Web-based Learning Environments: Issues and Perspectives for International Teacher Training and Instruction, 3(17)

Stephen C. Bronack

bronack@lehigh.edu
Lehigh University

Paul C. Thornton

P.C.Thornton@exeter.ac.uk
University of Exeter

Abstract

International leaders in Information Technology and Teacher Training are exploring ways to foster environments for collaborative education and training-paying particular attention to the World-Wide Web. Drawing upon their collective experience, the authors consider the salient issues and perspectives confronting developers of Web-based Learning Environments. A detailed description of the theoretical and practical orientations that often drive the development processes is included, followed by an examination of how these orientations have manifested themselves in the daily practices of multinational teaching and learning on the World-Wide Web. Finally, the authors offer their perspectives on some considerations for future WBLE endeavors.

Introduction

In both industry and education, interest in the use of the World-Wide Web (WWW) as a medium for instruction is gaining momentum. Initial efforts toward using the Web for instruction are usually driven by dreams of cost effectiveness and a broader reach of influence. However, those early adopters who have enjoyed success in their network-based efforts have noted that an examination of the structures and assumptions that underlie decisions about pedagogy and implementation are the more reliable keys to establishing sound instruction via distributed learning environments (Bronack & Riedl, 1998). Furthermore, when the learning environments are situated on the WWW-and are not restricted to localized audiences-maintaining an

understanding of global issues involving access, understanding, learning processes and communication is paramount.

The result in many cases has been a movement toward "education for mutual understanding" (Davis, 1995) as an emerging theme within Web-based and distance learning environments. This perspective places the value of Web-based Learning Environments (WBLE) firmly in the unique social interactions that such environments enable. For example, Web-based Learning Environments targeted at teachers and trainers are focusing on developing an understanding of teaching and learning in other countries and regional locations as an explicit concern for professional development-and as a stimulus for developing a stronger sense of collegiality and peer networks. Education for mutual understanding requires an understanding by those involved of the value of making international connections and in the establishment of an international community (Smith, 1988)-in this particular case, of teacher educators.

Theoretical and Practical Orientations

Teaching and learning within a global environment necessitates an understanding of-and a sensitivity toward-a global perspective of what *effective* teaching and learning in such an environment actually means. To promote success, it is imperative that developers acquire this understanding and sensitivity. At first glance, some issues concerning teaching and learning within a Web-based environment appear universal. Issues related to language use, access to technology, amount and quality of existing infrastructures, and basic technological support are increased by traversing national borders. However, when one takes a closer look at the myriad ways various organizations address these issues, one may clearly recognize that situational nuances do exist. These nuances are imperative to the overall process by which each organization achieves success. Those intimately concerned with teaching and learning within a global environment should seek to gain as broad an exposure as possible to the strategies employed by their peers and colleagues to address these issues. In our experience, some current core issues relate to many of the decisions regarding WBLE and some apparent universal concerns. However, the issues have manifested themselves in different ways within each context and culture. Currently, some of the more salient core issues are: *policy and accountability, developing peer communities, and shared goals and vision.*

Policy and Accountability

In the first offering of his Consultation Paper concerning the proposed National Grid for Learning (NGFL) in the United Kingdom, the Prime Minister of the United Kingdom Tony Blair specifically cited the important role teachers-in particular-and education, as a whole, play for the NGFL's success in the UK (DFEE, 1997). Likewise, President Clinton in the United States stated specifically in a recent address to the nation that it is the *educational system* in America that must lead the way in producing meaningful learning applications of Information Technology and Telecommunications. It appears that the current governments in the UK and in the US consider the role of Information Communications and Technologies (ICT) to be paramount in the education of each country's population and in the pursuit of life-long learning.

As a result, both European and American organizations put forth an effort to create standards for a common understanding of the role technology should play in the learning process. In the United States, organizations such as the National Council for the Accreditation of Teacher Education (NCATE), the International Society of Technology in Education (ISTE), the Association for Educational Communications and Technology (AECT), the International Technology Education Association/Council on Technology Teacher Education (ITEA/CTTE), the National Policy Board for Educational Administration (NPBEA), and the American Association of Colleges of Teacher Education (AACTE) have all suggested the need for a unifying set of Information Technology goals, and have even created some preliminary drafts toward this end (NCATE, 1997). Likewise, the Association for IT in Teacher Education (ITTE), the National Association of Advisers in Computer Education (NAACE), and the National Council of Educational Technology (NCET) established a framework for IT competencies in the UK in 1992. Also, in the UK, the Teacher Training Agency (TTA) published a national curriculum for ICT in initial teacher training in 1998, and published a proposal to use it to analyze the needs of practicing teachers, as well.

