DEOSNEWS Vol. 8 No. 4, ISSN 1062-9416. Copyright 1998

EDITORIAL

As telecommunications technologies continue to improve, and innovative applications in educational settings increase, new terms such as "networked learning" and "virtual university" appear frequently in the distance education literature. The two book reviews presented in this issue of DEOSNEWS, "Brave New Schools: Challenging Cultural Literacy Through Global Learning Networks" and "In Search of the Virtual Class. Education in an Information Society," provide examples of the learning opportunities available to educators and discuss possiblities for future educational environments. These reviews, which have been published in previous issues of _The American Journal of Distance Education_, provide a guide for educators who may wish to read further on these topics.

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BRAVE NEW SCHOOLS: CHALLENGING CULTURAL LITERACY THROUGH GLOBAL LEARNING NETWORKS. J. Cummins and D. Sayers. New York: St. Martin's Press, 1995, 374 pp.

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This interesting and provocative book is written as a call to action for educators and other leaders around the world. Cummins and Sayers, professors whose expertise includes cultural diversity, multilingual education, and school change in a time of shifting demographics, urge us to see the possibilities offered by global computer networks as a marvelous opportunity to challenge students and to achieve important learning and social goals. This book is not about technology. In fact, the information the authors provide about the Internet and related topics are presented in the second part of the book -- after their description of the types of learning experiences they would like to see. This book is about using technology to change what we do in the name of "education."

Brave New Schools is based on what the authors call "three widely debated -- though rarely linked -- issues: the directions of contemporary educational reform; increasing cultural diversity and immigration; and the global networking possibilities ushered in by the 'information superhighway,' usually referred to as the Internet" (p. 6). The authors express strong opinions and are, at times, almost evangelistic in their appeals to educators to use the new technological power to create "long distance teaching partnerships across cultures, intercultural networks of partnership that -- to the greatest extent feasible -- seek to take advantage of accessible and culturally appropriate educational and communications technology" (p. 11).

The second chapter of _Brave New Schools_ features eight "portraits of teachers" who effectively use the new technologies to create learning environments through which their students will develop cognitive skills and cultural understandings. These examples are more than the typical "keypal" activities through which students share electronic mail with students in other countries; they demonstrate how students in different locations can collaborate and work together to solve problems,

developing cultural understanding and important academic and life skills in the process. The first three examples include a relationship between students in Barcelona and victims of war in Croatia, a project connecting students in Maine and Quebec to develop cultural understanding as well as second language acquisition, and a project linking students in New York and San Francisco designed to overcome ethnic struggles between Black and Latino students. Other examples include a parent/child literacy course linking students and parents in San Diego, Denver, and Caguas, Puerto Rico that used the richness of their cultures as the context through which to develop literacy, and a "Holocaust/Genocide Project" linking students in Argentina, Australia, independent republics formerly parts of the Soviet Union, Israel, Poland, and five states in the United States. My favorite example describes a project initiated by Dell Salza, a teacher who visited Nicaragua, saw the many problems related to unsanitary wells, and discovered that for about $100 the wells could be renovated. Salza returned to Boston and used telecommunications to establish a project through which two schools raised money to build the first two sanitary wells, and the project mushroomed. Over $10,000 was soon raised by participating schools, and students were learning how the pumps worked, reading and writing in Spanish, and exchanging notes that expanded cultural understanding.

The target audience of this book appears to be educational change agents -- leaders who wish to use the power of modern technologies to accomplish important goals that go beyond academic literacy to true "cultural literacy," global understanding, and cooperation. To serve this audience, the authors offer a chapter describing "The Dilemmas of Educational Reform," in which they point out that societal changes have left the mission of school poorly defined:

"The dilemma for educators at the turn of the millennium is that no consensus exists in the broader community about the nature of society schools should be attempting to promote. We are in the midst of cultural, economic, and existential changes that cloud our collective future as a human race. Small wonder then that schools should have become the battle ground for competing visions of that collective future." (p. 82)

The primary contribution of this book lies in its ability to cause readers to reconsider the purpose of school, and to understand some of the many ways in which technologies can be powerful tools in accomplishing modern visions of education. The authors' strong opinions may alarm some readers, but for others, they will be like the grains of sand inside an oyster that cause irritation, but result in the development of a pearl -- or in this case, the development of learning environments that effectively address highlighted issues: cultural understanding, access to technology and other resources for all, and a new definition of the purpose of education.

