Collaboratories for eLearning:
How Virtual and Physical Spaces Index Modes of
Working and Learning

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Abstract. This paper addresses the issue of new technologies for education, and in particular how the affordances of new modes of collaboration move, elide, and otherwise redefine the boundaries of learning. These shifting classroom boundaries correspond to changes in the worlds of professionals, both expanding possibilities and highlighting new challenges for education.

The research is based on analyses of my own participation as instructor in online courses that have brought together students interested in all aspects of library work, as well as teachers, and media and technology specialists. My goal in reporting on this work to help others think constructively both about how to improve new modes of multimedia, cross-disciplinary education and to articulate a framework for research and evaluation in the new pedagogical media.

Background

A collaboratory is a virtual environment that uses information and communication technologies to mediate communication among people who are separated across time and space, but share a common task or belong to a defined group (see Dorneich, 1999). An electronic bulletin board or email list could qualify under this definition, but usually, a collaboratory presents other features, such as interactive software, visualization tools, databases of resources, and member profiles, which facilitate the collaborative work.

As web-based courses become more prevalent and undergo continuing development, many are beginning to take on features of advanced collaboratories. Proponents argue

that these systems support the kinds of cooperative learning seen in face-to-face classes (e.g., Johnson & Johnson, 1994), and can even go beyond the usual face-to-face situation to support cooperative learning.

Method

This paper analyzes experiences in a series of university courses, but focuses on one in which the instructor taught a mostly face-to-face section and a mostly online section in the same semester. The two sections participated in a collaboratory, which included email, text conferences, audio/text conferences, streaming video, collaborative web site building, and interactive databases. A second course, now underway, has extended the collaboratory by adding collaboration across courses, disciplinary boundaries, and even semester designations.

The analysis includes both quantitative assessment of the use of various tools and qualitative analysis of student discourse in synchronous chat, asynchrounous web board, and web page communications.

Findings

The results to be reported include an account of how the collaboratory evolved from the introduction of collaborative tools into an organic system. As students made use of the tools, they began to change them. For example, an assignment to create a timeline entry metamorphized into web site < http://www.lis.uiuc.edu/~chip/projects/timeline.shtml>, which in turn facilitated collaboration between oncampus and online sections. That site later became a site for collaboration across campus departments, and recently across semesters.

A second aspect of the study to highlight is the creation of joint semester-long projects that again crossed the standard semester boundaries and the otherwise rigid boundary between undergraduate and professional students.

A third aspect will be to examine the discordances--those miscommunications, concerns, and misdirections that arise as new media for communication lead to new social arrangements, and eventually to challenges to academic or professional identities.

These three aspects will be documented in the paper both through quantitative analysis of message traffic and through more qualitative analyses of student discourse.

Significance

Richard Lewontin (2000) has made a persuasive argument that environments do not exist independently of living organisms. Essentially, he shows that the pertinent features that turn a physical space into an environment are often constructed by the organism, and perhaps more fundamentally, what counts as significant cannot be disentangled

from the needs and activities of the organism. Instead, a view of organic evolution as a constructive process is called for:

> the actual process of evolution seems best captured by the process of <u>construction.</u> Just as there can be no organism without an environment, so there can be no environment without an organism. (p. 48)

A similar case can be made for how new technologies enter in to social systems (see Bruce & Hogan, 1997). The results of this study support the argument that effects of learning technologies cannot be ascribed to specific technology features alone, nor to a static environment. Instead, they must be understood in terms of the information ecology--the embedding of those technologies in space-time relationships, the presence of other technologies, and the social relations surrounding their use (Nardi & O'Day, 1999).

This conception of new technologies for learning challenges conventional assumptions about context-free evaluation of curricula or teaching tools. More importantly, it challenges us to think more expansively about the possibilities for learning, especially for students about to enter or re-enter a work world that is itself undergoing dramatic changes.

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