thoughtful, considered discussions than face-to-face meetings. The key is to structure the forum appropriately and the critical incidents are an ideal tool for asking student teachers to focus and reflect. Some of the issues for discussion in the Critical Incidents forum include access and participation. I wonder if students would "play it safe" less if the discussion forum were limited to the student teaching cohort that met together in the first five weeks of class.

I am also interested in the instructor decision to post the critical incident, but NOT participate in the replies. Allowing students in the field to engage in discourse about the specific incident on their own is an important device for creating peer-mediated community. I am, however, concerned that the entire peer group could devise a course of action to solve a critical incident question that would be contrary to research driven "best" science-teaching practice. My assumption is that the instructor would intervene with alternative prompts that may lead the cohort group to other solutions.

One of the issues, when analyzing posted messages and then examining the discourse through emergent themes is that one learns the type of postings

that were included in the discussion but not the nature of the person posting the message. I am interested in learning if the same people participated regularly or more often. That is a frequent attribute of the online course that I facilitate. If the same students keep responding, what are their attributes? Finally, how is the online discourse analyzed by gender?

## Gender Issues

In a National Science Foundation funded web site designed to support the professional development of math and science teachers, there is a multi-modal web site designed to promote inquiry pedagogy and inquiry into one's teaching practice (<http://ilf.crlt.indiana.edu>). The site includes asynchronous discussion forums, videos of teachers using inquiry pedagogies, collaborative work areas for small interest groups designing curricular materials, and much more. In a study of users on this site, women were much less likely to participate in a discussion forum about a male teacher's video than in a forum about a female teacher's video (Scheckler, Herring, & Martinson, 2002). Women are also more likely to respond to men's questions on discussion forums than to women's questions. In this web site, designed to encourage inquiry, asking and answering questions are important.

In social listservs, professional support listservs, and educational listservs (Blum 1999; Herring, Johnson, & DiBenedetto, 1995) reports of gendered behavior associate men with confrontational behaviors, while women tend to behave in more supportive ways. When designing web-based environments for preservice science teachers, analyzing the discourse by gender may be important, since power inequities, even subtle and unexpressed in class, may squelch participation by certain groups of users.

Another gender issue relates to the critical incidents. While one of the forum's critical incidents addressed the underrepresentation of women in science in ways that prompted significant reflection, there are several critical incidents that could be addressed on the web site that involve pedagogical implications for gender. One example follows:

David and Susan are focusing their microscopes in tenth grade biology lab. Their stations are adjacent to each other. Susan is frustrated—she just cannot get the microscope to focus. David is

having difficulty as well. They call the teacher, Mrs. Bauer, over for assistance. Mrs. Bauer looks into Susan's microscope and focuses the image for her. "Thanks!" says Susan. She then looks into David's microscope and says, "Just turn the fine adjustment slightly, counter-clockwise, and you should get it focused." David works on it by himself.

What might Susan be thinking? What do you think David is thinking? Which student received the best help? Why? What would you do? (Sanders, Koch, & Urso, 1997, p. 67).

### CONCLUDING THOUGHTS

Healey (1999) suggested that choices in technology use reflect important philosophical differences and change not only how we teach but also what we teach. There is a strong need to create community in a cohort group of science student teachers as they confront challenges and issues in the science classroom that the university courses merely talk about. Using a web-based discussion and requiring weekly postings about critical incidents is an excellent venue for telling student teachers that "we are together" and "we are 'here'" in cyberspace.

The skills that Bodzin's students acquired by critically evaluating and interpreting each other's comments were made possible by the contextualized nature of the discourse and situated within the real world of science and classrooms.

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