A DESCRIPTIVE STUDY OF TWO TEACHERS' USE OF TECHNOLOGY IN A
MIDWESTERN HIGH SCHOOL GERMAN PROGRAM

DISSERTATION

Presented in Partial Fulfillment of the Requirements for

the Degree Doctor of Philosophy in the Graduate School of

The Ohio State University

By

Peter A. Schultz, B.A. M.A.

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The Ohio State University

2002

Dissertation Committee:

Professor Charles R. Hancock, Adviser

Professor Deborah Wilburn Robinson

Professor Kathryn A. Corl

Approved by:

_____

Adviser

College of Education

ABSTRACT

Over the past two decades, researchers have conducted numerous studies on the use of technology in second language learning. Certain areas in technology and second language learning research have, however, been unexplored. For example, few studies have been reported in which research was conducted in high school foreign language classrooms with a focus on teachers' technology classroom practice. In addition, few studies have been reported on the development of foreign language curricula that include technology infusion as a component of instruction.

The purpose of this research was to investigate, via a qualitative descriptive study, the use of technology in one suburban high school German program located in a Midwestern setting in the United States. During the course of the study, the researcher investigated the integration of technology in all levels of the German program (Levels I, II, III and IV), studying: (a) the extent to which teachers used technology in the classroom, (b) whether teachers' personal accounts of their technology use was confirmed in observations of their daily instructional practice, (c) instructional goals defined

in the foreign language curriculum, and (d) the perceived benefits of using technology in this setting.

Qualitative methods were utilized in this study. Curriculum documents were analyzed. The researcher conducted observations of all the German classes. The two German teachers and the curriculum and assessment coordinator were interviewed.

The results of the study were: a) the written curriculum included a focus on technology in the German program based on the principles of the *National Standards for Foreign Language Learning*; b) both German teachers regularly used technology in their classroom practice; and c) both German teachers reported numerous benefits of using technology in learning the German language.

The dissertation also includes answers to the five research questions, implications of the research, recommendations for further research, and limitations of the study. Appendices include the current version of the *National Standards for Foreign Language Learning*, a questionnaire distributed to the German teachers, interview questions used with the German teachers, sample consent forms distributed to the German teachers, sample fieldnotes from a class observation, a sample interview protocol, and a sample researcher log.

The researcher found that the German teachers used various technologies in deliberate and systematic ways

identified in the school's written curriculum, and according to the teaching styles of the two German teachers. While further research is needed, the researcher concluded that for this research setting, German language instruction and technology co-existed in ways that reflect contemporary views about foreign language learning and teaching.

Dedicated to Mom and Susan

ACKNOWLEDGMENTS

VITA

January 1, 1968..............Born - Valparaiso, Indiana USA

May 1990................... B.A. German and communication,
                            Hope College
                            Holland, Michigan

Sept. 1992 - Aug. 1994......Graduate Teaching Associate,
                            University of Cincinnati
                            Cincinnati, Ohio

Sept. 1994 - Aug. 1995......DAAD Fellow,
                            Universität Hamburg,
                            Hamburg, Germany

June 1995...................M.A. German literature,
                            University of Cincinnati
                            Cincinnati, Ohio

Aug. 1996 - Jun. 1997.......German teacher,
                            The Columbus Academy,
                            Gahanna, Ohio

Nov. 1997 - Aug. 2000 ....Research Intern,
                            Battelle Memorial Institute,
                            Columbus, Ohio

Oct. 1998 - Aug. 2000 ....Graduate Administrative
                            Associate, The Ohio State
                            University Libraries
                            Columbus, Ohio

Aug. 2000 – Apr. 2002 ....Language Technology
                            Consultant, Rice University,
                            Houston, Texas

FIELDS OF STUDY

Major fields: Education
Minor fields: Technology, Foreign language pedagogy

TABLE OF CONTENTS

Chapters:

LIST OF FIGURES

xv

LIST OF TABLES

CHAPTER 1

INTRODUCTION

In the 21st century, it is important for learners to develop excellent language skills and also to develop an understanding about cultures other than their own. According to the *Standards for Foreign Language Learning* (1996), also known as the *National Standards,* acquiring skills in languages in addition to English and developing insights about world cultures is becoming "a requisite for life as a citizen in the worldwide neighborhood (*Standards*, 1996, p. 12)." In order for learners to acquire these skills, they need to start early learning languages other than English and learning about world cultures.

An accepted notion among foreign/second language educators and scholars is that the longer a learner waits to begin to study a foreign language, the less likely it is that the learner will develop fluency. According to the *National Standards*, students who start learning a foreign language at younger ages have a distinct advantage over others who begin later (*Standards,* 1996, p. 17). Although this argument has been made repeatedly in recent years, most learners in the U.S. begin their study of foreign languages at the middle

school or high school level. In contrast to the situation in the U.S., many European students begin learning a second language before the age of ten and many have learned three languages by the time they are fifteen years old. According to the *Standards,* most U.S. schools introduce foreign/second language study to students in the ninth grade and most students enroll in courses where the language requirement is for two years (*Standards,* 1996, p. 17). This short sequence does not allow learners adequate time to develop the necessary skills to communicate effectively. Given that the majority of American students begin language study during their teenage years, high school language teachers are often challenged to create new strategies in their teaching. One such strategy that may support the enhancement of the learning experience is the use of technology, such as the computer and hypermedia (i.e., audio, video, and graphics).

In the foreign/second language education profession, the term *technology* refers to a broad range of materials, such as cassette tapes, videos associated with a particular textbook, computer-assisted instruction (CAI), learning with CD-ROMs, and visiting sites on the World Wide Web (Gonglewski, 1999, p. 348). Phillips (1998) wrote that technology can help learners reach advanced competency by providing access to people and materials that allow them to practice the foreign language. Technology can also provide authentic materials for

learners to interpret in the pursuit of cultural, interdisciplinary and personal goals (Phillips, 1998, p. 33).

Technology is one of seven curricular elements included in the *National Standards.* The authors of the *Standards* acknowledged that technology has advanced to justify the necessity for students to take advantage of its uses in their language studies (*Standards,* 1996, p. 35). Gonglewski (1999) argued that technology supports the goals set by the profession in the written content of the *Standards*, given that the goals are grounded in real-world language use.

Unfortunately, few studies have been reported in the professional literature about high school teachers who routinely use technology as a component in their foreign/second language classroom practice. Little evidence has been uncovered about high schools in which the use of technology plays an important role in foreign/second language curricula. Becker (1989) wrote that despite a growing interest in technology as an instructional tool in the United States, only a small proportion of language teachers seemed to be employing its various uses routinely. In order to gather evidence about the use of technology by high school foreign/second language teachers, this qualitative research study was conducted. In this study, the researcher investigated two high school German teachers' use of technology in a single, well-equipped, technology-rich high school setting.

3

This chapter contains the problem statement, the purpose of this descriptive study, research questions, basic assumptions and operational definitions. Included in Chapter 1 also are descriptions of the research setting and profiles of the two teachers who were the focus of this study. The first chapter concludes with the organization of the dissertation.

<center>Background and Problem Statement</center>

Background: Technology as a Curricular Component

In 1996, the landmark document *Standards for Foreign Language Learning: Preparing for the 21st Century* was published. The *Standards* were developed by a task force of foreign/second language educators for the benefit of students from kindergarten to the twelfth grade. The purpose of the *Standards*, according to the authors, was to galvanize foreign language education (*Standards*, 1996, p. 15). The authors of the *Standards* attempted to draw attention to a broad view of second language study and competence, specifically, what learners should know and be able to do (*Standards*, 1996, p. 15). In addition, this view of second language study and competence included how learners should be able to perform in the foreign language (*Standards*, 1996, p. 15). The authors thus intended the *Standards* as a national gauge that state departments of education and local school districts might use

<center>4</center>

as a basis to develop their own frameworks for foreign language study (*Standards*, 1996, p. 15).

The authors of the *Standards* attempted to define a framework that identified the definition of competency-based teaching and assessment that also included methods by which learners would be encouraged to use the language in meaningful ways outside of classrooms in real-life situations (*Standards*, 1996, p. 15). One result of the standards initiative was a listing of five broad-based, language/culture standards.

<u>Communication</u> -- Communicate in languages other than English

<u>Cultures</u> -- Gain knowledge and understanding of other cultures

<u>Connections</u> -- Connect with other disciplines and acquire information

<u>Comparisons</u> -- Develop insight into the nature of language and culture

<u>Communities</u> -- Participate in multilingual communities in and around the world (*Standards,* 1999, p. 9).

These broad-based standards provided a coherent framework for language program development at all instructional levels. They also received wide-spread dissemination and were available to foreign language teachers such as the two German teachers in this descriptive study. In Chapter 4, the researcher describes specific examples in the fieldnotes and interview excerpts.

