Project CIRCLE: Student Mentors as a Strategy for Training and Supporting Teachers in the Use of Computer-Based Tools for Collaborative Learning

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Abstract

This presentation summarizes the training, strategies and results of the use of high school students as mentors to teachers who are implementing new computer-based tools for collaborative learning. The student mentors are an important component of Project CIRCLE, a unique university/public school partnership designed to explore the use of networked environments to support collaborative learning; and model constructivist uses of technology in the classroom.

Keywords — teacher, support, mentors.

1. Introduction

New tools to support collaborative intellectual work have transformed ways that people work and learn together in business, science, government and other settings. These tools are now being introduced into K-12 settings but their use poses two challenges. First, for many teachers it requires a significant change their role as teachers and the way they organize learning activities within their classrooms. Secondly it requires that they learn to integrate network-based tools for collaborative intellectual work into the instructional process. Both of these challenges are addressed by *Project CIRCLE* (**C**ommunity of **I**nformation **R**esources and **C**ollaborative **L**earning **E**nvironments), a collaborative university/public school project funded by the U.S. Department of Education Secretary's Fund for Innovation in Education. The broad goals of the project are to: 1) create collaborative knowledge-building communities among secondary students, teachers, administrators, university faculty and students, and outside experts, 2) explore the use of networked environments to support collaborative learning; and; 3) model constructivist uses of technology in the classroom.

The project involved the collaboration of an inner city high school (over 80% minority, low SES student population), a suburban high school and a college of education. A unique aspect of the project was the use of students as mentors and a support system for teachers in implementing the new network-based tools for collaborative learning. This presentation provides a summary of the project and the ways that students may serve as a support system for teachers in implementing constructivist uses of technology in the classroom.

2. Network-Based Environments for Collaborative Learning

The project provided participating high school teachers with access, training and technical support related to the following network-based tools and environments to support collaborative learning:

Daedalus is an integrated suite of programs that supports collaborative writing and encompasses all stages of the writing process, from brainstorming and prewriting to drafting and revising to final production.

Team Focus is a collaborative decision-making, consensus building tool developed by organizational management specialists for use in business and high technology settings. Under the direction of a team moderator, participants anonymously enter their remarks in an intense brainstorming session, then group and prioritize the results. Team Focus may then analyze the session results with power graphical and statistical tools.

TeachNet is a BBS environment to support between school and school-university collaboration. TeachNet uses the FirstClass client/server software. It provides a graphic user interface and a number of features to support both asynchronous and synchronous collaborative work among the partner schools. Teachers used TeachNet to share ideas, curriculum materials,

discuss problems and issues and to support inter-school collaborative projects. Students established their own bulletin boards based on collaborative projects, as well as issues and topics of interest to them.

Electronic Emissary is a "matching service" that helps teachers locate other Internet account holders who are experts in different disciplines, for the purpose of setting up curriculum-based, electronic exchanges among the experts, students, and teachers. The prototype Emissary program automatically copies, sorts, stores, and forwards project-related messages and generates usage data.

The above software tools and network-based environments were used primarily as scaffolding devices to help teachers move towards constructivist applications of technology and to help them shift their role from that of information dispenser and evaluator to that of facilitator, mentor, knowledge navigator and co-learner with the students.

3. Project Activities

During the initial year of the project, 6 teacher from each high school were recruited to serve as the core CIRCLE team. During the second year the core team was expanded to 12 teachers within each school . The teachers, all volunteers, represented all academic discipline areas. The principal investigators of the project included a university professor, a teacher and a school administrator. Three university graduate student research assistants provided additional training and technical support. Student mentors were a divers group of 9-12th grade students who were selected by teachers based on their interest in technology. The teachers were asked to include both "successful" and "at-risk" students as members of the student mentor teams within each high school.

Formal training sessions were provided to the teachers and students to introduce them to the collaborative software environments and learning models. Formal training for teachers was provided at the university Learning Technology Center (LTC) and informal training and technical support was provided on-site. Teachers received training for each software tool (e.g., Daedalus) that included both the technical and pedagogical issues related to its use. Student mentors received training at the university on the same software application (usually during the week following the teacher training workshop). The student mentor training focused on the technical aspects of setting up and managing the software environments as well as strategies for mentoring teachers and students in the use of the collaborative learning tools. Both the teacher and student mentor training workshops included collaborative and team-building activities as part of the process. Following the training, the student mentors followed up by encouraging the teacher's use of the software tool and offering to set up the software application for the teacher's class and to assist them and the students in the use of the program.

4. Results

The student mentors have effectively served as a support system and a catalyst to get teachers to use the new technological tools within their classes. Many of the teachers reported that, despite what they perceived as very effective training, they still felt insecure in taking that first step in using the technology with their class. There was a lingering fear that they would make a mistake and that it would not work or go well. The student mentors took away much of the risk from the teacher by enthusiastically volunteering to set up the network and or software program for the class activity. The students, demonstrated little fear of failure and persisted until they solved the problem and were able to make the specific computer-based application fully operational. The following are some of the observations and results of the use of student mentors to support the teachers in implementing computer-based tools for collaborative learning:

- a large number of teachers not directly involved in the project have requested that they be assigned a student mentor during the coming academic year
- the student mentor training has now become formalized into a regular class (with academic credit) within the inner city high school
- the use of the high school student mentors has now extended to include the mentoring of middle school teachers and students in technology applications
- teachers and student mentors have both noted positive changes in the role and relationship of student mentors not only with the teachers but with students in the class. Many students who previously had low status within their classes are now recognized and valued for their expertise in the use of the computer tools
- teachers and students from the inner city school reported that the student mentors (from the predominantly Hispanic, low income student population) had few aspirations for higher education before the project, but many have now indicated that they would go on to higher education after completing high school. The teachers indicated that their on-campus experiences as well as in working online with college university faculty and students was an important factor in changing their views toward higher education.

- the use of student mentors has in some instances evolved beyond that of technology-related assistance. Teachers are reporting that student mentors have offered excellent suggestions and ideas for class instructional projects and activities that they helped implement with the teacher.

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