Brave New Schools is unlike any other book I have seen in its blend of educational reform, cultural understanding, and technology messages. I was, however, reminded of a book from the 1960s entitled _Teaching as a Subversive Activity_. Both books ask individuals to understand that while public education was originally created largely to pass a nation's culture on to its citizens, public education could also be the most powerful agent of change. If educators see as their responsibility the need to question what exists, and use social issues to make students think, then school can pass on the culture AND develop a population that creates a better future, rather than simply following a well-worn and potentially destructive path.

In summary, _Brave New Schools_ proposes that education can be very different and much better

than it presently stands, and that global computer networks have the potential to allow educators to create powerful learning opportunities with important social implications. The book provides useful examples of such learning environments and challenges readers to take action.

REFERENCE

Postman, N., and C. Weingartner. 1969. Teaching as a Subversive Activity. New York: Delacorte Press.

IN SEARCH OF THE VIRTUAL CLASS. EDUCATION IN AN INFORMATION SOCIETY. John Tiffin and Lalita Rajasingham. London and New York: Routledge, 1995, 204 pp.

Reviewed by Stephen C. Ehrmann, Director

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In Search of the Virtual Class posits a near future in which artificially intelligent agents, virtual reality, and telepresence have become common in business and entertainment. John Tiffin and Lalita Rajasingham speculate about the future of schools and colleges in such a world.

The authors see education as a communicative process involving four entities: the learner, the teacher, a problem, and knowledge. Learning is triggered when the learner is in Vygotsky's Zone of Proximal Development, i.e., capable of learning or doing something only when assisted by the teacher. While the learner is in a ZPD, she is motivated by the problem to work with the teacher who (or which) in turn helps the learner tap needed knowledge.

Today learning is conducted mostly in physical classrooms that enclose all four of those learning elements. The four elements can interact at other levels, too. At the simplest level, all four components are inside the learner's head, holding a silent conversation. The next level "up" the hierarchy is the student-teacher dyad: one learner and one source of teaching expertise. The teacher is not always human, even today. A textbook is a teacher, for example. At higher levels of the system, the learner can interact with the other three elements in the classroom or use system facilities such as libraries or laboratories.

The future is already present in embryo, however. Tiffin and Rajasingham trace it's development from three roots: correspondence, videoconferencing, and computer-assisted instruction. Each of these antecedents of the virtual class is converging toward the other two. Correspondence instruction today often includes an audioconferencing component, for example.

The sprout atop these three roots is a multi-media combination of technologies that allow the four components -- learner, teacher, problem, and knowledge -- to interact across distance. The computer enables the learner to read texts stored in another country, for example. Shared video makes it possible for student and teacher, or other learners, to interact almost as though they were in the same room.

The authors' primary interest lies in the future. Three concepts are central to their vision:

* Virtual reality: the ability of the learner (wearing a data helmet, data glove or, further into the future, a data suit) to interact with a simulated reality. A data helmet enables the learner to see the simulation as though she were immersed in it: to turn her head or lift her eyes upward to see more, just as in the physical world. Wearing a data glove enables her to grab simulated objects in virtual space. A gesture might control the magnification of the simulated world around her (e.g., the interior of a cell or a galaxy). More advanced data gloves would give sensory feedback similar to that of skin; the learner's hand could feel the difference between a (simulated) tennis ball and a (simulated) apple. The data suit provides such movement and sensory feedback all over one's body.

* Telepresence: the ability to interact with other people at a distance as though in the same room with them.