As part of the five standards, the authors defined seven curricular elements intended to provide learners with rich curricular experiences (*Standards*, 1996, p. 28). These seven elements were designed to serve as a broad definition of the content to be taught in the foreign/second language classroom (*Standards*, 1999, p. 32). These elements include: language system, cultural knowledge, communication strategies, critical thinking skills, learning strategies, other subject areas (i.e., science, social studies, math, music), and technology. With regard to technology, the authors wrote the following:

> Access to a variety of technologies ranging from computer-assisted instruction to interactive video, CD-ROM, the Internet, electronic mail, and the World Wide Web will help students strengthen linguistic skills, establish interactions with peers, and learn about contemporary culture and everyday life in the target country. In addition, students can expand their knowledge of the target culture via edited and unedited programs available on short-wave radio, satellite broadcasts, and cassette or video recordings (*Standards,* 1999, p. 35).

The authors of the *Standards* have clearly recognized the impact of technological advances in recent years, especially in that these advances have contributed to the development of a global economy and have increased opportunities for interaction across the world (*Standards*, 1999, p. 11). As an element of today's classroom instruction, technology can help foreign/second language learners develop skills in communication, critical thinking skills, learning strategies, and also help learners develop knowledge about language and culture (*Standards*, 1999, p. 32).

6

The potential impact of technology in foreign/second language education is important. It shows that many aspects of foreign language study can be related to access of information and to the practice of foreign language skills by both language learners and their teachers. However, the standards themselves assume that language teachers know about and can use technology appropriately. This descriptive study investigates two German teachers' perceptions and practices related to technology utilization in the high school German classroom.

Problem Statement

In view of the direction that some research conducted on technology and language learning has taken, it makes sense to inquire about high school foreign language teachers' perceptions and practices in using technology as part of their instruction. It also makes sense to study the purposes and functions of using technology in a specific foreign language curriculum (e.g., German high school programs). It is important to understand how some foreign language teachers use technology in their teaching, as well as why they use it. Finding answers to these questions may add to the professional knowledge base about technology as a useful teaching tool available to foreign/second language teachers.

A review of the present literature has shown mixed results about the impact of technology on current practices in

foreign/second language teaching and learning. According to a survey by Language Learning Technology International (LLTI, the listserv established and maintained by the International Association for Language Learning Technologies), for example, few foreign/second language education programs were found in which students spent at least ten percent of their instructional time using technology to help them in their learning (Bush, 1997, p. 288). In a study commissioned by the White House Office of Science and Technology Policy and the Office of Technology of the U.S. Department of Education (Glennan & Melmed, 1996), researchers found that students in Grades 9-12 spent only 2.7 percent of their computer time on foreign language study. In contrast, students spent 7.7 percent of their computer time on mathematics study, 7.4 percent on English, 6.2 percent on science, 4.1 percent on social studies, and 3.0 percent on fine arts. In the same study, it was found that none of the technology-rich schools that served as exemplars for technology implementation mentioned foreign language study as part of the curriculum (Bush, 1997, p. 288). These descriptive data are presented only as indicators of the types of information published nationally on foreign language study and technology.

More studies are needed of high school settings in which technology and language learning are components of a foreign language curriculum and the teachers' routine classroom practice. According to Warschauer (1997), most published

studies of educational endeavors with technology have consisted mainly of anecdotes from innovative teachers who praise the successful practices they have carried out in their schools. What is needed, according to Warschauer (1997), are more contextualized accounts of the overall implementation of technology activities by foreign/second language teachers. In addition, more research is needed on the organization of foreign language curricula in which technology plays a key role.

The present descriptive study was an investigation of the roles of technology implementation in a high school German language program. In this research project, the researcher sought to document the perspective of two foreign language teachers, as well as study the foreign language learning context in which these individuals participated. A descriptive research project was chosen because few studies of this type were found in the professional research literature on technology and language learning. Warschauer (1999) wrote that previous quantitative studies, many of which were controlled experiments, excluded contextual factors of the research setting, including the point-of-view of the research participants. In conducting a qualitative study, there is not a single reality in understanding a person's experience; rather human experience is understood from a perspective that is holistic and complex (Denzin, 1989; Diesing, 1972; Guba & Lincoln, 1994; Lincoln & Guba, 1985). In studying the

perspective of the foreign language teacher, the researcher attempts to determine the immediate and local meanings of a teacher's actions as defined by the teacher's point of view (Erickson, 1986, p. 119). The researcher needs to understand how individuals in a specific context interpret reality and construct meaning within the context of their situation (Davis, 1995; Diesing, 1972; Erickson, 1986).

In order to understand the perspectives of the two German teachers in the research setting, the researcher interacted with them by observing individual language classrooms, talking with them in interviews, and by engaging them in spontaneous conversation. Through personal interactions, the researcher was able to observe how language instruction was planned and carried out. He also observed the implementation of technology in German classroom instruction at the research site. By engaging in numerous conversations with the two teachers, the researcher collected data on these individuals' personal beliefs about technology and foreign language learning.

A descriptive study of this type is needed to explore the roles of technology in high school foreign language learning. Based on their experience, teachers need to report which technologies work and do not work in certain high school foreign language learning tasks and situations. This information can show how the use of technology influences teachers' lesson planning and other instructional decisions. The information teachers report on their technology practices

in language teaching can provide an important data base for further study, as well as guidance for using technology in language instruction and curriculum development. This study assumed that teachers themselves can best articulate their perceptions and describe their practices, therefore, a descriptive study of two German teachers' technology practices was conducted.

Purpose of the Study

The purpose of this descriptive study was to conduct baseline research on a high school German program in which the teachers included technology as a component of their instructional goals in both the curriculum and in their classroom practice. This study served as a starting point from which further research studies on technology and language learning in other high school contexts can be developed. In this study, the researcher described the instructional process of technology implementation in the German program through observations and interactions with the two German teachers at the research site. In describing the instructional context and the individuals in it, the researcher described how the two teachers used technology in their instruction and how the teachers defined the importance of technology in their high school curriculum.

This German program was chosen for several reasons: First, the researcher's background in the German language and experience in teaching German provided a sound basis for observation of instruction. Second, the researcher had visited other school settings but had found that the German teachers in these settings were not systematic in their use of technology in instruction. Third, during a pilot study conducted at the research site in 1999, the researcher found that the German teachers were routinely using the school's technology resources in their language classrooms. Fourth, it was thought that an in-depth descriptive study of teachers in a single program in which technology had an important role would add to the professional literature on contemporary language teaching in the United States.

Research Questions

The primary research questions that guided the study are the following:

1. To what extent did the two foreign language teachers use technology in their instruction?

2. To what extent did observations of the teachers' actual practice confirm their self-reports about their use of technology?

3. Which instructional goals were defined for technology in the foreign language curriculum?

4. What did the two teachers perceive to be the benefits of technology in their German language classrooms?

5. Which implications can be drawn from the findings of the present descriptive study?

Basic Assumptions

This descriptive study was based on the following basic assumptions: language instruction with technology, is gaining acceptance by educators in the foreign/second language profession. As technology advances, it is important that appropriate applications be integrated from these advances into the field of language pedagogy, particularly since many students are able to adroitly utilize technology in their learning.

Three additional basic assumptions related to the first premise are presented next. First, foreign language teachers put into practice the guidelines outlined in the foreign language curriculum, although the delivery of the instruction may vary according to each teacher's interpretation of the curriculum and the students' response to the instruction. Teachers are unique individuals who have varying levels of experience with technology and utilize available resources according to their level of knowledge and experience.

Second, by using technology, learners are able to gain access to authentic language written and spoken by native

speakers of the target culture. Third, it was assumed that teachers and students had access to technology in the school setting. Documents and interviews at the research site showed that teachers and students were encouraged to use technology in their teaching and learning, thus, access to technology was assured by the school administration at the research site.

Operational Definitions

The following definitions are presented in order to clarify for readers the intended connotations of key terms as used in the present study. In almost every case, the researcher has presented definitions based on general consensus in the foreign/second language professional community rather than presenting an individual author's definition. Finally, examples, where presented, are given for German language contexts.

Authentic Language

This term refers to the German language in oral or written form that is not explicitly created for classroom use in an educational setting. Authentic German can be expressed in oral form such as a spontaneous conversation between groups of native German speakers; or in written form, such as a text found on a German language Website, a text found in a

14

newspaper or magazine, the text of a poem, or song lyrics by a
German language rock group.

Constructivist Learning Task

A constructivist learning task is a German language
classroom lesson in which learners are encouraged to develop
their own meanings and knowledge without the teacher
transmitting knowledge to them in a prescriptive manner. The
students take responsibility for their own learning in the
lesson and use various learning materials and methods to
construct their own meanings and knowledge.

