A Model for Integrating Technology into Teacher Education: One College’s Journey

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While it is not unusual to find a technology course in education programs across the United States, it is far less common to find an education program that has integrated technology into every aspect of that program. This is what is unique about Hope College’s Education Program. Over the past 10 years, a model for infusing technology into all aspects of the teacher education program has evolved. Mehlinger and Powers (2002), believe in “the need for a model that brings together technology standards, other teaching standards, and the teacher education program” (p.116). The Hope College Technology Integration Model does just that.

A small liberal arts college located in Holland, Michigan, Hope has an enrollment of around 3,000 students. Approximately 150 students graduate each year with teaching certificates. Teacher certification is offered at both the elementary and secondary level, and each graduate must meet all requirements of the integration model.

Over the past decade, technology has become an integral part of teaching and learning for both students and professors. It is no longer intentional; it is automatic. The International Society for Technology in Education (ISTE) first guided the way and provided the framework for the integration model through their Foundation Standards. In 2000, this integration model was aligned to meet the National Educational Technology Standards for Teachers (NETS*T; ISTE, 2000). This article shares the 10-year effort toward the unification of technology, teaching, and learning within the conceptual framework of the Hope College Education Department.
This journey began when one faculty member, Susan Cherup, who was very interested in technology, applied for a sabbatical leave to explore how technology was being used in public schools and universities throughout the United States. Sites selected to visit were found in “Interface,” a national newsletter of the IBM Teacher Preparation Grant Schools that showcased the use of technology in teacher education programs throughout the country. While on sabbatical, Cherup received a copy of the ISTE Foundation Standards from her department chair, which provided some guidelines for this exploration.

One of the stops during this semester sabbatical was to attend the Technology and Media Conference in Hartford, Connecticut. While at the conference, contacts were made with several leaders in the field of technology education. With the guidance of these persons and the “Interface” list, schools from elementary through high school along with institutions of higher education were visited to observe how technology was used for teaching and learning. Upon returning from sabbatical, Cherup formed a technology committee consisting of the college media specialist, preservice teachers, and area public school teachers. With the help of a faculty development grant and the input from this committee, technology mission and policy statements were developed. These statements were presented to education department faculty who agreed in concept to these two documents.

Over the next 5 years, with much encouragement and support from the media specialist, the administration, and the Computing Information Technology Services, the integration of technology into the coursework of preservice teachers began to occur. The most important factors in bringing this technology integration to fruition was that faculty members were encouraged to integrate technology into their current course content rather than attempt to add technology and change the design of the course. This concept of ownership became the Technology Integration Model’s biggest selling point. Following the suggestion of Cherup & Linklater (2000) that one of the challenges in integrating technology is the perception by faculty “that technology will add another requirement to a course already filled with too many requirements” (p. 20), the committee was very careful to make sure that faculty members felt they had the power to decide how to integrate the technology standards into their coursework.

Hope College began integrating technology into its teacher education curriculum in 1993, using the aforementioned ISTE standards. These standards represented the best and most innovative thinking by educators
regarding what teachers needed to know and to be able to do with technology for teaching and learning. The standards allowed the Education Department at Hope to begin the infusion of technology into the entire teacher education program, and they provided valuable direction. In 2000, NETS*T evolved from the ISTE standards. Hope’s integration model was again refined to accommodate these changes. Rapid changes in technology, growth in the use of technology in the classroom, and the expanded use of technology in the workplace and in society were some of the factors that drove these changes. Further technological changes are inevitable, and education programs must be reassessed and upgraded to keep pace with these changes. The Hope Technology Integration Model does this.

Concurrent with infusion of the technology standards has been the development of the Education Department’s conceptual framework, a statement of purpose, which guides the teacher education program. This framework includes core values, candidate proficiencies, conceptual orientation to teacher education, knowledge bases, commitment to technology, commitment to diversity, an assessment plan, and student appeals and support committees.

The Education Department is committed to preparing preservice teachers who can serve as leaders in modeling the effective use of technology in the classroom. The department faculty chose to infuse technology into the entire teacher education program rather than devote a single course to this topic. Cherup & Linklater (2000) discussed the concept of separate technology courses versus inclusion of technology throughout a program. They said, “Students gain a working knowledge of the technologies and learn how they can support and enhance learning within the framework of course content,” when technology is infused rather than taught in a separate course (p.19).