Peer Communities

With such important tasks ahead of us, and with the wealth of knowledge and skills that exists within the countries and organizations, a concerted effort must be made to use the knowledge- and skill-banks on both sides of the Atlantic, for example, to achieve mutually beneficial goals in Telematics for Teacher Training-that is, the use of Information Technologies to train current and future teachers. The primary goal must be to forge key relationships that will result in all parties benefiting from the skills and experiences of like-minded peers, regardless of where those peers reside. There currently exists a real need for the training initiatives and support structures that will guide the creation of these communities of practice. As many have noticed, this need is more non-technical than technical-arising most often from an inability to find the right solutions to the *real* technology problems in each, particular learning community. The only way such solutions can be found is to understand the real objectives and context of the particular community. And the only way to truly understand these needs is to face them on a long-term, coordinated basis. Those involved in a peer community of international developers will be afforded a special opportunity to see such community/technical issues from a new perspective, as well as the added benefit of observing the behavior of leading professionals. The aim is a valuable sense of camaraderie to a new crop of professionals who will be the first to face the challenges of global learning in a global environment from the very beginning.

In order to think like a professional thinks-in any field-one must have a broad understanding of what, exactly, constitutes appropriate avenues of communication, reflection, and action within that particular field of practice. In other words, what are the norms, mores, and parameters that are most common within the community? With the loosening of spatio-temporal restrictions on interactions that the WWW enables, fostering and maintaining such a community of like-minded professionals is becoming increasingly difficult. That is, sharing the same space at the same time is a hallmark of collegiality-one need not look much further than the nearest professional conference for an example of this. Replicating such collegial communicative activities within distributed environments, therefore, is a particular challenge. The use of discussion groups to establish effective communities of peers (Nonis, Bronack, & Heaton, in press) on the WWW, for

example, is a popular and seemingly effective way to begin such communications-especially when the environment is a multinational one.

Shared Goals and Vision

Researchers on either side of the Atlantic have recognized and are working toward the goal of using technology to (1) educate for mutual understanding and (2) increase the universal benefit of individual skills and experiences of like-minded peers-regardless of geography-in their own ways. The Telematics Centre-directed by Niki Davis and housed at the University of Exeter in England-is a major catalyst for innovative uses of Information and Communication Technologies as applied to the training of teachers throughout Europe. Projects that have emerged from the Centre include the TLTP - Images for Teaching Education, the (T3) project, and the Virtual Study Centre (VSC) project. The primary goal of each of these projects is the application and infusion of Information Technology within teacher education. The vision exhibited by the managers of each program reflects the belief that the process of teaching and learning *can* be enhanced by the meaningful, effective application of technology within an appropriate setting.

An Introduction to T3

The European Union from 1996 through the end of 1998 has supported an ambitious and successful endeavor, the T3 project. This project is an innovative approach to providing the requisite training and support to educational personnel to ensure the successful infusion of technology into educational settings throughout Europe. Teacher training Organizations from seven European countries (England, Belgium, France, Italy, Portugal, Finland, and the Netherlands) have joined together with sponsoring partners to form a consortium dedicated to the professional development of teachers. The group's primary goal is to enhance the quality of education and training for teaching via a combination of telecommunications and information technologies. The Telematics Centre has provided leadership and direction in the formation of this coalition of teacher education programs and supporting industries.

The T3 project will provide training in and via Telematics to 4,000 teachers in seven European countries by the end of its course. A primary focus for the project lies in the creation and maintenance of "communities of teachers" (Davis, McShea, McShea, Osorio, Still, M., & Wright, 1996). These communities are comprised of teachers and teacher trainers from throughout Europe, and serve as an internal network of practitioners who teach and learn through group work and peer tutoring activities. Another principal goal for the T3 project is the development of courses that model best practice both within the curriculum and for professional development. These courses have utilized some of the latest information and communication technologies to accomplish the goals set forth at the beginning of the project. With this goal in mind, the T3 sponsored by the European Commission and led by the Telematics Centre at the University of Exeter has set forth the following goals:

- access to information,
- collaboration,
- tutoring at a distance,
- access to expert knowledge,

- language teaching,
- community of professionals,
- identifying best practices, and
- courses in ICT for teacher education.

An Introduction to CaseNET

CaseNET is a Web-based, case-based set of courses offered to teachers and teacher educators as a way to develop and/or refine their skills of analysis and decision-making in educational settings (Curry School of Education, sections of CaseNET are currently organized and offered by institutions of higher education and school district professional development teams at sites located in the U.S., Canada and Norway. What is emerging is a shared vision, regarding the effective preparation and support of both inservice and preservice teachers in the country's schools. Over 500 students from more than 20 different school districts and schools of education have participated in CaseNET during the 1997-98 academic year. Participants, who include both inservice and preservice educators, are eligible for graduate level credit or continuing education units through arrangements with the University of Virginia's Division of Continuing Education.

CaseNET makes use of the Web to provide participants with course readings, multimedia instructional materials, and opportunities to interact with instructors and with each other to discuss educational issues through on-line discussions and video conferencing. While multimedia tutorials are provided for participants who may choose to navigate them independently, the formal instruction of technology skills is not a course emphasis. Because of the course design, technology skills are acquired incidentally through the completion of relevant activities.

Site instructors use case methods-similar to instructional approaches used in business, law and medicine-to bridge educational theory and real-life practice in schools. Working from multimedia scenarios that capture situations in real classrooms, participants learn to apply an educational problem-solving model that includes five critical steps. These steps form the foundation for making sound judgements in the demanding situations educators so frequently encounter. When analyzing multimedia cases, participants attend to standards of learning and assessment, issues of teaching across the content areas, and challenges of using technology to solve problems in schools.

