CILT2000: Views of CILT2000

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The paper is a commentary on the CILT Conference held in 2000. It addresses the five thematic areas around which the conference was organized, namely assessment, professional development, visualization and modeling, ubiquitous computing, and equity.

KEY WORDS: technology; assessment; professional development; community; equity.

It is an impossible task to summarize the jumble of ideas the conference has thrown at me in any kind of coherent way. So instead, I will try to reflect back some of the ideas the conference stimulated in me, as I listened to this rich blend.

I am currently writing a book with my colleague Rich Halverson at the University of Wisconsin, tentatively entitled The Second Educational Revolution: From Apprenticeship to Schooling to Lifelong Learning. It is the filter through which I heard all the sessions. The thesis of the book is that the transition from apprenticeship to universal schooling was precipitated by the shift from an agricultural society to an industrial society. In the process, the state took over the responsibility for education from parents and individuals. As school was extended over the years, there was a frontloading of more and more knowledge that students needed to learn. We are now going through a similar transformation from an industrial to knowledge society, which is propelling another revolution in education. We see the seeds of a new education system forming in the explosion of home schooling, workplace learning, distance education, learning and technology centers, technical certification, adult education, and so on. All these new forms of education are enabled by technology. We are moving from just-in-case learning to just-in-time learning. Parents and individuals are taking back responsibility for education. Schools will always be with us, but their role in education is diminishing. My commentary on the conference will look at each of the conference themes through this lens.

ASSESSMENTS FOR LEARNING

I think this is the sine qua non for the learning technology community to address, and so I will consider it first. It was pointed out throughout the conference that the standards and accountability movement makes adventurous teaching and learning impossible in schools, except in a few places. Basic skills have captured the standards and accountability movement, because that is what we have the technology to test. All the sophisticated tools and systems designed for schools that were described at this conference, as well as the money spent on them, will be wasted as long as the current tests are in place. But we cannot replace the tests with nothing; we need something better. We need objective assessments that measure students’ ability to solve complex problems, create designs and models, and so on; in short, to do adventurous thinking. The same kinds of tools and learning environments that people are developing for teaching and learning can be designed to administer and score student performances: for example, tasks to design a building to meet some set of constraints, to troubleshoot a faulty system, or to create a model to describe some phenomenon. We have had some work of this kind, described by Robert Mislevy and others in the assessment sessions at the conference, but it will take collaboration with psychometricians and content specialists, a large amount of money, and a concerted effort to develop tests that truly reflect...
what students need to learn for the twenty-first century. I think this should be the main priority for the educational research community. It must take precedence over program evaluation, since it is impossible to fairly evaluate programs in terms of the assessments we currently have. As Erika Miller, who was representing Congress at the meeting, pointed out, the education community needs to come together on a single goal, much like the AARP has focused on a prescription drug benefit for seniors.

TEACHER PROFESSIONAL DEVELOPMENT

Enormous changes are required in schools to teach the adventurous thinking that this community thinks is important. To make such radical changes in teaching takes at least four elements: (1) visible models of adventurous teaching, (2) principles underlying the models, (3) guided practice, and (4) a reflective community. Technology can do much to support these four elements. It is important to provide video cases for teachers to study, with commentaries from different perspectives to help them understand the principles underlying the videos. By studying videos, we can begin to develop a theory and a language for describing teaching, just as science became possible when printing provided representations that could be studied and refined. If we form small groups of teachers who are willing to share videos of their own teaching, they can provide useful feedback to each other and help reflect on their practice (the “video club” model). Teachscape and the Indiana math and science teachers program have many of these elements. It looks like the kind of technology-based professional development program that can make a difference is now coming together.

VISUALIZATION AND MODELING

I would like to see a web site, in the spirit of Foxfire, where young people can publish their best models and visualizations for others. AgentSheets has this kind of capability, but the web site needs to be a place where all kinds of different models and visualizations can be published. There should be an editorial board made up of students, who decide which models and visualizations should be highlighted each month. There should be events where the authors can answer questions and receive suggestions for refinements from others. Producing products for such a site would be highly motivating for young people, but it takes careful engineering to make it work. Most importantly the site needs to be in the hands of the young people participating in its development.

UBIQUITOUS COMPUTING

I came away from the ubiquitous computing group with the renewed sense that there are many constraints that a computer designed for educational needs has to meet. It has to be robust, light weight, small, cheap, owned by users, wirelessly connectable in wide areas, have long-life battery power, and more. Input and output characteristics are a difficult issue, because there must be many different kinds of access possible to address different needs. Some of the best minds in the country are working on these issues, but we still are not there. I have no idea when we will get there, but I suspect it will happen sometime in the next decade. Until we have such a device, we can only do experiments with graphing calculators, Palms, and laptops, and write up guidelines for what is needed.

COMMUNITY TOOLS

The Internet makes it more and more feasible to create communities of people who are interested in unusual pursuits, such as haiku poetry or Chinese history. These communities of interest are forming naturally among both children and adults. I was inspired by the session dedicated to Jan Hawkins to think about supports and scaffolds for listening and for creating fun environments among communities of interest. Jan was the ideal communitarian. If, as we design our community tools, we ask ourselves what Jan would want, we can begin to think about supports and scaffolds in new ways. The community tools group was clearly thinking very expansively along these lines.

EQUITY

In my view, transitions are difficult. As we went from an agricultural society to an industrial society, cultural patterns of interaction were broken. Crime and disease flourished. Eventually solutions were found to deal with many of the problems caused by the transition, but it was tough for many to live through. I think we are going through a transition of similar magnitude as that described by Francis Fukuyama in his book The Great Disruption. There have been a large