The Hope College Education Handbook (2002), stated, “The teacher education program at Hope College has been uniquely and intentionally designed to prepare beginning teachers with the knowledge, skills, attitudes and values necessary to make and implement professional decisions in a changing world.” (p. i). This program is articulated across three levels:

Level I – Choosing Teaching: Preservice teachers explore what it means to teach and determine if they want to pursue a career in teaching.
Level II – Learning How To Teach: Preservice teachers learn the theory and pedagogy of teaching.
Level III – Teaching/Clinical Practice: Preservice teachers apply knowledge and skills in student teaching placements.

Both certification levels, elementary and secondary, have a required sequence of courses and, thus, are developmental in nature. In addition, each course preservice teachers take has an accompanying field placement. Department faculty members have designed these clinical experiences to integrate theory, practice, and technology in meaningful ways.

The NETS*T are integrated into each course and field placement at every level. Students’ experiences, expectations, and assessments have been designed to integrate the NETS*T and the Entry-Level Standards for Michigan Teachers (ELSMT; Michigan State Board of Education, 1993) into a seamless model. Therefore, Hope’s Technology Integration Model truly fulfills Mehlinger and Power’s (2002) requirements by addressing technology standards, teaching standards, and a teacher education program.

Hope’s Technology Integration Model may be found at the following website: http://www.hope.edu/academic/education/cherup/award/. With the accomplishment of meeting the NETS*T, all preservice teachers have also met the technology standards set forth by the ELSMT. The National Educational Technology Standards for Teachers include:

I. Technology Operations and Concepts
II. Planning and Designing Learning Environments and Experiences
III. Teaching, Learning and the Curriculum
IV. Assessment and Evaluation
V. Productivity and Professional Practice
VI. Social, Ethical, Legal, and Human Issues

Examples for Levels I and II for each standard are provided where possible. It is expected that each of the standards will be demonstrated at Level III, Teaching/Clinical Practice.
Standard I—Technology Operations and Concepts

At Level I, preservice teachers formulate their reasons for choosing a career in teaching. Through oral presentations, using a multimedia format, they share their career choices. These presentations challenge them to demonstrate a sound understanding of technology operations and thoughtfully and effectively communicate their ideas. At Level II, preservice teachers build on their technology skills as they present projects and deliver presentations using technology and at Level III, these skills are put into practice in the teaching/clinical practice setting (student teaching). Photos of preservice teachers demonstrating their proficiency in using technology hardware and software can be seen at http://www.hope.edu/academic/education/cherup/award/orange1.pdf

Standard II - Planning and Designing Learning Environments and Experiences

A thorough study of assistive technology is done at Level I. Preservice teachers learn about legislation that requires assistive technology to be considered for students with disabilities. They learn that technology must be used if it allows students with disabilities to do something they could not otherwise accomplish (Hallahan & Kauffman, 2000). Preservice teachers recognize that assistive technology devices are not stand-alone guarantees of student success but rather are to be used in combination with good pedagogy, a solid knowledge base, and dedicated, caring teaching, (Symington & Stanger, 2000). In both elementary and secondary settings and at all three levels, preservice teachers are prepared to be curriculum developers in order to help all students learn. They understand the role technology plays in helping students with disabilities learn and at Levels II and III they incorporate technology into lesson planning as appropriate. Rapid changes in the school curriculum, as well as the importance of content standards, are fully understood by preservice teachers. The following websites show how preservice teachers at Levels I and II demonstrate proficiency in Standard II of the NETS*T:

http://www.hope.edu/academic/education/cherup/award/
225collectionofexperiences.pdf

http://www.hope.edu/academic/education/wessman/
Standard III - Teaching, Learning and the Curriculum

The Hope College Education Department’s Technology Mission Statement, guarantees that

All participants in the Hope College Teacher Education program will demonstrate knowledge of and an ability to evaluate, select, apply, integrate and manage electronic information during the three program levels. Instruction in technology and use of technology is infused throughout the teacher education program on a developmental basis and consistently reflects changes in the technological landscape.

Hope’s Technology Policy Statement assures that

Faculty will introduce and model compliance with the National Educational Technology Standards for Teachers (NETS*T) and the Entry-Level Standards for Michigan Teachers (ELSMTP). Coordination in these instructional areas will occur at the three levels of the teacher education program.

Therefore, throughout the three levels of Hope’s education program, faculty members strive to remain abreast of current technologies and model technology use in a variety of ways, such as Discussion Board, multimedia presentations, Internet resources, digital cameras and digital video cameras, SMART Board, and electronic gradebooks. All faculty members use at least one of these technologies in each class that they teach. For example, professors in Level II demonstrate electronic gradebooks. Preservice teachers then are required to use these same technologies, and others, in class assignments and field placement settings. McNally & Etchison (2000) said that by using these technologies preservice teachers learn how to
streamline their workload. We expect that these preservice teachers will be comfortable with, and prepared to use, these technologies in their student teaching placements and later in classrooms of their own. A gradebook, modeled by professors and used by preservice teachers at Level II, may be viewed at http://www.hope.edu/academic/education/wessman/Secondary_Block_Revised/nets13/index.htm.

