Creating technology-literate teachers for the 21st century

Collaborative partnering among funding sources, local schools, and Carthage College

by Prisca Moore and Eugene A. Engeldinger

When you walk into the Saemann Curriculum Resources Center in Ruthrauff Library at Carthage College, you are likely to see Carthage education majors creating lesson plans and preparing technology-enriched lessons for local schoolchildren or you might see the elementary and middle school students themselves conducting research on the Internet or creating multimedia presentations to share with classmates.

The Saemann Center was created to provide learning opportunities in a unique collaborative computer environment. Rather than the traditional one-student-to-one-computer-lab setup, this center is designed to facilitate several small groups, each working with a single computer. The primary goals of this program are twofold. First, the program provides current and future teachers with a model or "vision" of how students could use computers for collaborative group work. Second, it provides an opportunity for teachers to experience a different type of classroom arrangement where students can work collaboratively in a computer-intensive environment.

Multitiered partnerships

The Saemann Center is the result of several partnerships developed over a number of years. At one level, it is a partnership between the Saemann Foundation and the college. Over several years the foundation has made generous gifts to the college initially enabling the creation of the center and in the following years its maintenance and improvements. At another level, there is collaboration between the library and the Education Division, which supported the creation and maintenance of the Saemann Center in library space while incorporating the children's collection and the curriculum materials. Also, it encouraged collaboration among the several Academic Information Services units (library/computer center/media services) to develop and support technology resources for Carthage students preparing to be teachers in elementary, middle, and high schools. Another major collaborative partnership in this mix is between the Education Division at Carthage and several public and private schools in the Kenosha and Racine school districts. We have been fortunate in devel-

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oping partnerships with three other funding agencies in addition to the Saemann Foundation—the AT & T Learning Networks, the Johnson Fund, and the Wisconsin Foundation of Independent Colleges. Each of these foundations has provided financial support for critical aspects of our teacher education partnerships and created opportunities for professional development for our cooperating teachers. A final collaborative partnership worthy of mention is that between the cooperating teachers and our student interns. Truly, this is an important collaborative effort that does not always receive the appreciation it deserves.

Two groups of local middle school students explore the Internet and discuss the results as part of their collaborative projects in the Saemann Center of Ruthrauff Library at Carthage.

Without the cooperation and collaboration of all these important partnerships, little would have been accomplished. The combined efforts of this multitiered collaboration among distinct entities has allowed for the development of a first-class facility, the creation of technologically savvy new teachers, the retraining of mid-career experienced educators, and exciting learning experiences for K–12 students.

The mission

Our overarching mission is to create a learning environment in which Carthage student teachers can be exposed to a variety of technological applications and, ultimately, for them to become competent users of instructional technology. The goal of the Education Department is not simply to develop a set of technology skills. More important, we want to prepare future teacher leaders so they will have a clear "vision" of how they can more holistically integrate technology into their classroom curricula. The emphasis is on the use of technology as a tool for acquiring information via the Internet or from multimedia software and for sharing the knowledge they have acquired by preparing multimedia presentations and Web pages for their peers.

Our goals do not stop simply at preparation. We believe it is critical to provide a learning environment in which these future teachers have the opportunity to implement technology-enriched instruction with students over a range of grade levels and abilities. Rather than our engaging simply in the typical "observations" during their pre-student- teaching field experiences, our desire is to make special contributions to the schools as our partners in training teachers and providing dynamic instruction for K–12 students. These pre-student-teaching field experiences are an integral part of the curricula for our methods courses in content reading, mathematics, science, and special education. Essentially, the intent of these methods courses is to prepare Carthage students for planning, implementing, and evaluating technology-enriched instructional projects in the local schools.

Collaboration with the schools

Typically, the Carthage students spend the initial weeks of the semester acquiring and expanding their own skills in using a variety of technology applications. They prepare technology-enriched lessons that they will use with K–12 students. In the second half of the semester, they actually implement these lessons with students from our partnership schools. This implementation may take place in the partnership school labs or classrooms, but occasionally we bring the students to the Saemann Center itself.

We have found this to be exciting for teachers and students alike. The students enjoy the opportunity to work collaboratively in small groups developing multimedia presentations to share with their classmates. A bonus is the opportunity to use unfamiliar software and other technology, such as digital cameras, document cameras, projectors, and audio and video clips, that may not be available in their own schools. Their teachers have

the opportunity to "envision" lessons and instructional projects developed around multimedia technology. Such experiences support our goal to provide models or visions of the role technology can play in their curricula. In turn, this leads to the expansion of our partnerships with cooperating teachers in the local schools as the Carthage students and faculty bring something "new" to enrich and expand their curricula. To ensure that we are on track with our planning for these field experiences, we engage in explicit conversations with the cooperating teachers about the technologies they would like to see used with their students.

