Technology Integration into Preservice Foreign Language Teacher Education Programs

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ABSTRACT

Using national technology goals and standards, and institutional factors as a framework, this article describes the planning process and the initial phases of the implementation of a model of technology integration into the foreign language preservice teacher education program for K-12 teachers. It also provides suggestions for instructional goals and subject-related content areas for a curricular component on technology for foreign language teachers.

KEYWORDS

K-12 Preservice Foreign Language Teacher Preparation, Technology Integration into Foreign Language Curricula, Technology Standards, Curriculum Development

INTRODUCTION

Just as foreign language (FL) educators had to come to terms with the proficiency movement, student-centered teaching models, performance-based instruction, and national standards in the 1980s and 1990s, today's teachers are inextricably caught in the web of technological advances that affect teaching and learning a second language. They are supposed to learn “how to use a variety of new technologies and applications, to redesign their curricula, to apply technology in ways that meet their instructional goals and the needs of their students, and to assume new roles as tutor, manager, and assessor” (Otto & Pusack, 1996). There lie big challenges ahead for our profession, whether we are currently teaching foreign lan-
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... a two-headed monster. They [teacher educators] must prepare future teachers for classrooms that will undoubtedly include technology, and in order to do this, they must also prepare themselves to use technology" (Novak & Berger, 1991). While this quote restricts itself to the technological aspects of teacher preparation, it does not address the enormous institutional challenges that teacher education programs have to undergo if they want to integrate technology into their curricula rather than to add it on as an isolated curricular component.

Like many other institutions, the University of Northern Iowa (UNI), being one of the major institutions of higher education in the state charged with preparing future teachers and with linking the institution with teachers in the field, had to respond to the new realities. In the area of FL studies, the Department of Modern Languages had to ask itself how it could face the larger question of redesigning its curriculum to integrate current technologies in the teacher preparation process. This larger question sparked a trail of subsequent questions, issues, and concerns related to staffing, facilities planning, faculty development, funding for equipment, instructional design, and technology resources.

To pave the way for curricular revisions, research had to be done to allow us to make informed decisions and to answer complex questions such as the following: How do existing conditions in the teacher education sequence at our institution frame the deliberations for new curricular models? How can professional trends, such as proficiency-oriented teaching, national teaching standards, accreditation processes, and educational reform efforts, be dovetailed with the emerging issues of technology integration in the curriculum? How can we provide the necessary faculty expertise? Which technology integration model is the most suitable for our foreign language teacher education program, and which model can we adapt within a relatively short period of time? In view of these questions, we identified four major areas that were central to redesigning the teacher education components of our curriculum:

1. Responding to newer technologies and changing educational paradigms;
2. Researching technology integration models;
3. Reviewing national technology goals and standards for teachers;
4. Linking national technology goals and standards, integration models, and instructional content.

Focusing on these four areas, this article documents the nature, the scope,
and the issues involved in the planning for the new curricular model of our teacher education sequence; how this model was shaped by internal and external considerations; and how the implementation process was affected by these factors. Furthermore, based on national technology goals and standards, the article provides suggestions for performance-based course objectives and content areas for an integrated technology component in the preservice foreign language education curriculum.

RESPONDING TO NEWER TECHNOLOGIES AND CHANGING EDUCATIONAL PARADIGMS

Current technological advances have become the impetus for a large number of reform efforts for the U.S. education system. Two fundamental questions seem to frame the discussions about these educational changes. The first question, What technological skills will workers need in an information-based society? determines the teaching content across the various disciplines, whereas the second question, Can current technologies improve the way we learn and teach? explores technology as an instructional tool. This dual function of technology as instructional content and as instructional tool, as described by Fulton (1998), provides the underlying definition for the discussion in this section of what “technological fluency” or “technological literacy” actually means in the context of FL education and, consequently, for FL teacher preparation. Fulton states, “Today’s definition of technological fluency evolves from the intersection created by the technological pull [italics added]—that is, advances in what technology can do, and how it is used in the world beyond the classroom—as well as the pedagogical push [italics added]—changing views of learning reflected in the educational standards and assessments that drive instruction.”

The Technological Pull

Most educational visions for the next decades recognize the need for change in education due to the driving force of information technology “generating the great transformation of economic, political, and social life in recent years. Information has become central to every domain of human life and pervasive in every venue of human existence. Human beings have always had the task of obtaining, integrating, and using information as a basis for their thoughts and actions, but at no point in human history has day-to-day life for the preponderance of the population put them in such proximity with informational resources of the culture” (Bosco, 1995). Based on the premise that “success as a nation will depend substantially
on our students’ ability to acquire skills and knowledge necessary for high-technology work and informed citizenship” (Getting America’s students ready for the 21st century, 1996), the U.S. government issued the “Technology Literacy Challenge” calling for every young person to enter the workforce technologically literate in the 21st century. (See National Goals and Standards for Teachers in Appendix A.) Consequently, students will have to develop new skills to use advanced technologies effectively in the “information-based society,” while schools in turn have to provide the necessary tools and training in the area of technology to prepare students for the challenges ahead of them.

