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## *An Interview with Prof. Andries van Dam on Distance Education*

*In response to concerns expressed by many faculty about the role and impact of distance education technology at Brown, the Sheridan Center recently interviewed Prof. Andries van Dam, Thomas J. Watson, Jr. University Professor of Technology and Education; Professor of Computer Science. Prof. van Dam urges colleagues across the University to engage in discussion on the issues raised.*

### **1. Under what circumstances will distance education be meaningful to Brown students and faculty? Will it facilitate learning at Brown by undergraduate students?**

**Andries van Dam:** The materials that GEN and other dot-coms will produce for and with Brown faculty may be used for both asynchronous (distance) and on-campus use. This will provide students with choice for how and when to learn. For example, a student could choose to hear Ken Miller's Bio 20 lecture live or time-shift the on-line version of the lecture to 1:00 a.m. to view and re-view it electronically.

Like a movie theatre presentation of a film as opposed to a "Director's Cut" DVD, these two modes of instruction are different and complementary. Each adds to rather than competes with the other. The cinema version is enjoyed once exactly as the producer intends it to be seen. The DVD version, including the director's remarks, out-takes, material on actors, related information, etc., can be viewed and re-viewed in a variety of sequences, according to the interest or level of expertise of the viewer.

The difference between Bio 20 in a live lecture and Bio 20 as produced a "GEN" is that the "GEN" version has better production values, and is greatly enriched with supplementary materials. Good lectures depend upon high performance values which involve students in a direct relationship with the lecturer. Any course may be negatively affected by poor room quality (sound, seat placement, equipment), hastily sketched illustrations or equations, or even a poor, extemporaneous, explanation, etc. An enriched "GEN" version, in addition to

being proof against such fundamental production problems, may have diagrams or links to primary and secondary material which make it an active area for exploration.

A way in which asynchronous instruction is not complementary to traditional modes of instruction is its impact on classroom attendance. Even under normal circumstances, there is a decline in attendance over the course of a semester. With the use of web technology, I now put all my PowerPoint lecture slides on-line and index them to my taped lectures. Students can link to my taped lectures from within the relevant slide. This means that although attendance may drop even more than usual, students can gain access to the information and can review at will. As an instructor, this places a greater burden on me to make class worth attending.

Asynchronous learning is most effective with traditional information-disseminating lectures and can even help stimulate discussion among students, TAs and faculty. In the case of threaded seminar-style discussions, there is good evidence that web-based technology can facilitate the quality and volume of discussions, especially for students who are normally too shy to speak up in class. I first learned this in the pre-web days of 1976 when I collaborated with Bob Scholes (Prof. Emeritus, Modern Culture and Media) on an experiment to test the value of technology in his Poetry seminar, under NEH sponsorship. We divided the class in three groups: one traditional and two control. Group #1 used traditional learning methods such as note-taking, texts from the library, etc.; [control] group #2 used some computer assistance with the traditional techniques; and [control] group #3 used FRESS, a hypertext system my students and I developed, for all their reading, writing, annotation and discussion. This was, to the best of my knowledge, the first example of a threaded, scholarly, on-line discussion group. Group #3 produced three times more discussion and written work than took place in groups 1 and 2. (For a fuller account of this experiment, see Catano, James V. 1979, "Poetry and Computers: Experimenting with the Communal Text." in *Computers and the Humanities*, 13 (9): 269-275.)

However, asynchronous learning does not compete with the Socratic method of lecturing where student response generates both the informational lecture and the discussion.

## **2. Will it be of value in the training of graduate students to teach with non-traditional methods?**

**van Dam:** Faculty, graduate and undergraduate teaching assistants face a huge, and growing, learning curve. Those faculty who are already up to speed will have to teach the teachers under their mentorship to rise to this challenge.

## **3. What impact do you think it will have on faculty teaching and research?**

**van Dam:** The impact will be enormous if faculty remain open-minded and if the University provides a "shop" where faculty can get assistance to develop innovative ways to use technology to enhance both their research and teaching.

The use of technology can integrate research and teaching more productively by blurring the traditional "boundaries" between them. Research and teaching function as elements of a continuum, rather than being mutually exclusive. In computer science we have found that we bring research results and research software, first into the graduate program and then into the lower level classes, and thus bring students into early and direct contact with basic research. Furthermore, many interactive teaching materials start out as useful tools for faculty research. Mathematica, for example, began as a research tool and now is a widely used teaching tool.

The opportunity to work with GEN will be appealing to faculty for at least two reasons. First, for faculty in areas such as the humanities, where outside consulting is rare, it may provide significant remuneration. Second, it will provide the human resources to produce and package a course in an enriched form, something that an individual faculty member, or even a department, couldn't afford to do on its own.

However, faculty should see the current GEN production of, say, an enriched Bio 20 as a transitional technology, in which the lecture remains the backbone of the learning experience. Others, including Tom Banchoff (Prof. of Mathematics) and myself, envision more radical uses of technology that emphasize student interaction with models at all levels. For example, one of the projects we have been working on in our computer graphics research group is called "exploratories," a name meant to suggest a cross between a laboratory (guided discovery) and a science-museum-style Exploratorium (unguided exploration). It is based on simulation (programmed in Java) and embedded in hypertext of explanatory materials. I use exploratories both in class to demonstrate concepts and also to assign them for self-study lab exercises after class. We are trying to create self-paced, engaged, learning in which students discover, conceive, and test hypotheses before they have to demonstrate mastery of the concepts in their programming assignments.

Colleagues are encouraged to investigate what we are doing at our exploratories site, which is being developed under the direction of Ann M. Spalter. (To find the site, go to [www.cs.brown.edu/research/graphics/research/exploratory/](http://www.cs.brown.edu/research/graphics/research/exploratory/) or contact [Anne.Spalter@Brown.EDU](mailto:Anne.Spalter@Brown.EDU)). We welcome questions about and feedback on both our project and/or this interview.

— R. S. MORE