Communicative Competence

Based mainly on a definition by Savignon (1983),
communicative competence refers to the ability to convey and
receive various types of messages in the target language
successfully. When learners achieve communicative competence,
they are able to use the target language to participate in
oral or written interaction and create relationships with
other individuals. In addition, communicative competence is
achieved when learners understand uses of the target language
within the culture in which the language is spoken and
written.

German 1, German 2, German 3, German 4

These terms represent levels of German classes at the research setting. The German 1 course is intended for beginners (termed introductory students), German 2 also for introductory students, German 3 for intermediate students, and German 4 is designed for advanced students. These terms are local meanings that were defined by the foreign language teachers at the research site and included in the written curriculum.

All German courses were one year in length. Students were required to complete all course requirements before advancing to the next level. Students in German 1 and 2 received instruction for 230 minutes a week, whereas students in German 3 and 4 were instructed for 140 minutes a week. All incoming students were required to take a placement test prior to starting coursework. Any student who had prior course experience in German was not allowed to enroll in the German 1 course.

Instructional Materials

In the research setting, instructional materials refer to non-computer based objects the German teachers used in their instruction. Examples of instructional materials include paper handouts, laminated pictures, authentic German money and German stamps. During one class session, one teacher brought in laminated pictures of animals. The purpose of the pictures

was for students to create descriptive dialogues in German about the animals.

On-line Learning

On-line learning refers to the use of specific software programs that provided learners access to information and people within and outside of the school setting. On-line programs used at the research setting included Web browsers (i.e., *Netscape Communicator*, *Microsoft Internet Explorer*), and the school's internal e-mail program.

Project-based Learning

Project-based learning refers to students in the research setting learning German by working on projects that consist of various tasks. Project-based learning was grounded on principles of constructivism since students constructed their own knowledge as they progressed through the project to its completion. The completion of the project generally required the use of technology.

For example, German 3 students worked on a project on stamps in which they used the World Wide Web to find sites on famous German people and events, reporting their findings to the class. The final task of the project required students to design their own stamp to represent a famous German person or event and to present the stamp in class during a five-minute presentation in German. Students designed the stamp by hand or

17

used drawing software (i.e., *CorelDraw, Adobe Illustrator,* etc.). Some learners worked independently, while other students worked in groups.

Professional Development

    This term refers to the German teachers' opportunities to learn new teaching methods and develop their knowledge in such areas as technology. They do so by attending workshops and meetings with other foreign/second language instructors. These workshops take place both inside and outside the research setting. Interviews with the two German teachers revealed various types of professional development activities in which the teachers participated during the past few years.

Teacher-centered Task

    A teacher-centered task is a German language lesson in which the teacher is the provider of the content of the lesson and controls the delivery of the lesson from beginning to end. Although students speak and provide personal input during the lesson, they tend to listen more and respond to the teacher's directions. An example of a teacher-centered task is a typical lecture in which the teacher explains some aspect of German grammar and students all listen.

Teaching Units

In the research setting, a teaching unit was a unit of content instruction upon which all other lessons were based. For example, German 1 students worked on a unit on the topic of school, German 2 students worked on a unit about animals, German 3 students completed a unit on stamps and German 4 students worked on a unit about the Weimar Republic. Individual teaching units were often composed of various lessons and thus had varying lengths of time for completion.

Technology

This generic term refers to electronic-based objects and tools that teachers and students used routinely at the research site to assist them in teaching or learning the target language. Examples of technology at the research site included computers (e.g. Macintosh and PCs), software programs, video and audiocassette recorders, ELMO visual presenters, laser-disc players, and scanners. Most computers at the research site had software installed that allowed faculty and students to access electronic mail and the World Wide Web. The availability of this type of technology at the research site was extensive.

The Research Setting

This section is a description of the research site where the study was conducted. The first part includes a description of the school, including its location, academic subjects offered, and the admissions process. The second part is a description of the two German teachers.

Documents consulted for information on the research setting included the school's Website as well as individual brochures collected by the researcher during one of his visits. The curriculum and assessment coordinator [Christa, a pseudonym] and individual teachers in the foreign language department also provided information about the research setting.

Description of the Research Setting

Location and Student Representation

The setting for the study was a public high school located in the Midwest of the United States. It was founded in 1985 by the state legislature and was attended by students in Grades 10-12, all of whom were residents of the state where the school was located. Over 600 students enrolled per school year. The graduating class of 2000 numbered 191. In the 1999-2000 school year, 63 percent of the student body came from one urban metropolitan area, whereas 37 percent came from other

areas of the state. In the same year, 51 percent of the students were male, 49 percent female. The ethnic background of the students, taken from self-reported data collected by the school, was as follows: 49 percent Caucasian, 27 percent Asian, 10 percent African-American, 6 percent Latino, 4 percent Bi-Racial/Multi-Ethnic, approximately 1 percent Native American, and 3 percent Other/Non-Reporting.

Faculty, Staff, and Academic Subjects

The faculty and staff at the school numbered 265 individuals. Academic subjects offered were English, fine arts, foreign language (French, German, Japanese, Russian, and Spanish), history, mathematics, science, social science and wellness.

According to the authors of the school's standards document, the school's academic program was focused on an integrative approach characterized by inquiry based, problem-centered, and competency-driven learning experiences. In the school's standards document, each academic department defined its own standards and pedagogical objectives, which were cross-referenced to the generic learning standards defined for the school at-large. This practice was in place in order to emphasize the interdisciplinary nature of the school's academic program as well as to define student learning outcomes.

The foreign language department consisted of nine teachers: Two taught French, two instructed German, one was responsible for the Japanese program, two instructed Russian, and two teachers taught Spanish. The foreign language department had four classrooms, one for French, one for German, one for Spanish, and the fourth classroom was shared by the Russian and Japanese instructors. In addition to the four classrooms, all nine instructors shared a language laboratory that contained 50 computers as well as other technology resources.

The foreign language department created a document that described its philosophy of language learning, or its "mission." The basic philosophy of the foreign language department was that students acquire a foreign language to communicate in various cultural contexts (Foreign Language Mission Statement, 2000, unpaged). Additional guiding principles in the document included the following:

> (Learning a foreign language) builds skills for travel, commerce, and research.
>
> Expands a person's world view
>
> Helps a learner create understanding of language and human nature, language and culture, and language and thought
>
> Achieves national goals such as economic development and national security
>
> Improves one's knowledge of language and culture
>
> Provides learners opportunities for work and study abroad
> (Foreign Language Mission Statement, 2000, unpaged)

Important characteristics and goals mentioned in the mission statement were understanding language as a system, developing metacognitive skills, and use of authentic assessment. The curriculum framers reasoned that an understanding of language as a system would better enable students to understand learning systems in other academic subjects such as mathematics, science, the arts, and the humanities (Foreign Language Mission Statement, 2000, unpaged). The development of metacognitive skills was considered important in language learning in that an authentic language-learning environment helped students construct meaning by reflecting on their language learning skills (Foreign Language Mission Statement, 2000, unpaged). Authentic assessment was understood as assessment of language skills by both student and teacher, conducted in the research setting through the use of video assessments, journals, and portfolios (Foreign Language Mission Statement, 2000, unpaged). Further discussion of the foreign language departments' philosophy of language learning is presented in Chapter 4.

Of the nine foreign language teachers at the research site, the two teachers of German are the main focus of this descriptive study. In the next section, the researcher presents a profile of the two German teachers and their program.

The German program at the research site was organized and taught by two individuals, one male and one female, both of whom were born and raised in the U.S. In this study, pseudonyms (Herbert and Ute) are used in place of the teachers' real names. The information presented on the teachers is focused on their teaching careers. The German teachers themselves provided information during conversations at the research site.

Herbert.

Herbert has been a teacher for 33 years and has taught German for 28 years. At the start of his career, he taught social studies courses at a private school in the Midwest, including U.S. history, world history and American government. Herbert became the full-time German language teacher full-time when his predecessor departed. He started teaching at the research site in 1985.

Although Herbert was not originally trained as a German teacher, he began to learn foreign language teaching methods over time. He had taught German as a teaching assistant in graduate school, where subsequent teaching experiences included participation in immersion workshops at the Deutsche Sommerschule am Pazifik (German Summer School on the Pacific) in Oregon, as well as attending and teaching in immersion workshops at a university located in the vicinity of the

24

research site. He reported having read Omaggio Hadley and Krashen's professional works as he initially developed his foreign language teaching skills.

An individual with a German heritage, Herbert made his first trip to Germany at the age of four and began learning German by interacting with native speakers. He has made several trips to Germany and also accompanies his students on trips to a partner school in Erfurt, where Herbert established contact with teachers at a German *Gymnasium* (high school). This liaison was established in 1996-97 when Herbert was working abroad on a Fulbright teaching exchange scholarship.