What exactly are these new “skills” that are required of students in order to learn, work, and flourish in the digital age? According to the Department of Labor report What Work Requires of Schools, the Secretary’s Commission on Achieving Necessary Skills (1991) identified a core of basic skills, thinking skills, and personal qualities, as well as five competencies that are the “hallmarks of today’s expert worker:”

1. identify, organize, plan, and allocate resources;
2. work with others;
3. acquire and use information;
4. understand complex interrelationships;
5. work with a variety of technologies.

According to this report, preliminary studies show that the educational use of newer technologies, such as computer-based information and communication tools, linked with constructivist learning models help to prepare students better to meet the demands of a skilled worker in an information-based society. For example, the U.S. Department of Education claims that “[a]ccess to computer-generated simulations, videodiscs, the Internet, and software on CD-ROM offers students experiences available nowhere else—experiences that students will need for the 21st century. In fact, students with extensive access to technology learn how to organize complex information, recognize patterns, draw inferences, and communicate findings. … They exhibit superior organizational skills as compared to students in more traditional high school programs” (Getting America’s students ready, 1996). (See also The Secretary’s Commission, 1991; Carnegie Forum, 1986, President’s Commission, 1992.)

Even though, at this time, the FL profession cannot point to adequate research data indicating students’ higher performance level due to the use of educational technologies than without, and even though FL educators may question the effectiveness of applying technology in acquiring a second language (e.g., Schwartz, 1995), it is indisputable that the current, mostly computer-based technologies, are changing those professional profiles that include FL components. For instance, students who want to suc-
ceed in global market situations and in multicultural settings need to be trained in combining their technological skills with their linguistic and cross-cultural knowledge. The expansion of transportation and communication, the international trade growth, new international political orders, and the rising population of people who use languages other than English provide new global contexts for intercultural communications and require changing professional profiles that involve international standards, training, and accreditation (Brecht & Walton, 1995). Consequently, in an information-based society, workers of the 21st century also have to be able to make use of electronic communication tools in order to access, interpret, and evaluate information beyond their own linguistic and cultural borders.

This need for new "global communication skills" combined with the use of newer technologies not only strengthens the arguments for foreign language learning but also challenges traditional views of foreign language teaching and learning. For instance, Brecht and Walton (1995) argue that teaching "global communication management" strategies, in particular cross-cultural skills and self-managed learning, must play a greater role in preparing students for the future, and that, therefore, colleges and universities should be structured around two basic premises.

First and most commonly accepted, learning is lifelong; and so the instructional task of the formal educational system is to provide the students not only with a basic set of facts and skills, but also to enable students to manage new and developing knowledge throughout their lives. Second and less well understood, more and more knowledge is generated, stored, transmitted, and applied across cultural lines. Accordingly, success in any aspect of ‘knowledge management’ requires an understanding of sociological and cultural basis of knowledge as well as the skills to manage communications across cultural lines.

Brecht and Walton’s argument that in a global market the demand for cross-cultural skills will be greater than for foreign language skills seems to be confirmed by Fixman’s (1990) study in which companies were asked in which way(s) foreign language competence and cross-cultural skills played a role in their hiring practices. Even though this study was conducted on a very small scale, one preliminary conclusion that can be drawn from it is that most of these companies separated cultural and linguistic proficiency and valued cross-cultural skills more than language skills.
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The Pedagogical Push

The changing job profiles for an information-based society bring about a number of challenges for the educational system charged with preparing students adequately for these new roles. How can FL educators equip students with skills and cultural knowledge bases required in an information-based society? How can technology itself help to facilitate the learning and teaching process? And how can colleges and universities prepare FL teachers for effective technology integration into their curriculum and classroom activities so that they in turn can guide their students? In an effort to find answers to these complex and intricate questions, many FL experts, such as Nina Garrett (1991a), call for more fundamental research and stronger research paradigms in the area of language learning and processing. Garrett states, “The most important requirement is that teachers and students alike should have a clear and purposeful idea of how each use of technology is expected to contribute to language learning, and that, of course, begins with a clear notion of how language learning happens.” Indeed, we need to collect research data on a large scale and over a substantial period of time in order to investigate the effectiveness of computer-based technologies used to learn specific linguistic and cultural skills in specific learning environments, and even technology itself may be a valuable tool to collect and analyze research data. In addition, more research data (as well as closer collaboration between schools, colleges, and governmental institutions) are needed to clearly identify the challenges teachers and teacher educators may still be facing today when trying to integrate technologies into FL curricula and classrooms (see Bernhardt & Hammadou, 1987; Coleman, 1991; Jarvis & Taylor, 1990; Matthews, 1994; Schrier, 1994; Tedick & Walker, 1995). However, all of these questions about the effectiveness of various technologies in FL learning cannot be answered if we do not explore the potentials of the newer technologies by actually using them in the classroom.

The Need for Technology Training

Given the obvious benefits of current technologies, for example, access to an abundance of authentic multimedia resources via the Internet and the motivational influence they have on students, it is not surprising that more and more FL teachers use computer-based classroom activities. A recent national survey (Branaman & Rhodes, 1998) of foreign language instruction in elementary and secondary schools by the Center for Applied Linguistics reveals that in 1997 computer-based instructional materials were used by 41% of elementary schools with foreign language programs versus 14% in 1987 and by 57% of secondary schools with foreign
language programs versus 20% in 1987. While these numbers sound promising, the authors concede that they “do not have data on the effectiveness of technology in the language classroom.” In other words, we do not know what kind of computer-based applications foreign language teachers use, how (if at all) they are integrated into lesson plans and curricula, and most important, how much computer-based activities improve the learning environment.

