Chapter VIII

Preparing Tomorrow’s Teachers to Use Web-Based Education

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The potential impact of the World Wide Web (WWW) on our educational system is limitless. However, if our teachers do not possess the appropriate knowledge and skills to use the Web, the impact could be less than positive. It is evident, then, that our teachers need to be prepared to effectively use these powerful on-line resources to prepare our children to thrive in a digital society. The purpose of this chapter is to discuss the impact of Web-based education on teacher education programs by addressing the following questions:

- How is the World Wide Web impacting education?
- Are teacher education programs meeting the challenge of producing certified teachers who are capable of integrating meaningful use of technology into K-12 classrooms?
- What is expected of teacher education programs in regards to technology and Web-based education?
- What knowledge and skills do preservice teachers need to effectively use Web-based education?
- What instructional approaches should be used to prepare preservice teachers to use Web-based education?

BACKGROUND

How is the World Wide Web impacting education?

The World Wide Web (WWW) may be the most important development in educational technology in our lifetimes. It represents an enormous increase in communications bandwidth over anything we have seen in the past. Increases in communications bandwidth often provide for dramatic changes in civilization (Ferren, 1996). The link between the creation
of the printing press and the Renaissance in western Europe is one strong example of this. Ferren holds that the Web, or more generally the Internet, is the most recent significant increase in communications bandwidth. He suggests that society as we know it will soon become society as we have only begun to imagine it. But the future is not yet here. The current rush to conduct education and training on the Web is at best ill-advised and at worst could create a backlash of the disillusioned masses when the Web in its current state fails to deliver the magic educational bullet everyone expects (Harmon & Jones, in press).

The Web will be incredibly valuable for education in the future. It can also be valuable today if used appropriately. Perhaps more so than any new technology, the WWW has become an integral part of our society. Barnard (1997) states that the extensive development of the world’s telecommunications infrastructure has put powerful tools into the hands of educators. This is only true if the educators know how to use and to take full advantage of the vast potential of the Web in education (Duchastel, 1997). We are suggesting here that in order for teachers to take advantage of the Web today, and to get in on the ground floor for future use in education, they must be prepared, and be prepared properly. Access to the Internet is essential, yet pointless without preparation. Teacher education programs must move today to prepare teachers to use the WWW effectively in the classroom. But the WWW, while a powerful technology, is still a technology, and teacher education programs do not have a strong history of preparing teachers to use technology in the classroom.

ISSUES AND PROBLEMS

Are Teacher Education Programs meeting the challenge of producing certified teachers who are capable of integrating meaningful use of technology into K-12 classrooms?

A 1999 national survey completed by 416 teacher education institutions addressed the above question of whether or not new teachers will be prepared to teach in a digital age (Moursund & Bielefeldt, 1999). The survey investigated coursework in instructional technology, faculty ability and use of technology, facilities, field experiences, and the skills of graduates. The results indicated that, in general, most institutions had adequate access to technology, although many classrooms were not equipped for digital presentations or Internet usage. Most institutions also reported that their teacher education programs (TEP) required students to complete a stand-alone computer class, but that technology was not consistently integrated into other courses or field experiences. Specifically, the results indicated that although 75% of the field experience classrooms had access to technology, less than half of the student teachers were required to integrate technology into their practice lessons, and less than half of the cooperating teachers were able to model the use of computers. These results are consistent with a 1996 review of literature on technology use in teacher education programs which revealed that most programs offer coursework in instructional technology, but it is infrequently tied to field experiences, curriculum, or student teaching (Wilis & Mehlinger, 1996).

Since the data from the previously mentioned studies indicate that effective use of technology is not modeled by faculty throughout the TEP, two concerns are raised. The first concern is related to data from the Moursund and Bielefeldt (1999) study which indicated
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