Herbert, one of the original teachers hired at the research site, began using technology in his instruction during the 1980s, when he learned how to use the computer, software, and video cameras. Earlier in his career, Herbert used software programs such as *HyperCard* and *HyperStudio* in his German courses, and he assigned his students to work with word processing programs in their writing. He also learned how to use electronic mail programs. Eventually, he learned how to use the World Wide Web and developed skills in Web page design (including HTML and JavaScript), and subsequently developed his own Websites for use by his students in his courses. Herbert was the supervisor of the language laboratory, and he also led workshops for the foreign language faculty, teaching them how to use new software and use the Internet in their teaching.

To recap, Herbert was an experienced German teacher at the research site. He agreed to have the researcher interview him, observe his teaching and interview some of his students during the research data-gathering phase. He taught German 1 and German 3 during the site visit.

Ute.

Ute began her teaching career as a graduate student on the western coast of the United States. Upon finishing her studies, she was awarded a Fulbright research grant to study in Germany. She resided in Germany for nearly ten years teaching German to Turkish guest workers and during this time period she learned Turkish herself. She returned to the United States in 1982.

When Ute was originally in graduate school, she studied German literature with the goal of teaching at the college level; therefore, she did not enroll in any teacher preparation courses for teaching in the high school. After returning to the United States, Ute eventually enrolled in a teacher education program in New York, from which she engaged in teacher preparation courses and became certified for public school teaching. Before she came to the research site, Ute was a German teacher at a high school in the southern United States, but she stayed there for only one year. She also gained experience as an educational materials developer during her stay in the South. She accepted her present position as a German teacher at the research setting in 1991.

Ute began to use technology in her instruction once she began teaching at the research site in 1991. Within the past ten years, Ute learned how to use the computer. She learned to use software such as word processing programs, *HyperCard*, *HyperStudio*, and she also learned how to use the Internet in her instruction.

To recap, Ute was one of two German teachers at the research site. She has taught for over 20 years. She agreed to be interviewed and to allow her classes to be observed. She has a total of 11 years of German teaching experience in secondary classrooms. During the data collection portion of the study, Ute taught German 2 and German 4.

<center>Summary</center>

In order to contribute new knowledge to the foreign/second language education professional literature, this descriptive study was designed to investigate the perceptions and use of technology by two high school German teachers. The study included interviewing the teachers, reading curriculum documents and observing the teachers' use of technology in their classroom practice. In subsequent chapters, the researcher describes how the two German teachers regularly used technology in their German classes. To document the technology implementation process, excerpts from the interviews conducted with the two teachers will be described

<center>27</center>

and analyzed. After the organization of the dissertation is presented, the discussion in Chapter 2 turns to a review of the literature relevant to this study, relating that literature to the present study.

Organization of the Dissertation

Chapter 1 -- This chapter introduces the research topic, outlines the research questions, basic assumptions, and operational definitions. The researcher justifies the need for this research study to be conducted. The chapter also includes an overview description of the research setting. This description should help readers understand the organization of the school and become acquainted with two German teachers who participated in this study.

Chapter 2 – The second chapter contains the literature reviewed that was relevant to this descriptive study. Content areas include a review of standards documents, the use of technology by foreign/second language teachers, and research on technology in instruction outside the foreign/second language profession. The researcher describes how the literature reviewed relates to the present study.

Chapter 3 -- The third chapter focuses on the implementation framework and research procedures for the study, and includes

a detailed description of the participants, methodology, and the data collection and analysis procedures.

Chapter 4 -- This chapter presents the research data, and includes numerous samples from interviews conducted with the two German teachers, with a summary of the various methods the teachers used when implementing technology into their instruction. Other information presented in Chapter 4 includes the school's daily schedule, the technology resources available at the site, and the guidelines found in the foreign language curriculum documents that were created and used by foreign language teachers.

Chapter 5 -- The final chapter is a discussion of answers to the seven research questions, implications of the research findings, suggestions for further research, and the limitations of the study.

A bibliography and eight appendices conclude the dissertation.

CHAPTER 2

REVIEW OF THE LITERATURE

The literature review is divided into four sections. The first part of the chapter includes a description of foreign language standards and guidelines, including the *Standards for Foreign Language Learning*, the *ACTFL K-12 Performance Guidelines* and the foreign language guidelines of the Illinois Department of Education. The second part highlights research on the use of technology by foreign/second language educators. The third topic is a presentation of research on technology in instruction conducted in classrooms outside the foreign/second language profession. The chapter concludes with the relevance of diffusion research to this study.

The *National Standards* and their Application
at the Research Site

The *National Standards* are relevant to the present study because they are the current content standards advocated by the foreign/second language profession. The researcher considered the *Standards* as a possible document used by the two German teachers in writing their curriculum. In this

section, the establishment of standards in the foreign/second language profession is discussed; followed by a description of the *National Standards*, and concluding with the ways the standards were reflected in the documents collected at the research site.

The Development of Language Standards

Foreign language educators began to conceive the development of standards during the late 1980s. The purpose of developing content standards was to link learning and accountability together so that teachers knew ahead of time what they were supposed to teach, and so students could strive toward achievable objectives (Jennings, 1996, p. 14). The movement towards developing standards was termed "standards-based reform." In using this terminology, standards advocates claimed that student progress toward graduation should be determined according to mastery of content taught (Jennings, 1996, p. 14).

The creation of the standards movement was influenced by the political climate of the late 1980s. One key event in 1989 that mobilized educators to move toward standards-based reform was when President George Bush and the nation's governors agreed to establish national goals for education. This, in turn spurred educators in various academic disciplines to create voluntary national standards in order to achieve these goals (Jennings, 1996, p. 15). The move to draft standards was

further solidified by a report issued by the National Council
on Education Standards and Testing (1992). In the report, the
council advocated the establishment of content and student
performance standards on the grounds that the quality of
American education had to be improved and that local decision
making failed to bring about this improvement (Jennings, 1996,
p. 15).

The national goals conceived during the Bush
administration were signed into law in 1994 by President
Clinton and given the name Goals 2000. With Goals 2000
enacted, the federal government supported certification of
voluntary national education standards and encouraged
individual states through grants to develop their own
standards (Jennings, 1996, p. 15). It should be noted that the
Goals 2000 law explicitly barred the U.S. Department of
Education from enforcing any curricular framework on state and
local school districts. This section of the law was enacted in
response to reports in the news media that the federal
government was attempting to create a national curriculum
(Jennings, 1996, p. 17).

The Goals 2000 framework was structured on the premise
that standards at the national level evolved to "frameworks"
at the state level, to "district curricula" at the district
level to the "lesson/unit plan" at the classroom level (Bartz
& Singer, 1996, p. 140). In other words, general guidelines at
the national level evolved into more specific guidelines at

the local level (Bartz & Singer, 1996, p. 140). Categories defined in Goals 2000 were classified under various headings on each level. For example, "Goals" (national) became "goals for instruction" (state framework) which became "local goals for instruction" (district curricula) culminating in "specific objectives for learning" (lesson/unit plan in individual classrooms) (Bartz & Singer, 1996, p. 140). The evolution from general to specific was intended to emphasize responsibility placed on local school systems for defining curricular frameworks that attained local, state and national objectives (Bartz & Singer, 1996, p. 141). The Goals 2000 framework was integrated into the *National Standards* document published in 1996 and remains today in the revised *Standards* document published in 1999.

The *National Standards* document is the culminating product in the foreign/second language profession of the standards-based reform movement that started in late 1980s. The importance of this document is that it provided a basis for state departments of education and local school districts to use in developing their own foreign language curricula. In addition, the *Standards* provided teachers with written guidelines for establishing accountability. The development of standards is relevant to this study because the nine foreign language instructors at the research site were responsible for conceiving and writing their own foreign language curriculum. In the final version of the curriculum, the teachers created

33

their own content standards and a system of accountability based on documents they had reviewed. Because the *National Standards* are the contemporary content standards accepted by the foreign/second language profession, the researcher considered that the nine foreign language teachers referred to the document for their own curriculum.

Three documents are described in this section of the literature review. These documents include the *Standards for Foreign Language Learning,* the *ACTFL Performance Guidelines* and the state foreign language guidelines of the Illinois Department of Education.

Description of the *Standards for Foreign Language Learning*

The *Standards for Foreign Language Learning* is a contemporary document that reflects the current pervasive language learning philosophy of foreign and second language educators in the U.S. This section describes the organizing principles of the document as described in the *Standards*. An expanded version of the *Standards*, including verbatim descriptions of the content goals of the five C's, is presented in Appendix A.

The organizing principles of the *National Standards* include three subject areas: the five C's, the seven curricular elements and a framework of communicative modes that describes how a learner comes to understand a language, termed "knowing a language (*Standards,* 1999, p. 36)."