While these numbers demonstrate a more than 50% growth rate within a decade, they also reveal that one half of the teacher population either does not have access to computer technologies, does not have adequate training in evaluating, selecting, applying, and integrating technology into the FL classrooms and curricula, or does not see the potential of technologies to enhance FL instruction. Access, then, does not merely mean sufficient computers for teachers and students but also “the need to modify the curriculum and train teachers to use new technologies appropriately” (Otto & Pusack, 1996).

Similar studies in education in general as compiled in a 1996 report by the U.S. Department of Education mirror the situation in the area of FL instruction. That report states that “[o]nly 14 percent of public school teachers had more than 8 hours of training (in-service or professional development programs) in the area of educational technology in the 1993-94 school year,” and “as many as 50 percent of teachers had little or no experience at all with technology in the classroom” (Getting America’s students ready, 1996; see also Milken Family Foundation & International Society for Technology in Education [ISTE], 1999).

Another national study about computer use in K-12 classrooms (all subject areas) by the governmental agency Office of Technology Assessment (OTA) shows that “overall, teacher education in the United States does not prepare graduates to use technology as a teaching tool” (Office of Technology Assessment, 1995). According to OTA, if teachers use computers, they generally use them for low-level tasks such as drills and word processing and that they do not sufficiently integrate them across the K-12 curriculum. Among the reasons for this inadequate technology integration into K-12 classrooms, OTA cites that most of the money is spent on hardware and software and very little on teacher training, that teacher educators and teachers are often unaware of the resources technology can offer them, that they struggle with technology integration into the curriculum, that new teachers graduate from teacher preparation institutions with limited knowledge of the ways technology can be used in their professional practice, and that federal government has tended to focus more on inservice than preservice education (see also Northrup & Little, 1996). The results of a report by Technology: The training of staff (1997) for the National Education Association confirm the findings by OTA by claiming that
at least 50% of today’s school teachers have not had adequate training and technical assistance in the area of technology. Only 18 states require technology training as part of their school teacher certification processes. Thus, many teachers enter the profession with only cursory exposure to computers as a learning or teaching resource.

All of these studies, including the results of the most recent report by the International Society of Technology in Education (ISTE), clearly demonstrate the need for preservice and inservice technology training that goes beyond the use of hardware and software (see Milken & ISTE, 1999). Drawing similar conclusions, Garrett (1996) summarizes that “[t]hey [teachers] also need a new in-depth understanding of how technology use affects teaching and learning. Very few teachers have had any preservice training, or more than an occasional conference workshop session, in how to evaluate the pedagogical design of existing software, how to think about pedagogical design when they want to author software, how to integrate students’ outside-of-class technology into their curriculum, or how to evaluate what technology use is accomplishing for their students.” But even though there are still many questions left unanswered as to how advanced technologies can be used most effectively in the FL classroom and as to how and by whom FL teachers should receive training in the use of technology, FL programs with teacher education programs have to react to the changing professional profiles of the workforce in globally oriented, information-based societies.

RESEARCHING TECHNOLOGY INTEGRATION MODELS

After establishing a rationale for the need of offering technology training for students in our FL teacher education program, the question of how the department could best integrate technology instruction into our existing program was addressed. Gillingham and Topper’s (n. d.) descriptions and critical analyses of four different technology integration models of teacher preparation in “flexible and adaptive technology use” were especially useful to us in determining which approach would fit our needs and would also be feasible at our institution:

1. Single course approach;
2. Program infusion approach;
3. Individual student performance approach;

These curricular models have been developed for teaching technology in
education and are, therefore, generic in nature, but their constituent parts are readily adaptable and applicable to technology curricula in FL teacher preparation programs. Research on these four approaches has revealed both benefits and drawbacks as the following condensed version of Gillingham and Topper's discussion shows.

**Single Course Approach**

One of the benefits of a single course approach is that it takes faculty workloads into account and is easy for students to enroll in and complete. The accomplishments are readily visible from a student transcript, and the course can be taught by expert faculty who have both knowledge in technology use in the classroom and in the subject matter. A single course approach is also easier to implement than the others because it is just an add-on to the existing curriculum. This last point has also an obvious downside because there is often times no room in the program of study to add a course, and, if such a course is added, it is often no more than a survey course of computer systems and software which does not provide enough focus on technology integration into the curriculum and classroom activities. And finally, Gillingham and Topper argue that a single course as a separate entity in the teacher education program gives students only a one-time exposure to technology, and its course content can be easily forgotten.¹

**Technology Infusion Approach**

In the technology infusion approach, aspects of technology are placed within each course of a teacher preparation program. Advocates of the infusion approach claim that the use of technology in educational settings “can no longer be relegated to a single technology course, separate from isolated workshops, or one topic in a given course. Technology must be fully integrated into college programs and its use modeled by faculty throughout the college, not just in the school/college of education” (Faison, 1996). According to Gillingham and Topper, the major benefit is students’ long-term exposure to technology and technology modeling within subject matter courses. However, on the downside, the technology infusion model suffers from inconsistent implementation and administrative difficulties in calculating faculty workloads, faculty instruction time, and faculty support. Faculty may need special support systems to encourage them to use technology in their classrooms that include examples and incentives. Finally, this kind of approach is not readily apparent on students’ transcripts.

