Chapter XV
Delivering Online Asynchronous IT Courses to High School Students: Challenges and Lessons Learned

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ABSTRACT

As high schools begin to offer more distance learning courses, universities have an opportunity to establish partnerships to deliver online IT courses. Delivering online courses at the high school level, however, means overcoming obstacles that may not be faced at the university level. In particular, establishing partnerships with high schools requires politically savvy navigations of bureaucratic roadblocks while ensuring the integrity of course content and delivery. This chapter provides a primer on establishing relationships with high schools to deliver college-level IT curriculum to high school students in an asynchronous learning environment. We describe the curriculum introduced and discuss some of the challenges faced and the lessons learned.

INTRODUCTION

In this chapter, we describe the CyberTech I program, a National Science Foundation (NSF) funded initiative which delivers university level introduction to IT curriculum online to nine schools in a large metropolitan area in the southeastern United States. Delivering online curriculum to U.S. high school students (grades 9-12, with approximate ages between 14 and 18 years old) provides university educators with unique challenges. Unlike the college environment, in which professors have local autonomy over curriculum delivery and instruction, public high school curriculum has rigid standards that must be achieved, along with guidelines on methods of delivery. Forming a politically savvy team aware of how to navigate the high school environment is a must for ensuring successful establishment of partnership endeavors.

The applicability of this type of program to similarly structured university-high school partnerships is obvious. However, lessons learned in the CyberTech I program may also assist university faculty members who coordinate introductory online courses with large numbers of students and teaching assistants.

BACKGROUND

In U.S. public school systems, IT-related courses often fall under "Career and Technology Education" or "Business Education" departments. This positioning gives IT courses a distinctly different and typically lower regarded position than other mathematics and science courses. Often, students encouraged to take career and technology education courses select a noncollege-prep track. Moreover, since many of the teachers in these departments have a primary background in business, they may find it difficult to teach an advanced IT course, leaving students unable to take more advanced courses, such as advanced placement (AP) computer science, at their own schools.

In January 2005, we partnered with nine schools in a large metropolitan area to deliver an online introduction to IT course to high school students. University initiatives to deliver IT-related courses in the high schools have proven successful in Finland (Grandell, 2005), where five different college-level courses were offered at the high school level. Moreover, a community college in Pennsylvania successfully partnered with high schools to offer college-level computer information systems courses with significant success (Harvey, 2004). In addition to the goodwill established between high schools, students, and universities, programs such as these offer the ability to expand curriculum offerings at high schools significantly (Donlevy, 2003). Since 25% of public high schools have distance learning alternatives, and 19 states have virtual high schools (Mupinga, 2005), partnerships between colleges and high schools may become more commonplace. Distance learning has even expanded into the elementary level in some cases (Anastasiades, 2003), with a great deal of success.

After establishing a partnership with local school systems, we then had to decide which online learning management system to use. We considered WebCT, Blackboard, and Moodle. We needed to use a flexible, Web-based learning management system for several reasons. First, some of the schools were unable to offer the course during the regular school day. Therefore, we needed an asynchronous method to communicate with students on a 24/7 schedule. Second, those schools who did offer the online class during the regular school day met at different times and in different locations. Obviously, Web-based solutions offer the ability to reach a geographically dispersed population at different times.

CyberTech I PROGRAM

The CyberTech I program seeks to attract women, minorities, first-generation college students, and other underrepresented groups into technology related fields. CyberTech I is the first course that selected freshman high school students take, culminating with AP computer science in their senior year. In the middle years, students participate in SummerTech, which teaches basic programming skills and logic using VB.net, followed by Weekend Academy, an adventure game programming seminar that meets once per month throughout the student's junior year of high school. Finally, students are encouraged to take AP computer science in their senior year, and the grant pays all testing fees. This chapter will focus on the issues surrounding successful implementation of the 75-hour, one semester (18 weeks) CyberTech I initiative, including the lessons learned and challenges.

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