The first two C's are *Communication* and *Culture.* The authors of the *Standards* have argued that a learner cannot master a second language without also mastering the cultural context in which the language occurs (*Standards,* 1999, p. 31).

Connections refers to the acquisition of knowledge and understanding of other peoples' viewpoints, especially the viewpoints of individuals who live in cultures other than the United States (*Standards,* 1999, p. 31). According to the authors of the *Standards*, when language learners acquire information about other disciplines through the foreign language, they open their minds to new forms of knowledge that they could not attain as monolingual speakers of English (*Standards,* 1999, p. 31).

Comparisons is a term that refers to language learners who compare their own language and culture with that of another language and culture. The authors of the *Standards* wrote that when learners compare their language and culture to others around the world, learners gain more insight into their own language and culture, and can understand better multiple points-of-view of how the world exists (*Standards,* 1999, p. 31).

The fifth C is *Communities*. The authors of the *Standards* wrote that learners should use their language skills in and beyond the school setting with other groups of people who speak the language and live in cultures the learner studies,

moving from learning language and culture in a local context

to a global context (*Standards,* 1999, p. 31).

The authors of the *Standards* wrote that all 5 C's are

inseparable and inter-connected, which also means they are not

hierarchical (*Standards,* 1999, p. 31). This philosophy is

reflected in the inter-connected five concentric circles,

displayed in Figure 2.1.
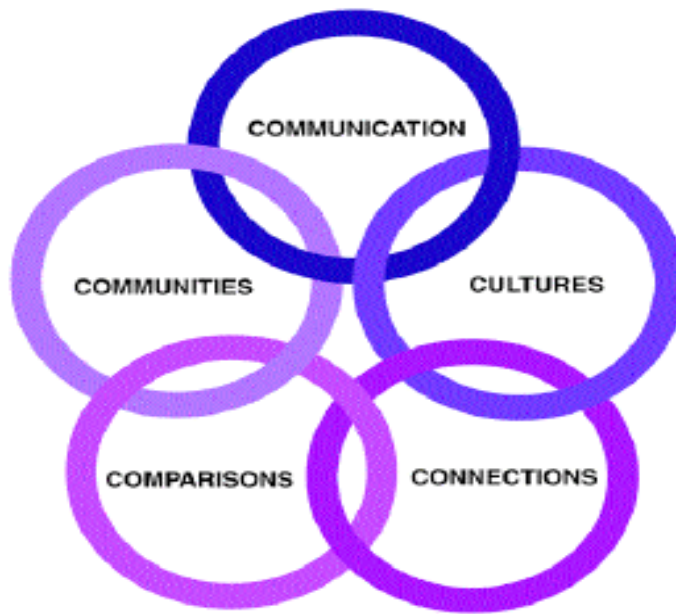
Figure 2.1 The Five C's of the *National Standards*

The second organizing principle of the *Standards* is seven

curricular elements: language system, cultural knowledge,

communication strategies, critical thinking skills, learning

strategies, other subject areas (i.e., science, social

studies, math, music), and technology. These elements were

included in the document to encourage curriculum development

that allows learners to explore and develop skills such as

communication strategies, learning strategies, critical thinking skills, and technology skills; which goes beyond the memorization of words and grammar rules (*Standards,* 1999, p. 32). These elements were not created as a prescription for teaching, but rather as a framework for teachers to rely on in developing language experiences for learners (*Standards,* 1999, p. 32). The authors wrote definitions for all seven curricular elements, which are listed below:

Language system was defined in the past as memorizing words and grammar forms, but the authors of the *Standards* expanded the definition to include the knowledge of words and forms in terms of the meaning they convey (*Standards,* 1999, p. 33). The authors defined the functions of a language system as communicating, gaining understanding of other cultures, and connecting with other disciplines (*Standards,* 1999, p. 33). These definitions can be referenced to the *Communication* and *Connections* standards.

Cultural content is defined as an extension of the philosophy that learners cannot master the language without developing knowledge of the culture (*Standards,* 1999, p. 33). In order for learners to develop their cultural knowledge, the authors of the *Standards* advocated that teachers provide students with as much access as possible to the cultural elements of the target language (*Standards,* 1999, p. 33). This curricular element refers to the two *Culture* standards.

Communication strategies need to be developed by learners because familiarity with the language itself is not adequate for enabling learners to communicate with other people (*Standards,* 1999, p. 33). Learners need to develop strategies to break down gaps that result from differences between language and culture. Some strategies need to be taught to students in order for them to interpret meaning and communicate messages (*Standards,* 1999, p. 34).

Critical thinking skills is the fourth curricular element. The authors of the *Standards* wrote that learners need to reflect on and evaluate the information they learn about another language and culture (*Standards,* 1999, p. 34).

Learning strategies refers explicitly to student learning, moving away from teacher-centered instruction and placing the responsibility for devising strategies on the shoulders of students (*Standards,* 1999, p. 34). The goal of strategy instruction is for students to view themselves as competent language learners, and to achieve a sense of control in their learning (*Standards,* 1999, p. 34).

Content from other subjects is the sixth curricular element. The authors of the *Standards* wrote that students require interesting and challenging topics to read about and discuss, the content of which may be drawn from other subject areas such as math, music, science and social studies (*Standards,* 1999, p. 35). *Technology* as a curricular element was discussed in Chapter 1.

The third organizing principle of the *Standards* is a framework of communicative language principles, called *communicative modes*. In this framework, three communicative modes are defined. The *interpersonal mode* is defined as the negotiation of meaning between individuals, expressed in either oral or written form (*Standards,* 1999, p. 36). The *interpretive mode* is defined as the cultural interpretation of meanings in oral or written form where there is no recourse to the active negotiation of meaning with the writer or speaker (*Standards,* 1999, p. 36). The *presentational mode* refers to the creation of messages that facilitate interpretation by members of the other culture where no direct opportunity exists for the negotiation of meaning between the members of the two cultures (*Standards,* 1999, p. 37). These three communicative modes comprise the content goals of *Standards 1.1, 1.2,* and *1.3,* which are focused on communication.

The framework of communicative modes was developed by the authors of the *Standards* for the benefit of language learners who have a home background in a language other than English, as well as for beginning language students whose native tongue is English (*Standards,* 1999, p. 38). Although home background learners bring interpersonal communication skills in their home language to school, these learners still need to develop the ability to use the language in the other two modes (*Standards,* 1999, p. 38).

The original *Standards* document written in 1996 was expanded in 1999 to include specifications for languages, such as Chinese, French, German, Greek, Italian, Japanese, Latin, Russian, and Spanish. The developers of each language's standards derived their language-specific frameworks from the original standards, although the specific wording was not necessarily retained. The generic and German standards are listed verbatim in Appendix A.

The authors of the *Standards* also created assessment criteria called *Sample Progress Indicators* to help teachers keep track of the progress students were making in their language development. Unlike the generic standards that were written primarily for the K-12 level, the authors of the German standards identified Grades 4, 8, 12, and the post-secondary level as the benchmarks for their language specific content (*Standards,* 1999, p. 251). The authors of the German standards developed their own sample progress indicators that included examples of how the language could be learned with the use of a computer or other technologies. Some examples included: students preparing a research-based (electronic and print media) analysis of a current event from the perspective of both the U.S. and German-speaking cultures using sources in both languages (*Standards,* 1999, p. 256); acquiring information from a variety of sources (World Wide Web, German newspapers and magazines) about a topic possibly being studied in other school subjects (*Standards,* 1999, p. 260); and

communicating orally (via distance learning, audio-bridges, or with employees from international companies) with representatives of German-speaking cultures regarding topics of personal interest, community or world concerns (*Standards*, 1999, p. 266).

The five C's of the *Standards*, the seven curricular elements, and three communicative modes apply to this study in the following ways. First, the goals of the five C's are founded on contemporary conceptions of language learning; thus they are the driving force behind language teaching in contemporary high school foreign language classrooms. The researcher considered that the five C's may have informed the language learning philosophies and teaching practices of the two German teachers at the research site. Second, the seven curricular elements, including technology, are important content benchmarks for teachers to understand when developing curricula, and designing individual lessons for their learners. Like the five C's, the seven curricular elements may have also informed the two German teachers' teaching practice and development of their curriculum. In addition, the technology standard is applicable to the present study because the research site was a technology-rich environment. Third, the three communicative modes reflect how learners can understand and use the target language, and they prompt language teachers to develop lessons in which the goals of the three modes are put into practice. All relate to this study

because the principles might have influenced the two German teachers' classroom practice, the design of the German curriculum, and the use of technology resources in the teachers' instruction.

The *National Standards* are the current content standards that exist in the foreign/second language literature. The significant characteristic of the *Standards* is that educators in state departments of education, as well as individual school districts are encouraged to derive their own curricular frameworks from the principles defined in the *National Standards.* In this study, the researcher investigated how the foreign language teachers organized their own written curriculum, including the standards documents the teachers used in developing their own framework. The researcher investigated the possibility that the German teachers referred to the *National Standards* to derive their own content standards in their curriculum.