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Beyond the reasoning for and against the infusion approach by Gillingham and Topper, this author finds that using modeling as the only teaching strategy presupposes that all educators in the teacher training program have the necessary pedagogic knowledge and technological skills, as well as the necessary equipment, to provide exemplary models of technology integration into the classroom. But even if well trained educators could provide pedagogically and technologically sound models, the infusion approach still would not involve teacher candidates in the planning and assessment stages of using technology in a class period or in the curriculum. Mere class observation and perhaps some hands-on experience with technology do not reveal all the methodological considerations educators have to take into account before, during, and after the actual use of technology in the classroom. For instance, teacher candidates need to learn to address issues such as selecting, implementing, and evaluating different kinds of technologies, finding adequate resources, determining whether technology helps to achieve learning goals, and integrating technology into specific classroom activities.

**Individual Student Performance Approach**

This approach places the final responsibility of technology knowledge on students rather than on faculty. Several times during their program, students choose their technology-enhanced projects and performances from a number of categories. On the positive side, students do not have to relearn information they already know; they can concentrate on advancing their existing knowledge. Students have long-term exposure to technology, develop a habit of life-long learning about technology, and learn to implement and model technology within subject matter courses.

This approach involves self-directed learning and is followed by an assessment of technology proficiency. On the negative side, it is more difficult for the teacher educator to keep track of individual student performances and to assess performances at different technology competency levels. Again, students’ expertise in technology applications may not be apparent from entries on standard transcripts.

**Case-Based Approach**

The last of the four approaches discussed by Gillingham and Topper, the case-based teacher education model, is the inclusion of a series of cases in which teachers use technology as part of a broad case-based teacher preparation program. Prospective teachers study and reflect on the efforts of teachers who have incorporated technology into their classroom prac-
tice. In the case studies, students examine lessons and units which have been collected from field experiences and teachers share their perspectives on how technology has shaped their classroom environments. For instance, the LETSNet project at Michigan State University provides some cases in FL instruction (http://commtechlab.msu.edu/ameritech/).

The obvious benefits to students are that these models in subject areas are used to develop and adapt similar models for their own classroom. So far, however, only a limited number of case studies in foreign languages are available that demonstrate the uses of newer technologies in the foreign language classroom.

Addressing Student Needs and Institutional Constraints

After we had researched these existing models of technology integration, we came to the same conclusion as Gillingham and Topper who point out that “(e)ach method requires various program compromises in order to fit within the constraints of student and faculty loads and other institutional requirements.” We opted for an eclectic approach that extracts pertinent facets from the single course approach and the program infusion approach. As our eclectic approach evolves over time, we anticipate the inclusion of elements of the case-based approach as well. We launched a curricular initiative to incorporate a new—still experimental—2-3 credit hour course entitled “Technologies in Foreign Language Teacher Education” into the existing curricula for the teacher education tracks in French, German, Russian, and Spanish.

The decision to apply this hybrid model to our teacher education program was based on factors such as

- time (the department cannot wait until everyone is ready for an infusion model because of the implication that all the teacher education faculty must have a fairly homogenous level of technology proficiency);
- faculty training (faculty in FL departments have diverse academic backgrounds that do not always include adequate pedagogical and technological expertise);
- a separate technology course entry on students’ transcripts stands out as an additional qualification for teacher candidates.

Another reason why we opted for this model was that traditional courses in FL methodology do not afford enough time to discuss in-depth the details of the use of technology in the FL classroom or to give prospective FL teachers hands-on experience with technologies that can enhance FL instruction.
Of course, we also faced a number of obstacles. For example, concerns were voiced by those who question the validity of the claims that technology enhances language learning, by those who oppose increased credit hour requirements for graduation, by faculty members of the College of Education who already teach courses in educational technology (and fear for loss of territory), by those who question the need for discipline specific courses or programs in educational technology, and by administrators who have to address issues such as additional staffing, faculty development, funding, and resource requirements.²

A number of publications in professional journals summarized by Northrup and Little (1996) confirmed our arguments to select a model that allows us to gradually shift to a fully integrated approach.

Roblyer (1994) recommends that full infusion of technology into all methods and content course work should be the eventual goal. However, the infusion approach, though successful in some institutions (Todd, 1993), does not appear to be working at this time. It is recommended that a separate instructional technology course providing a combination of technical and integration skills should be included (Roblyer, 1994). The course should have a problem-oriented approach with projects and meaningful instructional activities. Handler (1993) and Wetzel (1993) recommend a similar structure for educating undergraduate teacher education majors in the application and use of instructional technology. Initially, a technology course should be taught independent of other courses, with technology modeled throughout other courses.

Our decision to house the technology component in our department rather than in the College of Education follows the recommendation by ISTE (Milken & ISTE, 1999) that "to increase the technology proficiency of new teachers in K-12 classrooms, training institutions should increase the level of technology integration in their own academic programs," and it follows a discernable trend in the field of education towards a specialization of technology instruction relative to subject areas, for "it has become more content-specific and more theory laden" (Willis & Mehlinger, 1996; see also Hammond-Darling, Wise, & Klein, 1995).