Participants also engage in professional dialogue at their own site and communicate with CaseNET participants at other sites. CaseNET encourages participants to cooperate within teams and compare analyses across teams in search of solutions to real-life educational problems. Participants are also encouraged to write their own cases for use in school-embedded staff development and/or for use with students in their classrooms. Finally, teachers and teacher educators are encouraged to reflect upon their decisions as a step toward continued professional development on the job.

CaseNET is a slightly more distributed model than those previously offered within the Telematics Centre's ongoing projects-with more power moving from a centralized source to the on-site facilitators-although the recent T3 EuMedea course is running a very similar mode.

However, many of the same goals set forth by the T3 project are contained within CaseNET's goals statement, as well. CaseNET's goals are as follows:

- building professional communities of peers
- providing access to "slices-of-life" in a safe environment
- teaching/modeling how to behave as a professional
- providing critical perspectives/expert knowledge (access to and sharing of)
- fostering Higher Education/K-12 collaborations
- establishing International Colleagues

Future Considerations for Collaboration

International collaborations are most successful when those cooperating are able to immerse themselves within the culture of their participating peers. By taking part in the day-to-day operations of development within unfamiliar environments, all participants obtain a broader sense of the political, social, cultural, and educational implications of IT and ICT-as these implications are directly manifest in the development of Web-based environments. The benefit to each is a more robust working knowledge of the policy, pedagogy, and preparation issues commonly encountered within the field of Web-based Instruction. What is needed is an international community of ICT and training professionals. Such a community would naturally extend the realm of projects such as CaseNET, T3 and its Virtual Study Centre, and other international, innovative ICT/Training projects throughout Europe, the US, and other areas. However, this community will not build itself. The community will require facilitators who have an understanding of "the values and ethos of their colleagues" (Davis, 1995). Very few people exist who fit such a description. It is, therefore, imperative that we take every opportunity we can to place new, emerging professionals into apprenticeships with those who *do* fit the description-to build a better network of IT professionals dedicated to improving the use of ICT and Telematics in educational and training settings-and to help make major strides toward a more global view of the use of on-line teaching and learning environments.

It is anticipated that universities and organizations that participate may expect the collaborative experience to provide a springboard for future cooperative efforts amongst themselves and their students. Collaborations such as these will most likely produce quality research and development into effective, productive uses of Telematics in teacher training. Those who participate will undoubtedly continue to grow professionally and provide continued, meaningful contributions to this emerging community of peers. How well these goals are accomplished is directly related to the success of current collaborative, Web-based efforts.

Acknowledgements

References

Bronack, S. C. & Riedl, R. E. (1998, June). *Distributed Learning Environments: Pedagogy, implementation, and the early adopter*. Paper presented at ED-MEDIA, Freiburg, Germany.

Bronack, S. C. & Kilbane, C. R. (1998, March). *CaseNET: Teaching decisions via a Web-based learning environment*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, (SITE), Washington, D .C.

Davis, N. E. (1995). Telecommunications for teacher education: developing the global Information Superhighway. *Journal of Information Technology for Teacher Education*, 4(2), pp. 1-9.

Davis, N. E., McShea, J., McShea, H., Osorio, A., Still, M., & Wright, B. (1996, September). *How will we use multimedia communications in teacher education across Europe?* Paper presented at ATEE in Glasgow, Scotland.

Department for Education and Employment (1997). *Connecting the Learning Society: National Grid for Learning*. DFEE, London.

ITTE, NAACE, NCET (1992). *Competencies in Information Technology*. NCET, Coventry.

National Council for Accreditation of Teacher Education (1997). *Technology and the New Professional Teacher: Preparing for the 21st Century Classroom.* Washington, DC.

Nonis, A. S., Bronack, S. C., & Heaton, L. A. (in press). Web-based discussions: Building effective electronic communities for preservice technology education. *Journal of Technology and Teacher Education.*

Smith, D. (1988). *New technologies and professional communications in education*, National Council of Educational Technology, Coventry.

Author Notes

Steve Bronack is an Assistant Professor in the technology-based Teacher Education Program at Lehigh University in Bethlehem, PA. Dr. Bronack holds a Ph.D. in Instructional Technology from the University of Virginia. His current research interests include distributed learning, case-based instruction, and the role of technology in teacher education. He may be reached at:

Iacocca Hall, Rm. A-117
111 Research Drive
Lehigh University
Bethlehem, PA 18015
(610)758-3230
bronack@lehigh.edu
Web Page

Paul Thornton is the Technical Co-ordinator of the Learning and Teaching Support (LaTiS) Centre at the University of Exeter in the UK. Previously he was a member of the Telematics Centre team within the School of Education where he was involved in the creation of on-line learning environments. His research interests include Flexible and Distributed Learning initiatives, courseware development and website evaluation. His contact details are:

The LaTiS Centre
University of Exeter
University Library
Stocker Road
Exeter, UK
EX4 4PT.
+44 (0) 1392 263774
P.C.Thornton@exeter.ac.uk
Web Page