Ways in which the *Standards* are reflected in the documents collected at the site

Prior to the start of data collection at the research site, the researcher collected paper and on-line documents from the school's foreign language department. He discovered references in the documents to the *National Standards* that were written by the foreign language teachers. This part of the review of the literature highlights the interpretation of

the *Standards* by the foreign language teachers found in the on-site documents.

The foreign language teachers at the research site wrote that current trends in language learning were focused on the production of language through speaking, writing, and understanding the language within an appropriate cultural context (Shultz, et al., 1998, p. 2). The *Standards* reflected current theories of language learning, thus the authors at the research site agreed with the content goals of the *Standards*, (e.g., the five C's). The five C's were interpreted by the authors at the research site in the following manner:

Communication -- The teachers regarded communication as the "heart of foreign language study (Shultz, et al., 1998, p. 3)." Communication was understood as understanding what another person is trying to communicate, the interpretation of non-verbal and unwritten messages, and as a concept that was influenced by cultural nuances (Shultz, et al., 1998, p. 3).

Cultures -- Culture was defined by the teachers as philosophical perspectives, behavioral practices and products of a society (Shultz, et al., p. 3). Learners are able to become better communicators when they learn to function effectively in other cultural contexts (Shultz, et al., 1998, p. 3).

Connections -- According to the teachers, *Connections* was
the result of acquiring information and furthering knowledge
through other disciplines (Shultz, et al., 1998,
p. 3). By using tools such as the voice and technology in
conjunction with the modalities of communication (e.g.,
speaking, listening, reading, writing), students were able to
access knowledge not available to monolingual speakers.

Comparisons -- This term was understood as a process of
discovering differing patterns among language systems and
cultures, which allowed students to understand the nature of
language, communicative functions of language in society, and
the complexity of the interaction between language and culture
(Shultz, et al., 1998, p. 4). By making comparisons between
languages and cultures, learners could develop a deeper
understanding of their own language and culture (Shultz, et
al., 1998, p. 4).

Communities -- The foreign language teachers understood
communities as groups of people in a multi-lingual, multi-
cultural world who were connected to each other by common
characteristics such as language, work, culture, locale, etc.
(Shultz, et al., 1998, p. 4). By studying other languages and
cultures, learners come to the realization that they live in a
world of different communities and play an active role in it.

Understanding the foreign language teachers'
interpretation of the *Standards* was important to this study in
the following ways. First, it was apparent that the teachers

44

recognized the *Standards* as the current document reflecting contemporary beliefs of foreign language learning. Second, by agreeing with the basic principles of the *Standards*, the teachers at the research site had a standards document from which to develop their own foreign language curriculum. Third, by acknowledging technology as a tool that could be used for developing the ability to communicate in a foreign language, the teachers at the research site established the possibility that the use of technology might occur in their instruction. The documentation from the research site provided a basis for the researcher's classroom observations and interviews with the two German teachers. In preparation for data collection, the researcher developed a plan to ask the teachers about the possible inclusion of the *Standards* in their curriculum and to observe how the content goals were put into practice.

The *National Standards* are content standards. This means that these standards defined content to be learned in a foreign/second language classroom, but made no mention of performance outcomes. In the next section, a comprehensive discussion follows of the performance standards document accepted by members of the foreign/second language profession today, the *ACTFL Performance Guidelines.*

ACTFL Performance Guidelines

The *ACTFL Performance Guidelines,* first published in 1982, were updated in 1999. They serve as a supplementary

document to the *Standards for Foreign Language Learning*. The *Performance Guidelines* describe the productive and receptive skills of foreign/second language learners at certain stages of proficiency development. The guidelines are focused on learners from kindergarten to the twelfth grade. The cognitive development of these individuals is said to be in a state of constant change that influences their ability to perform language tasks (*Guidelines*, 1999, p. 1).

The *ACTFL Performance Guidelines* are divided into six language performance descriptors. The six descriptors are listed below:

- Comprehensibility (How well is the student understood?)

- Comprehension (How well does the student understand?)

- Language Control (How accurate is the student's language?)

- Vocabulary (How extensive and applicable is the student's vocabulary?)

- Cultural Awareness (How is the student's cultural knowledge reflected in language use?)

- Communication Strategies (How does the student maintain communication?)
  (*Guidelines,* 1999, p. 5)

The authors of the *Guidelines* also included in their document the three communicative modes found in the *National Standards*: interpersonal, interpretive and presentational. In the *Performance Guidelines*, the three modes of communication are defined according to three levels of learners at various stages of language proficiency, including novice learners,

intermediate learners, and pre-advanced learners. For example,
under the descriptor *Comprehensibility*, the authors explain
how the interpersonal mode of communication applies to the
three proficiency levels:

- (Novice learners) rely primarily on memorized phrases
  and short sentences during highly predictable
  interactions on very familiar topics

- (Intermediate learners) express their own thoughts
  using sentences and strings of sentences when
  interacting on familiar topics in present time

- (Pre-advanced learners) narrate and describe using
  connected sentences and paragraphs in present and
  other time frames when interacting on topics of
  personal, school, and community interest (*Guidelines,*
  1999, unpaged).

The three levels of proficiency are classified among
various grade levels of language learners. Novice learners are
classified under grades K-4, 5-8, and 9-10. Intermediate
learners are classified under grades K-8 and 7-12. Pre-
advanced learners are classified under grades K-12. Learners
in the ninth to 12th grades, according to the authors of the
Guidelines, could be classified into any of these three
levels, depending on the age they begin their language study
(*Guidelines*, 1999, p. 5).

Unlike the *Standards for Foreign Language Learning,* the
ACTFL Performance Guidelines did not include a list of
curricular elements, which means that no description for using
technology as a means of improving language performance was
present. However, written examples of possible uses of

47

technology in the classroom were present. For example, the following paragraph was found in the *Comprehension* section for intermediate learners:

> (Intermediate learners) identify main ideas and some specific information on a limited number of topics found in the products of the target culture such as those presented on TV, radio, video, or live and computer-generated presentations, although comprehension may be uneven (ACTFL *Guidelines*, 1999, unpaged).

The example above shows that the authors of the *Guidelines* considered the use of technology as a possible learning tool.

The *Guidelines* are relevant to the present study. The *Guidelines* are the contemporary performance standards accepted by the foreign/second language profession. The researcher considered that the two German teachers might be familiar with the *Guidelines,* and that they may have referred to the *Guidelines* in their curriculum and applied them in practice. Also, examples of possible technology use in language classrooms were also included in the *Guidelines.* Because the two German teachers had technology resources at their disposal, it was thought that the teachers might use those resources in their own instruction.

Prior to the start of data collection, the researcher did not find any references to the *Guidelines* in the foreign language documents collected at the research site. In preparation for his interviews, the researcher planned to discuss the use of the *ACTFL Performance Guidelines* with both German teachers and the curriculum and assessment coordinator.

In developing a locally-based curriculum, the foreign
language teachers at the research site also relied on the
curricular guidelines of the Illinois Department of Education.
The Illinois foreign language guidelines are presented here as
a comparison to the *National Standards*.

Illinois Learning Standards for Foreign Languages

It is important to mention that the authors of the
National Standards intended their document to be used as a
framework for departments of education in each of the 50
states to develop their own foreign language guidelines
(*Standards*, 1999, p. 28). The standards of the department of
education in the home state of the research site (Illinois)
were based on the *National Standards,* but were not necessarily
written with the same wording as the *National Standards*. The
authors of the Illinois standards defined three foreign
language learning goals, listed below:

- STATE GOAL 28 (Communication): Use the target
  language to communicate within and beyond the
  classroom setting

- STATE GOAL 29 (Culture and Geography): Use the target
  language to develop an understanding of the customs,
  arts, literature, history, and geography associated
  with the target language

- STATE GOAL 30 (Connections and Applications): Use the
  target language to make connections and reinforce
  knowledge and skills across academic, vocational, and
  technical disciplines.

For each goal, the developers of the Illinois standards included a rationale using the heading *Why Is This Goal Important?* Under STATE GOAL 28, the authors emphasized mastery of listening, speaking, reading and writing. They wrote that in learning modern languages, learners needed to develop the ability and confidence to interact with native speakers in oral and written form, either in person or using technology (Illinois Guidelines, 1997, unpaged). This rationale is similar to *Standards 1.1, 1.2,* and *1.3* on communication.

Under STATE GOAL 29, the authors wrote that learners needed to learn not only about other countries and culture, but also to understand that language and culture were inseparable (Illinois Guidelines, 1997, unpaged). By using materials such as print and other media, students gain a richer understanding of the culture and the language. This rationale is similar to *Standards 2.1* and *Standards 2.2*, focused on culture.