At UNI, the combination of technical and integration skills in one course as suggested by Roblyer (as cited in Northrup & Little, 1996), is actually split into two technology courses required for all teacher candidates. Foreign language education majors can select one out of two technology courses (2-3 credit hours each) mandated for education majors and offered through the College of Education, and they are required to take the newly developed technology course (2-3 credit hours) housed in the Department of Modern Languages. While the course for all education majors emphasizes
the technical skills of students, the course for FL majors emphasizes technology integration into the subject area. In this new model, foreign language majors with a teaching emphasis in secondary education have to fulfill the following graduation requirements at our institution: General Education Courses (47 credit hours); Professional Education (32 credit hours); Major, Minor, Electives (51 credit hours). As part of the licensing requirement within the subject area for the preservice portion, students have to register for three courses in the area of foreign language pedagogy:

- The Teaching of Foreign Languages (3 credit hours)
- Practicum (2 credit hours)
- Technology in Foreign Language Teaching (2-3 credit hours)

Even though the three courses are formally separate entities, they are closely articulated and conducted as an integrated whole. The three courses are designed to avoid overlap in the course content which guarantees that students have the necessary tools to continuously progress and to build their professional portfolios. (See brief descriptions of the three courses in Appendix B.)

**NATIONAL TECHNOLOGY GOALS AND STANDARDS FOR TEACHERS**

Our particular curricular model was not only framed by institutional conditions but also by the need to include national technology goals and standards. While most of the goals and standards as defined by governmental agencies and various professional organizations include sections on technology, only a few go beyond general references about the need for technology integration into teacher education programs. (See National Goals and Standards for Teachers in Appendix A.) Parts of two guidelines, however, the “ISTE Recommended Foundations in Technology for all Teachers” (1995) and the “ACTFL Provisional Program Guidelines for Foreign Language Teacher Education” (1992) were helpful in the design of our technology course. The ISTE Recommendations provided the overarching goals under which we subsumed discipline specific objectives, and the ACTFL Guidelines acted as defining framework for establishing the outline and content areas for the new course on technology in FL teaching. Although under discussion, the state of Iowa has not yet implemented any standards for teacher education programs, and, therefore, we could not take state standards into consideration for our curriculum changes. However, it is important to point out that more and more states across the country are adopting policies and programs to enhance stan-
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dards for teacher education programs in order to ensure that teachers are well trained for requisite professional tasks.

Even though the ISTE Recommendations have been developed as standards for educational technology components in general education typically housed in Colleges of Education, we had two major reasons for using the ISTE guidelines as a framework for our new technology course. First, as mentioned before, teacher education programs seem to move into the direction of providing prospective teachers with a more integrated educational experience that combines pedagogy, knowledge of the subject area, subject area pedagogy, and technology. Therefore, FL education programs and general teacher education programs should coordinate their standards and goals and articulate curricular components. Second, as announced in the 1998 spring issue of the ACTFL newsletter, ACTFL (and TESOL) have become constituent members of the National Council for the Accreditation of Teacher Education (NCATE) in an effort to advance and to strengthen standards for professional teacher preparation. NCATE is a partnership of national organizations whose goal it is to set professional standards for colleges and universities with teacher preparation programs. It recognizes the standards developed by the National Board of Professional Teaching Standards which in turn recognizes the ISTE Recommendations as national benchmarks for teacher technology training. In the future, if FL education programs seek professional accreditation, it can be inferred that they will have to be in compliance with the national teaching standards recognized by NCATE. Since the technology courses offered in the College of Education at our institution addresses the hands-on use of technology as described in Goal Area A of the ISTE Recommendations, the Department of Modern Languages decided to focus on Goal Areas B and C which can easily be adopted and/or modified for integrated, subject-based technology instruction.

The ACTFL Provisional Program Guidelines for FL Teacher Education provide specifications “intended to serve a program development function; that is, to represent forward-looking views as to what knowledge, skills and experiences are deemed by the profession as holding the most promise for the preparedness of foreign language teacher candidates” (Gunterman, 1993). At the same time, these guidelines and subsequent discussions should assist FL programs in assessing their teacher education programs in terms of the overall effectiveness of the program and in making strategic decisions for the future. The Guidelines center around three areas in the preservice preparation of FL teachers: (a) Personal Development (focus on a strong liberal arts background), (b) Professional Development (focus on knowledge and experience in pedagogy), and (c) Specialist Development (focus on knowledge and skills in the area of language and culture) (Gunterman, 1993). Even though all three areas directly or indirectly address the need for adequate technology training op-
opportunities for teacher candidates in the FL education program, the most relevant categories for defining goals and content areas for technology courses are Area III Curricular Development and Area IV Instruction, both of which are part of the Professional Development sequence.

**LINKING TECHNOLOGY GOALS AND STANDARDS, INTEGRATION MODELS, AND INSTRUCTIONAL CONTENT**

The following suggestions for course objectives, content areas for courses, or other curricular components on technology in FL teaching reflect the findings of our previous planning activities and our research tasks, that is, defining future technology skills required in an information-based society, researching technology integration models, looking for information on national technology goals and standards, and identifying our own institutional parameters for curricular changes.