At all levels in the education program, preservice teachers plan, prepare, and deliver presentations to the class. In small groups they design lessons on such topics as assistive technology, inclusion, teaching methods, and classroom management, which they then teach to the class.

Directions for one group presentation may be viewed at:

http://www.hope.edu/academic/education/cherup/award/grouppresentationdirections.pdf

A group presentation example may be viewed at:

http://www.hope.edu/academic/education/cherup/award/cp225-group_presentations.html

A rubric for assessment for one group presentation may be viewed at:

http://www.hope.edu/academic/education/cherup/award/rubricforgrouppresentations.pdf

**Standard IV – Assessment and Evaluation**

Beginning in Level I and continuing through Levels II and III, preservice teachers learn to value the role of self, peer, and instructor assessment. This process has been facilitated by the use of technology to design assessment instruments and gather and analyze data to improve learning.

The Hope College Technology Assessment Plan developed by the education faculty requires preservice teachers to demonstrate proficiency in meeting the NETS*T in individual education classes, in the Education Department Assessment System, and through the evaluations of the cooperating teacher and college supervisor during the student teaching placement in Level III.
Assessment of the NETS*T and ELSMT at Level I is measured by having students demonstrate proficiency through individual multimedia presentations of their field placement settings.

An example of an individual presentation at Level I may be viewed at http://www.hope.edu/academic/education/cherup/award/earlychildhood.pdf

The individual presentation rubric may be viewed at http://www.hope.edu/academic/education/cherup/award/revised_rubric_prof.pdf

An example of an individual presentation at Level II may be viewed at el:http://www.hope.edu/academic/education/cherup/management/stacks/s02/cortez.stk

(Note: This file is a HyperStudio stack. You can download HyperStudio by going to Hyperstudio.com and clicking on “Plug In Quick Start.”)

The evaluation from the cooperating teacher at Level III may be viewed at:

http://www.hope.edu/academic/education/cherup/award/student_teacher_eval_hl13.pdf

A student-led technology committee is examining the use of electronic portfolios. Barrett’s (2000) extensive research in the development of electronic portfolios is being used to guide the work of this committee. It is hoped that, eventually, these electronic portfolios will monitor preservice teachers’ progress as they move through the three levels of the education program.

**Standard V - Productivity and Professional Practice**

Scholarly research changed dramatically with the advent of technology. Current preservice teachers would find it cumbersome, frustrating, and almost impossible to complete the requirements for teacher certification without using technology. Research no longer consists of going to the library to sign out a book but rather accessing the library online. This has allowed
preservice teachers to access information from around the world and become scholarly educators. Reading professional journals and gathering information for group and individual presentations as well as research papers, begins the process at Level I that continues through Levels II and III. An example may be viewed at:

http://www.hope.edu/academic/education/cherup/award/220directions.pdf

**Standard VI - Social, Ethical, Legal, and Human Issues**

All preservice teachers at Hope College are required to take Education 225, The Exceptional Child. In this course, students learn about assistive technology and how it can empower students with disabilities. An example of assistive technology may be viewed at:

http://www.hope.edu/academic/education/cherup/award/blue24.pdf

Sharp (2002) commented on the importance of discussing ethical issues, crime, software piracy, viruses, security, and health risks in using computers. Professors plan for and incorporate these issues into class discussions. An example of a professor planning for a class discussion on ethics for Level III students may be viewed at:

http://www.hope.edu/academic/education/cherup/award/zwart500.pdf

It is obvious that the thoughtfully articulated *National Technology Standards for Teachers* were vital to the development and implementation of Hope College’s Technology Integration Model. However, other essential conditions were necessary for the model to be functional and effective. Administrative support, access to current hardware and software, a willing education faculty, and professional and technical assistance all came together to support the creation of the Technology Integration Model. Second, the findings of a sabbatical leave by an education faculty member, subsequent faculty development grants, a partnership with the Corporation for Public Broadcasting, and the work of the technology committee were instrumental in the early years. Perhaps the last and most important aspect of the integration process was the preservice teachers who were always eager to learn. Without their energy, enthusiasm, and willingness to take risks, the Technology Integration Model would not have succeeded.
References


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