* "Televirtuality" : a combination of the attributes of virtual reality and telepresence. In the simulated world, one could interact with the live simulations of other real people. I once saw a transcript of a class conducted in an Internet chat room, part of a Multi-Use Dimension (MUD). One student typed to an annoying classmate hundreds of miles away, "I punch you in the nose." With televirtuality, the other student's nose might well bleed real blood in response to the force of the virtual punch, despite the fact that one person was in Bosnia and the other in Serbia.

Perhaps the most important pedagogical feature imagined by the authors is the fractal character of the educational system. No matter how one slices the system of people and resources, learners can find teachers, problems, and knowledge. If one slice (class) doesn't meet her need, the learner can shift her telepresence and reach for new teachers or knowledge to help solve her learning problems or, for that matter, to find a new problem. Reversing the usual convention, distance learning refers not to the distant learner, but rather to distant teachers, problems, and knowledge. The authors foresee this emerging environment giving rise to a new form of open, learner-controlled education.

Exploring this scenario, the authors raise questions about transformation of roles. For example, can the local teacher be replaced in whole or in part by artificially intelligent agents? Such a simulation, perhaps taking the form of an owl in virtual space, might perch on the learner's shoulder (the learner would feel its weight "through" the data suit) and offer advice while conferring with other virtual teachers in the system. The "teacher" would learn from the behavior of other learners and use that accumulating wisdom to advise each student.

The authors raise other questions about their paradigm. For example, the data suit would deliver a plethora of feedback of many sorts to the learner. But in what circumstances is that flood of sensory data actually of instructional use rather than a distraction?

Tiffin and Rajasingham focus on synchronous communication. But what role should asynchronous communication play? Today electronic mail is one of the fastest growing and most instructionally potent of the newer technologies. Toward what role is it growing? What technological shape might it take to be of greatest use for learning?

Their emphasis on synchronicity also raises the question of class size (and character). Should a "class" consist of random, temporary participants who pop in and out, some remaining only for a moment,

others for months? Would collaborative learning be common in such a setting? Might stable trios of learners move together in and out of more amorphous, larger groups? The authors might have done more to explore issues of organization and governance raised by their paradigm.

The authors do recognize one problem raised by their economic and educational projections: If both parents and students travel less, working from home, each isolated in virtual work and learning places of their own, who will perform the custodial function currently carried out by schools? Perhaps there will be some combination of physical and virtual classroom.

I didn't find any mention of hackers and other forms of disruptive play in their virtual educational world, although they did imagine a community cut off from the rest of the virtual planet due to its failure to pay the fine for inadvertent copyright infringement (in order to raise desperately needed funds years before, the town had sold the rights to a ritual community dance, later forgotten the sale, and gotten nabbed when they staged the dance in virtual space).

This reference to money reminds us of the issue of cost. The authors apparently assume that technology and communications costs will plummet. However, some nineteenth century predictions about the telephone's educational impact went awry in part because prognosticators assumed that long distance hookups would eventually become virtually free (Pool 1983).

All these questions converge. Fractals are part of the mathematics of chaotic systems. Some of the stiffness of current education is caused by the power of various parties to hold the parts of the system accountable. In contrast, Tiffin and Rajasingham describe a paradigm that is almost completely decentralized and under extraordinary learner control. I wish they had further explored the organizational consequences of chaos in their paradigm.

In Search of the Virtual Class is a stimulating book providing more questions than answers. The authors recognize that vast distances separate our current world of leaky roofs, mass testing, and drugs from the future of virtual reality, data suits, and simulated teachers. Ironically, our educational systems are just beginning to shift in response to technology developed over twenty years ago (e.g., e-mail). Tiffin and Rajasingham are exploring the technologies of the future, but we still lack educational visions of mass learning that exploit the technological powers a few of us already have.

REFERENCE

Pool, I. 1983. Forecasting the Telephone: A Retrospective Technology Assessment. Norwood, NJ: ABLEX.

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