**Technology in Foreign Language Teaching (2-3 Credit Hours)**

**Course Objectives**

In this course students learn to assess the functions of technology in the context of current methodologies in foreign language teaching. They have the opportunity to explore and use traditional and current technology resources including applications, tools, software and associated documentation. Students also learn to evaluate, design, and integrate conventional and newer technologies into foreign language curricula and lesson plans for a diverse student population. In specific, based on current research and methodological approaches, students will be able to

- identify, access and critically evaluate a wide range of technology resources in FL;
- effectively select, integrate and apply modern technology in FL instruction;
- design, author, deliver, and assess technology-based instructional materials;
- effectively articulate and integrate technology into FL curricula and lesson plans;
- practice responsible, ethical and legal use of technology, information, and software resources.
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Sample Topics for Course Content

Educational Technologies in Foreign Languages
- Demonstration of a variety of technology applications for FL education
- Case-based observation of effective instructional use of technologies in FL classrooms
- Researching print and electronic technology resources for K-12 FL teachers (e.g., professional journals, educational technology magazines; Web-based FL technology resources, on-line radio stations; satellite TV, and video resources)

Evaluation and Integration of Technology
- Developing criteria for assessing the usefulness of a variety of technologies for FL learning
- Integration of foreign language technology into curricula and lesson plans (using different FL methodologies)
- Language labs: designs, functions, integration
- Exploring distance learning opportunities

Development and Application of Technology-Enhanced Learning Modules
- Conventional technologies: teaching with audio and video segments
- Computer-based technologies:
  - Exploring and integrating commercial software
  - Designing and integrating internet activities
  - Using and integrating Authorware
  - Using electronic reference tools for writing activities
  - Infusing electronic discussion groups, E-mail, MOOs, etc. into FL instruction
  - Developing and integrating multimedia presentations (digitizing images, audio/video materials)
  - Teaching with technologies (videotaped sessions of classroom instruction for self-reflection and peer critiquing)

The structure and organization of the course content follows a model involving six phases:

1. demonstration of resources;
2. exploration and access;
3. critique and research;
4. integration and design;
5. application and implementation;
6. reflection.
The first phase introduces the students to the wide variety of technology applications in FL instruction (videotapes, Internet, digital cameras, video cameras, e-mail, commercial software, authorware). Using a number of examples for different proficiency levels and different learning objectives, students observe different models of technology integration into FL learning activities in order to understand the potential of technology-enhanced FL instruction. At the same time, students learn how they can access electronic and print technology resources (e.g., web resources, professional journals, technology magazines for K-12). In the second phase, students familiarize themselves with hardware and software components and access different technology resources. In the third phase, students learn about current research in the area of technology use in FL instruction and develop critical skills to evaluate technologies (e.g., commercial software) in terms of their effectiveness for instructional purposes. In phase four, based on theoretical approaches in FL teaching, students design technology-enhanced lesson plans and learning activities for different purposes using a variety of different technologies. In phase five, students develop their projects by using different technologies. In phase six, they present their modules in a simulated classroom situation. This videotaped session could be part of a reflective self-evaluation and/or peer critique. Following performance-based assessment instructional models, students’ course work could result in projects that enhance their professional portfolios. For instance, they could include a critical review of a commercial FL software, a research paper on FL technology, a sample lesson plan or a teaching module with technology integration (e.g., multimedia presentation, Internet activities, integration of FL software, use of e-mail, and web discussions), and a videotape which shows the student teaching with technologies in a classroom setting.

CONCLUSION

The discussion presented here about technology integration into an existing curriculum for FL teacher education does not reveal the long trail of paperwork, the time spent on researching relevant areas for curriculum development, the design and implementation of a small but very sophisticated technology resource center specifically for FL teacher training, and, last but not least, the patience and persistence of a small group of people in the department dedicated to convincing colleagues and administrators of the necessity and feasibility of technology integration into the foreign language teacher preparation program.

In spite of all the challenges, the department at UNI succeeded in initiating some of the required changes and arrived at a model that provides graduates with essential technological and pedagogical skills in order to
enhance their teaching practices and, consequently, to facilitate their students' learning experiences. As is the case with teacher preparation as a whole, this model should not be seen as a static and permanent fixture in our curriculum but rather as a first step of an on-going process guided by continued curricular integration efforts and faculty training, by new research data on teaching and learning with technology, by differentiated technology instruction for diverse groups of learners (see Otto & Pusack, 1996), by expanded collaboration with schools and other educational institutions, by new demands of future generations from a changing society, and by the emergence of new technologies. Also, this model should not be seen as a model that could simply be imposed on other FL teacher education programs since “[w]ithin institutional constraints and structural characteristics of programs, teacher educators who prepare ESL, EFL, and foreign language teachers all will consider issues unique to their own beliefs, goals, and experiences” (Tedick & Walker, 1996). However, even though each institution has its own unique variables, it is hoped that FL educators who plan to integrate technology components into their teacher education curriculum will find our deliberations about the curricular model at UNI helpful in their planning, decision-making, and implementation processes.
Selected National Technology Goals and Standards for Teachers

**National Education Goals (1989)**

**Goal 4 : Teacher Education and Professional Development**

By the year 2000, the Nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire knowledge and skills needed to instruct and prepare all American students for the next century.

