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Abstract

This paper addresses the needs to provide more technology integration curriculum for K-12 in-service teachers. The Learning Technology M.A./Certificate Program is a cohort—based learning opportunity that consists of a series of courses to facilitate the process of integrating technology into curriculum for in-service teachers. This paper introduces the development, content, and implementation of the LT Program.

I. Introduction

Many studies have indicated that the lack of tech-savvy teachers is the major roadblock to a fully integrated technology classroom. In 1998, an analysis on the use of technology in Washington public schools reveals that the “availability and time for training were cited as impediments to the effective use of technology in the classroom” (Friedman & Erickson, 2002). In 2000, the follow-up analysis discloses a major concern shared by the principles was “sustainability—having adequate support staff to maintain present equipment and resources to replace obsolete equipment— as well as training” (Friedman & Erickson, 2002). One of the key findings from a 1999 technology survey confirms that teachers with more technology training are more likely to feel better prepared in using technology than teachers with less or no training. In addition, training on how to “integrating technology into curriculum” has a greater influence on teachers than “basic technology skills” training when it comes to how they use software or technology. In terms of average hours received for training, some 42 percent of teachers received six or more hours of basic-skill training in 1999, whereas only 29 percent of teachers received curriculum-integration training (Educational Week, 1999).

These surveys and research point out that more curriculum-integration technology training for in-service teachers is needed. A study by National Center for Educational Statistics (NCES) has found that only 44 percent of new teachers (three or fewer years in the classroom) consider themselves well-prepared to use technology (NCES, 2001). If the new teachers who have attended the teacher preparation program in the past few years still feel under-prepared for using technology, the in-service teachers who have been teaching for more than 10 or 20 years without recent training in technology would need more training opportunities in the integration of technology. In recognizing a lack of a comprehensive curriculum-integration technology program for the in-service teachers, the University of St. Thomas established a Learning Technologies M.A./Certificate Program (hereafter the LT Program) for educators who want to be better prepared for the integration of technology into curriculum. The goal of the program is to develop
technology-savvy teachers who will be role models for others in infusing technology into K-12 environments. The following sections introduce the program objectives, framework, content, and the implementation.

II. Program Overview
The LT Program is a series of well-designed, technology-intensive graduate level classes for in-service teachers. The certificate program can also be part of a M.A. program in the Department of Curriculum and Instruction at the School of Education. The program introduces a variety of cognitive learning theories as the foundation for developing effective instructional strategies for adapting various cutting-edge learning technologies, including desktop publishing, presentation tools, web development, digital media, and video production. This program addresses the International Society for Technology in Education (ISTE) National Educational Technology Standards (NETS) for Teachers and Students. Participants apply NETS in the development of an electronic portfolio that contains lesson plans, instructional strategies, and educational resources for the integration of technology into curriculum.

The LT certificate program consists of four three-credit courses that can be completed in one year. The courses are designed to increase in-service teachers’ skill, knowledge, and attitudes regarding technology integration. Courses are taken in specific order as each course is built upon the knowledge accumulated from the previous course. The first course is on the introduction to learning technologies, in which participants are introduced to the contemporary learning theories as they apply to their curriculum and a variety of learning technologies to support constructive learning within the framework of student learning needs. Participants also develop a personal learning plan and a technology-enhanced project in their own disciplines. The second course is titled “Internet Website and Educational Software Evaluation.” This course assists the educator in acquiring the knowledge and experience necessary to evaluate educational software, as well as websites on the Internet. Participants apply that knowledge in the location and use of informational and interpersonal resources found on the Internet. The scope of this course includes ethical implications for using the Internet as an instructional and educational tool. The third course is titled “Design and Development of Digital Media.” In this course, learners develop theories and applications in multimedia design and asset creation using a variety of digital media that support curriculum needs and objectives. Digital media can include cameras, scanners and digital editing systems. Resources explored in earlier courses are integrated into presentation and authoring applications such as productivity tools, multimedia applications and mind tools in the classroom. The fourth course in the series is “Integrating Technology into the Classroom and Continued Learning.” This capstone course focuses on technology that supports the constructivist theory of learning and teaching, enhances student learning and helps teachers with instructional strategies that regard learners as agents of their own learning. Technology can supply essential tools to meet the demands of student learning in the 21st century. Students must be able to construct knowledge, gather, organize and interpret information, assess their learning and communicate their learning to others. Participants practice implementing their technologies in interdisciplinary and collaborative learning activities in their content areas to increase student motivation and achievement.
For students to receive a Mater of Arts in Learning Technology, they need to complete a total of ten three-credit courses. In addition to the four courses in the LT Certificate Program mentioned above, they will also complete course works in special topics in technology, theories of cognition for instruction, educational program evaluation & research, internship, and two electives.

III Implementation
The LT Program has been established for two years since its inception in March 2001. The development of the LT Program has taken the following factors into account:

1. Time: With the busy schedule of most in-service teachers, it is almost impossible for them to travel to the University campus to take the courses during weekdays. For the teachers from greater Minnesota, the long-distance drive to campus is also one major obstacle for them to receive advance training in technologies. The LT Program is a cohort-based program in which students move through the program as a group or cohort during evening or weekend hours. When teachers from the same or adjacent school districts are admitted to the program as a cohort, the faculty members from the School of Education travel to off-campus sites to offer the series of courses provided the on-site facilities are adequate for instruction. The time-flexibility enable teachers to finish the intensive courses in a shorter time frame right in their own school districts without fighting the traffic to the University campus.

2. Specific needs: The content of the program is customizable to meet the needs of the teachers at different school districts. A survey is conducted at the beginning of each cohort to identify teachers’ current interests and needs before the instructional sessions. The training is geared to the identified needs of the target audience of teachers without diverting from the core content of each course. Instructional strategies are developed to fit the various learning styles.

There has been increasing demand to include the Learning Technology Certificate Program as part of the MA program in the cohorts from different school districts as technology competencies have become an essential part of the teaching credentials. In the 2002-2003 academic year, the certificate program is included in the M.A. programs of four cohorts. Six cohorts have completed the technology certificate program. Close to 300 students have participated in the LT program. An updated description of the LT Program can be found at the department web site: http://www.stthomas.edu/education/candi/ltma.html.

IV. Conclusion
Various degrees of technology training have been provided by school districts or universities to the in-service teachers. Most teachers who have received a few hours of basic training still find themselves under-prepared to introduce technology into the classroom. The flexibility of time, location, and content of the LT Program has facilitated the needed comprehensive training for in-service teachers in geographical-dispersed locations. A comprehensive action research of the LT Program will be implemented in
the academic year of 2003 to provide more insight into the process of integrating technology into curriculum in K-12 environment.

References