Under STATE GOAL 30, the authors focused on the relationship of foreign language to other academic subjects, emphasizing that students needed to reinforce and further their knowledge of academic, technical and recreational material (Illinois Guidelines, 1997, unpaged). The authors wrote that students may use the target language to communicate about a variety of subjects, thus expanding their knowledge base (Illinois Guidelines, 1997, unpaged). These principles refer to *Standards 3.1* and *3.2*, focused on *Connections*.

As seen here, the wording of the Illinois standards and *National Standards* is not the same, but both documents reflect similar conceptualizations about language learning. The Illinois authors made explicit reference to principles based on the *National Standards,* thus confirming similarities between the two curricular documents (State Guidelines, 1997, unpaged).

In like manner, the Illinois authors created their own curricular elements. The Illinois curricular elements included the following: applications of learning (demonstrating understanding of knowledge and skills), solving problems (recognizing problems and developing solutions), communicating (expressing and interpreting ideas), using technology, working on teams (learning productively individually and in groups), and making connections (recognizing and applying connections of important information) (Illinois Guidelines, 1997, unpaged).

Under the heading *Using technology,* the authors of the Illinois standards wrote that technology referred to using instruments, such as computers and networks to access information, process ideas, and communicate results (Illinois Guidelines, 1997, unpaged). A description supporting the use of technology was expressed in the following manner:

> Students of foreign languages benefit from access to a wide range of technologies helpful in locating primary sources in the target language and interacting directly with native speakers. Students reinforce their knowledge of software, technical

51

skills, and vocabulary as they use this technology both within and beyond the foreign language classroom (Illinois Guidelines, 1997, unpaged).

The statement is worded in a similar manner to the *Standards* in regard to access and establishing interactions with other individuals. Both documents emphasize the expansion and reinforcement of knowledge through the use of technology. The choice of words is not the same, but the same concepts about language learning supported by the use of technology are present in both documents.

According to the Illinois Guidelines, local school districts were charged with the responsibility of creating learning objectives that met or exceeded the goals established by the state (Illinois Guidelines, 1997, unpaged). Educators in these local districts were allowed to make modifications of the Illinois guidelines in their local frameworks as long as the local objectives met or exceeded the state goals (Illinois Guidelines, 1997, unpaged). The curricular framework designed by the foreign language teachers at the research site was required to include content that conformed to the guidelines written in the Illinois standards. Any descriptions about the use of technology written into the curriculum by the teachers needed to reflect the content goals of the Illinois guidelines. In summary, the Illinois foreign language guidelines included references to the use of technology in foreign language instruction, which was the basis for curricular decisions about technology use at the research site.

The *National Standards* and the Illinois curricular
guidelines were important to this study in three ways. First,
both documents contained similar conceptions with regard to
contemporary language learning. The two documents were
considered as possible sources for the two German teachers in
developing their own curriculum and informing their classroom
practice. Second, the two documents contained written
references to curricular elements, which was important for the
German teachers to consider when writing their own curriculum.
Third, the *Standards* and Illinois Guidelines listed technology
as a tool that could be used as a component of foreign language
instruction. Because the research site was a technology-rich
environment, possible observations of technology in classroom
instruction by the two German teachers was considered.

The implementation of the *Standards,* including the use of
technology by foreign/second language teachers has begun to
receive more attention in the literature, although this area of
research in the profession is still in development. In the next
section of this chapter, research on the use of technology by
foreign/second language teachers is discussed.

Use of Technology by Foreign/Second Language Teachers

In the literature, studies on the implementation of the
Standards in foreign/second language classrooms are beginning
to emerge. Scholars in the foreign/second language profession

are developing new knowledge about how the *Standards* can be applied in classroom practice. Part of this new knowledge concerns how the seven curricular elements of the *Standards* have been implemented in classroom practice, including the use of technology. In the next part of the literature review, the following areas are discussed: pedagogical goals of technology and the *Standards,* learning and teaching German with technology, the use of multimedia in foreign/second language instruction, and the Internet and its relation to foreign/second language instruction.

Technology and the *National Standards*: Pedagogical Goals

Two years after the *National Standards* document was published, a paper on the implementation of technology in standards-based foreign language instruction appeared in the literature. This paper, written by Phillips, was intended to create awareness among the members of the foreign/second language profession (Phillips, 1998, p. 26). Phillips stated that instruction on all levels (P-16) was moving in the direction of establishing standards, and technology must support schools to meet the challenge of higher achievement for learners (Phillips, 1998, p. 26). She wrote that the majority of state departments of education had written standards with curricular frameworks that mirrored the *National Standards,* therefore members of the profession needed to consider seriously the development of standards-based

curricula and consider the possibility of implementing classroom instruction with technology (Phillips, 1998, p. 26).

Phillips advocated three pedagogical goals that technology should fulfill in language learning. First, technology should provide learners access to people and materials, provide learners the tools to interact with native speakers, help learners understand native texts, and support learners in the development of advanced competency with language and culture (Phillips, 1998, p. 33). Second, technology should provide students with learning experiences using authentic materials, and helping students to interpret language, content, and perspective (Phillips, 1998, p. 33). Third, technology should help learners develop learning strategies to forge interdisciplinary connections in various academic subjects (Phillips, 1998, p. 33). Phillips also emphasized the need for technology implementation in language learning to be in agreement with effective language pedagogy and encouraged teachers to refer to the *Standards* framework for guidance in their own practice (Phillips, 1998, p. 35).

The goals advocated by Phillips were considered relevant to this study for the following reasons. First, Phillips wrote that most states had created foreign language content standards and that technology must support these standards. By locating references to the *National Standards* and the Illinois Standards in the research site documents and deducing that the research site was a technology-rich environment, the

researcher considered the possibility of technology use at the school by the two German teachers. Second, Phillips' three pedagogical goals of technology in language learning were considered relevant because the goals were grounded in contemporary theory for foreign language learning, including the principles of the *Standards*. The goals were also considered as a call for teachers to use technology in their instruction, thus the researcher considered that the two German teachers might use technology based on the suggestions from the literature.

Just before Phillips' paper on technology and the *Standards* was published, a paper appeared in the professional literature on the topic of teaching German with technology. Although this article did not explicitly deal with the *National Standards*, the author discussed how the implementation of technology into the German classroom might spur language educators to rethink their conceptions of foreign/second language learning and teaching.

Learning and Teaching German with New Technologies

Studies on technology and German have been in existence for the past twenty years, but 1997 signaled a year when conceptions of learning and teaching German were re-examined in light of the implementation of new technologies in instruction. This re-examination was conducted at a time when theories of learning such as constructivism gained attention in the literature, signaling a paradigm shift from conceptions

of language learning in the past that were primarily grounded

in behaviorist theory (Tschirner, 1997, p. 122). Tschirner

stated that contemporary German learning and instruction were

defined by four principles: situated learning (German:

Situierung), individualized learning (German:

Individualisierung), an emphasis on cognitive processes of

understanding, production, and learning (German:

Prozeßorientierung); and transnational communication (German:

Transnationale Kommnikationsfähigkeit).

Situated learning in German was defined by Tschirner

(1997) as communicating in oral and written form:

communication makes language learning possible. The recent

emphasis on individualized learning signals a paradigm shift

from pervasive conceptions of learning developed in the 1970s,

where the teacher was considered the provider of knowledge and

students passive recipients of that knowledge. In the present

day, learning languages is no longer oriented on the teacher,

rather on the learner (Tschirner, 1997, p. 122). The

philosophical basis of the paradigm is that learners should be

regarded as individuals who acquire a language according to

their own individual learning processes, not as a homogeneous

group that learns German according to similar cognitive

processes (Tschirner, 1997, p. 122). In understanding

cognitive processes of language learning, Tschirner wrote that

a language must be learned in authentic contexts, which also

relates to his concept of *Situierung* (Tschirner, 1997, p. 123). In transnational communication, Tschirner emphasized that learners make contact with people in other cultures through class trips, exchanges and tourism (Tschirner, 1997, p. 123).

The principles presented here about contemporary language learning and teaching reflect current positions held by scholars in the foreign/second language profession. The focus on situated learning exemplifies a shift in thinking about the learning processes of foreign/second language learners (i.e., studying the influences of the social world on individual cognitive development). Situated learning is grounded by a theory of social practice that claims that "learning, thinking, and knowing are relations among people in activity in, with, and arising from the socially and culturally structured world (Lave & Wenger, 1991, p. 51)." Knowledge of the world is therefore open-ended and socially mediated (Lave & Wenger, 1991, p. 51). Another scholar, Kohonen, also documented a conceptual shift in language learning and teaching theory from the past to the present. In the past, the teacher was thought of as an authority figure who transmitted knowledge to passive learners (Kohonen, 1992, p. 20). In the present view of language teaching in the literature, the teacher facilitates learning, encouraging learners to participate in the construction of knowledge (Kohonen, 1992, p. 20). Tschirner's concepts, therefore, are

consistent with theories of contemporary language learning that were developed before his own publication in 1997.