**Progress Report by National Education Goals Panel (1995)**

[All teachers will have continuing opportunities to acquire knowledge and skills needed to teach challenging subject matter and to use emerging new methods, forms of assessment, and technologies.](http://www.negp.gov./WEBPG140.htm)

**Technology Literacy Challenge by the U. S. Government (1996)**

- All teachers in the nation will have the training and support they need to help students to learn using computers and the information superhighway;
- All teachers and students will have modern multi-media computers in their classrooms;
- Every classroom will be connected to the information superhighway; and
- Effective software and on-line learning resources will be an integral part of every school's curriculum.

Among the Goals for Institutions of Higher Education:

- Supporting Professional Development
  - The colleges and universities that prepare teachers clearly play a critical role in ensuring that all teachers have the training they need to use technology effectively in the classroom and to improve student learning. Teacher preparation programs can make a difference by requiring a working knowledge of technology for graduation, and by focusing on teaching with technology, not merely teaching about it.
- Collaboration With Elementary and Secondary Schools
- Research on the Use of Technology in Education
  - *Getting America's students ready,* 1996.)
Technology Integration in Teacher Education Programs

National Education Association Resolutions (1997-98)
The National Education Association believes that technology in the educational process improves the learning opportunities for students, improves the quality of instruction, and improves the effectiveness of educational employees. Technology can provide opportunities to reduce educational inequities. Teacher preparation in instructional technology, including the development of effective materials, and appropriate instructional strategies must begin in college and university programs and extend through continuing professional development.

National Board of Professional Teaching Standards (NBPTS)
Part of Proposition #2: Teachers Know the Subjects They Teach and How to Teach Those Subjects to Students

Professional teachers instructional repertoires also include knowledge of available curricular resources such as primary resources, models, reproductions, textbook series, teachers’ guides, videotapes, computer software and musical recordings. Their commitment to learning about new materials includes keeping abreast of technological developments that have implications for teaching; for example, how to engage students in the rapidly expanding field of computer technology, as well as how to use the computer to enhance their own teaching. Thus, able teachers keep current with the growing body of curricular materials—including literature available through professional organizations—constantly evaluate the usefulness of those materials based on their understanding of curriculum theory, of students, of subject matter, and of the school’s and their educational aims.

American Association of State Colleges and Universities (AASCU)
Technology will play an increasingly important role by providing equity and variety of educational access. Schools will be connected electronically to provide resources for all learners and teachers. ... Professional schools of education will demonstrate a wide variety of instructional approaches and techniques, including the use of increasingly sophisticated technology.
(President’s Commission, 1992)

ISTE Recommended Foundations in Technology for All Teachers (1995)
I. Foundations. The ISTE Foundation Standards reflect professional stud-
ies in education that provide fundamental concepts and skills for applying information technology in educational settings. All candidates seeking initial certification or endorsements in teacher preparation programs should have opportunities to meet the educational technology foundations standards.

A. **Basic Computer/Technology Operations and Concepts.** Candidates will use computer systems to run software; to access, generate and manipulate data; and to publish results. They will also evaluate performance of hardware and software components of computer systems and apply basic troubleshooting strategies as needed.

- operate a multimedia computer system with related peripheral devices to successfully install and use a variety of software packages.
- use terminology related to computers and technology appropriately in written and oral communications.
- describe and implement basic troubleshooting techniques for multimedia computer systems with related peripheral devices.
- use imaging devices such as scanners, digital cameras, and/or video cameras with computer systems and software.
- demonstrate knowledge of uses of computers and technology in business, industry, & society.

B. **Personal and Professional Use of Technology.** Candidates will apply tools for enhancing their own professional growth and productivity. They will use technology in communicating, collaborating, conducting research, and solving problems. In addition, they will plan and participate in activities that encourage lifelong learning and will promote equitable, ethical, and legal use of computer/technology resources.

- use productivity tools for word processing, database management, and spreadsheet applications.
- apply productivity tools for creating multimedia presentations.
- use computer-based technologies including telecommunications to access information and enhance personal and professional productivity.
- use computers to support problem solving, data collection, information management, communications, presentations, and decision making.
- demonstrate awareness of resources for adaptive assistive devices for student with special needs.
- demonstrate knowledge of equity, ethics, legal, and human issues concerning use of computers and technology.
- identify computer and related technology resources for facili-
C. Application of Technology in Instruction. Candidates will apply computers and related technologies to support instruction in their grade level and subject areas. They must plan and deliver instructional units that integrate a variety of software, applications, and learning tools. Lessons developed must reflect effective grouping and assessment strategies for diverse populations.

- explore, evaluate, and use computer/technology resources including applications, tools, educational software and associated documentation.
- describe current instructional principles, research, and appropriate assessment practices as related to the use of computers and technology resources in the curriculum.
- design, deliver, and assess student learning activities that integrate computers/technology for a variety of student group strategies and for diverse student populations.
- design student learning activities that foster equitable, ethical, and legal use of technology by students.
- practice responsible, ethical and legal use of technology, information, and software resources.