Taking materials to the schools

So, how does this actually work? First, the Carthage students develop instructional materials to "take out" to the partner schools. For example, in the science methods course, students have created hyperstudio presentations depicting the life cycle of a frog for third grade students. The third graders use this hyperstudio presentation as one source of information for the classroom presentations they develop. But it also serves as a model for the hyperstudio presentations small groups of students create themselves at the culmination of the science unit. Carthage students take digital cameras to their field experience classrooms to document the students' work and then incorporate their pictures into hyperstudio presentations to show the various activities that the elementary and middle school students complete during the instructional project. Carthage students have created Web sites to be used with elementary, middle, and high school students and to guide the students' research on the Internet. Carthage students conduct extensive research on the Internet to find high-quality Web sites at the appropriate level and then create a customized Web page to guide their students to the best of them. Carthage students also work collaboratively with high school students to develop their school Web site by providing instruction and ongoing support in using the Web page editors. In this way, high school students learn how to create and maintain Web sites.

Students from a local middle school discuss their project findings as part of their collaborative computer work in the Saemann Resources Center.

Bringing students to Carthage

A second critical activity in our collaboration with the local schools is to bring students onto the Carthage campus to use our computer labs. As stated previously, we have richer technology resources at Carthage than those found in many of our local schools. An example from the AT & T Learning Network project involves Carthage students in the science methods course creating lessons in which fourth-grade students are brought to campus to "take a trip to Mars" using a simulation available on the Internet from NASA. The fourth-grade students work through this simulation and then break into small groups to study different aspects of what would be needed to create a colony on Mars. They locate pictures on the Internet to incorporate into their word-processing documents. Finally, the small groups combine their individual "chapters" to create a class book to share their knowledge of Mars.

Another example from our math methods course involves Carthage students working with small groups of middle school students to develop and conduct surveys in their school. The Carthage students guide the middle school students in collecting and collating their data. Then the middle school students come to Carthage to use Microsoft Excel to enter their data and create graphs to show their findings. Finally, the graphs were incorporated into presentations created with Microsoft's PowerPoint program and shared with the students' peers.

We have found these trips to the Carthage campus to be invaluable learning experiences

for the K–12 students and their teachers. Also, it is important to note that this is frequently the first college campus that the K–12 students have visited, and their enthusiasm for "going to college" is a visible result of this experience.

Although student teachers from Carthage are not required to arrange field trips to the Saemann Center for their classes, we are finding that more and more of them do so. Remarkably, we have found that even graduates of our teacher preparation program are reserving the lab facilities and bringing in their students.

Professional development for teachers

A third element of our collaboration has been to provide professional development to teachers in the local schools. We have held numerous workshops and institutes for teachers in our Saemann Center. Even more important, the Carthage education students have been major participants in these workshops by sharing sample products they have created with a variety of software applications, by sharing the instructional Web sites they have created, and by providing one-on-one support to the teachers participating in the workshops. In fact, the workshops have been so successful that we plan to integrate them regularly into our methods courses. It is just one more extension of the idea of providing the cooperating teachers with visions of different uses of technology to create powerful, motivating instructional experiences.

We have been pleased with our progress toward developing community partnerships and promoting technology-enriched instruction in the local schools where Carthage students conduct their field experiences. There can be little doubt that a program as ambitious as this one could not have been implemented and maintained without collaborative partnerships among a number of groups and individuals. The success of these programs illustrates very clearly that collaborative partnerships truly are an essential means of achieving our goals. ■

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(http://www.rc.umd.edu/pubinfo/prospectus.html). The Publications section "houses Cambridge University Press @ Romantic Circles, a joint experimental site devoted to finding productive ways to fuse the worlds of hypertext and print publication. This site allows users to read the full text of select chapters from texts currently available from Cambridge University Press, as well as conduct keyword searching of the entire texts. It is our hope that these resources will serve as valuable tools for scholars who are already working with the featured texts and for those who are considering purchasing them."

The *portal* editorial board and JHU Press intend to draw on these and other best practices to build a larger e-environment that will help us push the discussion about academic libraries more rapidly, to test ideas and prototypes even as we experiment. Information technology has great potential for improving discipline communications. Change pressures in libraries mandate that librarians optimize discipline communications. Librarians worldwide can participate in this change by submitting to *portal*, subscribing to *portal*, reading *portal*, and going through this *portal* into the future.

Notes

1. Denise K. Magner, "Seeking a Radical Change in the Role of Publishing," *Chronicle of Higher Education* (June 16, 2000). Available online at http://chronicle.com/free/v46/i41/41a01601.htm. Ray English and Larry Hardesty, "Create Change: Shaping the Future of Scholarly Journal Publishing," *C&RL News* 61 (June 2000): 515–18. Available online at http://ww.ala.org/acrl/scholarlycomm.html.

2. English and Hardesty, "Create Change," 517. Acta Metallurgica Governor's meeting. Kauai, Hawaii, June 2, 2000. ■

Correction

Tami Echavarria is coordinator of instructional services at Whitworth College. She was listed incorrectly on p. 316 of the March 2001 issue of *C&RL News*. The editors regret the error.