(Available: http://www.iste.org/Resources/Projects/TechStandards/)

ACTFL Provisional Program Guidelines for Foreign Language Teacher Education (1992)

Professional Development—Area III: Curricular Development

Programs provide instruction in the theories and processes of curriculum development and their application to foreign language education. This includes information about:

1. the role of curricular design in adapting the nature of the discipline to learner needs, interests and characteristics;
2. the objectives and characteristics of different curricular models and their applicability in foreign language education;
3. the rights and responsibilities of the teacher in making decisions about foreign language program planning.

Indicators of program consistency with these guidelines include:

- materials and syllabi that treat diverse models, objectives and program formats;
opportunities to link knowledge of curriculum design and learning theory to specific foreign language program-planning efforts;
opportunities for writing objectives and lesson plans for achieving goals;
opportunities to evaluate materials in terms of their match with curricular objectives;
field experiences in which curricula and lesson plans can be implemented.

Professional Development—Area IV: Instruction

Guidelines

Programs provide opportunities to acquire decision-making skills related to planning, managing and evaluating instruction. This includes information about and experience in:

1. identifying the purpose and theoretical underpinnings of a variety of teaching strategies and anticipating the learning outcomes that result;
2. making critical decisions regarding planning for instruction, selecting materials, sequencing and executing learning activities;
3. evaluation effectively the total teaching-learning process, including daily interaction with students, continuous assessment of student learning and self evaluation.

Indicators of program consistency with these guidelines include:

• availability and accessibility of current literature in the areas of foreign language education, research on effective teaching and effective schools;
• multiple opportunities to select and experiment with instructional strategies and to evaluate results;
• structured formats for observing, assessing and hypothesizing about classroom decisions through video taped or live classroom observations;
• coursework and experience in devising appropriate testing techniques;
• coursework in and effective models of classroom management: using grouping strategies, structuring tasks, giving directions, maximizing use of class time;
• practice in establishing progression in classroom activities;
• regular use of professional journals in the field of general and language-specific foreign language pedagogy;
• opportunities for use of learning / teaching devices: overhead projectors, video, computer software, language lab facilities;
• exploration of sources of instructional materials.

The complete Provisional ACTFL Guidelines are listed in the appendix of Gunterman (1993).
APPENDIX B

Curricular Components of the Department of Modern Languages’ Preservice Teacher Education Program at the University of Northern Iowa

Foreign Language Methodologies (3 hrs.)
- Emphasis on theoretical foundations of FL instruction. For example, FL methodologies, research practices and findings in FL acquisition, criteria for textbook selection, instructional resources, professional organizations, exploration of models for curriculum design, assessment, lesson plans, activities for the various language skills, cross-cultural learning, etc.
- Practical components: design of a variety of class activities, class observations and analyses.
- Instructional language: English, examples in target language(s).
- Portfolio: research papers, reviews of professional articles, analyses of class observations.

Practicum (2-3 hrs.)
- Emphasis on practical application of theoretical models studied in Foreign Language Methodologies.
- For example, design of teaching units and implementation in a classroom setting, discussion of videotaped teaching segments with the teacher candidate, exploration of sources of teaching materials in the target language.
- Instructional Language: target language.
- Portfolio: examples of lesson plans for various levels, videotaped performance of the teacher candidate in a classroom setting.

Technology in Foreign Language Teaching (2-3 hrs.)
- Emphasis on theoretical and practical aspects of technology application and integration.
- Current research in the area of technologies, hands-on exploration of technology resources in FL, technology integration in curricula and classroom lessons, development of technology enhanced activities, lesson plans, FL lab settings.
- Instructional Language: discussions in English, projects in the target language
- Portfolio: critical software reviews; computer-based presentations, e.g., PowerPoint, ClarisWorks; development of technology enhanced teaching units; projects focusing on the integration of multimedia capsules and Internet activities.
NOTES

1 The findings of the OTA (1995) report confirm Gillingham and Topper's argument stating that "most technology instruction in colleges of education is teaching about technology as a separate subject, not teaching with technology across the curriculum. The majority of teacher education faculty do not model technology use to accomplish objectives in the courses they teach, nor do they teach students how to use information technologies for instruction. Seldom are students asked to create lessons using technologies or practice teaching with technological tools."

2 Other studies such as Office of Technology Assessment (1995) and "Infusing technology" (n. d.) report similar concerns at the national level.

3 Even though new technological applications have emerged in the meantime, Garrett's (1991b) overview of what kind of technologies are available and what can be done with them in FL classrooms provides a good starting point for creating content areas for a technology component in teacher preparation.

4 Means (1994) and Bush (1997) provide helpful readings on the instructional use of technologies. Means gives a general overview of the instructional use of technologies, whereas Bush specifically refers to technology use in FL instruction.

5 Similar models for structuring a technology component in the FL teacher education programs are provided by Kassen and Higgins (1997) and LeLoup (1997). Kassen and Higgins suggest a five-phase module comprised of preparation, familiarization, exploration, integration, synthesis. LeLoup's communications technology module is designed to be integrated in the FL methodology course and follows a four step organization: getting acquainted with the tools, learning the basics, targeting pedagogy, and designing lesson plans.

REFERENCES


Technology Integration in Teacher Education Programs


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AUTHOR’S BIODATA

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