Various technologies were suggested as tools of learning that could be implemented in classroom instruction according to Tschirner's four principles. Communication technologies such as e-mail, mailing lists, listservs and multiple-user domains (MUDs) were suggested as tools for language learning. These technologies were considered media of information and communication that allowed learners to practice and thereby develop their communication skills (Tschirner, 1997, p. 125). Tschirner also considered communication technologies important for transnational communication because the technologies helped learners gain access to native speakers (p. 127).

Browsing the Internet and using Web-based exercises (i.e., on-line learning tools) were suggested as possible technologies applicable to individualized learning. Learners can use these technologies at their own pace and according to their own learning styles, which is especially advantageous to slower learners (Tschirner, 1997, p. 125). In addition, multimedia programs afford learners multisensory learning experiences (e.g., sight and listening), especially through audio and video (Tschirner, 1997, p. 125). New media in foreign language instruction are also regarded as instructional tools that motivate learners, reduce their frustrations, and thus give learners increased opportunities to practice the language (Tschirner, 1997, p. 125).

Tschirner's four principles were important to the researcher's study because the principles were grounded in contemporary language learning theory. Technology was considered by Tschirner as a tool to put the four principles into practice. These principles guided the researcher in his own study as he prepared to observe the two German teachers' classes, given that the research site was a technology-rich environment. It was considered by the researcher that the two German teachers might be using technology in their instruction to accomplish their pedagogical objectives, perhaps in a similar manner as that suggested by Tschirner. Having read and understood Tschirner's four principles, the researcher wished to probe the two teachers' thoughts during interviews about their own conceptions of language learning to see if their philosophies were in agreement with contemporary principles from the foreign/second language literature.

The use of multimedia in foreign/second language instruction has also come to the attention of the foreign/second language profession in recent years. In the next section, a description on the use of multimedia in foreign/second language instruction is presented. The relationship of this rationale to the five C's is also discussed.

The Use of Multimedia in Language Instruction

Pusack and Otto advocated in the professional literature the use of multimedia in foreign/second language learning and instruction. According to Pusack and Otto, the use of multimedia in language learning and instruction is consistent with current thinking about language learning, that learners attain communicative competence and develop cultural insights in order to communicate with other people (Pusack & Otto, 1995, p. 5). This principle relates to *Standards* 1.1, 1.2, 1.3, 2.1 and 2.2. Second, multimedia such as video and audio provide learners authentic materials to use in their language development by creating real-world language experiences (Pusack & Otto, 1995, p. 5), an observation also made by Phillips (see Page 57). Third, the use of multimedia complements the five C's of the *National Standards* in that multimedia amplifies and enhances student learning experiences (Pusack & Otto, 1995, p. 5-6).

A key characteristic of multimedia in language instruction is that it gives learners a sense of control and establishes an interactive context (Pusack & Otto, 1997, p. 6). With an interactive context, students can experience a complex quantity and quality of documents, sounds, images and ideas from target cultures that can aid them in improving language acquisition and production (Pusack & Otto, 1997, p. 7).

Control refers to a learner being able to determine the amount and sequence of a language lesson. Computer-based multimedia materials can establish this control in a number of ways. For example, learners can gain a sense of control in *RealPlayer* by controlling the mode of playback in a video file; that is, a learner can watch a video clip in any time sequence, not just in a linear fashion from start to finish (Pusack & Otto, 1997, p. 9). When learners feel they have control, anxiety is reduced (Pusack & Otto, 1997, p. 9).

Another characteristic, interactivity, deals with aspects such as navigation and user interface design, lesson architecture, task formats and student input, help support systems and recordkeeping (Pusack & Otto, 1997, p. 10). Interaction with language materials brings students into contact with contextualized links built into multimedia programs, such as glossaries, images and video clips for lexical help; hyperlinked annotations to cultural and grammatical information and connections to various cultural and language resources (Pusack & Otto, 1997, p. 10).

The use of multimedia materials in foreign/second language education has relevance to the present study. Pusack and Otto wrote that using multimedia in language learning helped learners to develop communicative and cultural competence and gain access to authentic cultural materials. In addition, the use of multimedia was in agreement with the content goals defined in the five C's. Having found curricular

62

documents based on the five C's at the research site in addition to extensive technology resources, the researcher considered that the two German teachers might be using multimedia in their classroom practice, as well as establishing their own curriculum based on the content goals of the five C's. The concepts of control and interactivity were also relevant to the study because the two German teachers may have had supplementary reasons for using multimedia in addition to fulfilling the content goals of the five C's, such as giving their students a sense of control in their learning, thus reducing anxiety.

In his reading of the foreign/second language literature, the researcher found that various scholars investigated the use of specific technologies in foreign/second language classrooms. One particular technology that has been discussed in recent years is the use of the Internet in foreign/second language instruction. The use of the Internet in foreign language instruction has also been discussed in conjunction with the *National Standards*. The Internet's impact on language learning is the subject of the next section.

The Impact of the Internet on Language Learning

The influence of the Internet on standards-based instruction has recently been documented and discussed in the foreign/second language literature, particularly by Gonglewski, who connected pedagogical uses of the Internet to

the *Standards*. She posited two points: the Internet provides an excellent tool for students to learn foreign languages, and the content goals defined in the five C's of the *Standards* justify the use of the Internet in language instruction (Gonglewski, 1999, p. 348). Throughout her discussion of the five C's, Gonglewski attempted to show how the content of the *Standards* might be carried out in classroom practice by the use of the Internet as a learning and teaching tool.

In her discussion of the communication standards, Gonglewski wrote that the content of the *Standards* was grounded in the use of the target language that allowed second-language learners to interact with other speakers, which relates to *Standard* 1.1 (Gonglewski, 1999, p. 348). When learners use Internet resources such as chat rooms to communicate with native speakers in real-time, interaction with other speakers is made possible (Gonglewski, 1999, p. 348). By using technologies such as the World Wide Web, electronic mail and the on-line chat room, learners can experience communicating in the target language with a wider audience (i.e., native speakers) beyond that of just their classmates (Gonglewski, 1999, p. 350). In addition, Gonglewski considered the Web as a valuable resource in developing the reading skills of learners (Gonglewski, 1999, p. 353). Specifically, the Web provides a variety of genres and discourse styles that develop learners' one-way listening and reading skills (Gonglewski, 1999, p. 353). The development of

reading skills with the Web is addressed by the interpretive mode of communication, which is defined in *Standard* 1.2.

With regard to the *Culture* standards, Gonglewski wrote that culture needs to be taught in context so that learners can see how cultural practices relate to native speakers' perspectives, which is described in *Standard* 2.1 (Gonglewski, 1999, p. 355). Video on the Internet is an ideal technology for showing language in authentic target-culture contexts (Gonglewski, 1999, p. 355). Not only do students hear the spoken message and view nonverbal cues such as gestures, they also view communication used in a meaningful situation (Gonglewski, 1999, p. 355).

Another use of the Internet that enhances the language learning experience is the use of authentic L2 texts available on the Web (Gonglewski, 1999, p. 356). When students encounter authentic texts on the Web, they develop cross-cultural awareness (Gonglewski, 1999, p. 356). Cross-cultural awareness is acquired by learners when they examine products and artifacts of the target culture and engage in communicative exchanges with members of the target culture, creating understanding of another person's perspective (Gonglewski, 1999, p. 356). The principles above are reflected in Standard 2.2.

Gonglewski connected the *Connections* standards to the use of the Internet by stating that the World Wide Web allowed learners to draw from rich research resources, allowing

learners the chance to reinforce their knowledge of other subjects through the foreign language (*Standard* 3.1) (Gonglewski, 1999, p. 356). Unlike a textbook, the Internet's inventory of knowledge, facts and data allow language learners the opportunity to access information and knowledge that is continually updated, sometimes on a daily basis (Gonglewski, 1999, p. 356-357).

Internet resources support the *Comparisons* standards in that learners use the resources to cultivate insight into the nature of language and culture through comparisons of the language and culture they are studying with that of their own (Gonglewski, 1999, p. 357). By examining the linguistic elements of the target language, either through language resources or through interaction with other target language speakers (using e-mail, chatrooms, etc.), learners can hypothesize about language structure and compare L2 language structure to their first language (Gonglewski, 1999, p. 357).

The *Communities* standards refer to the ability of learners to "participate in multilingual communities at home and around the world (Gonglewski, 1999, p. 358)." In addition to communicating with language speakers across the globe, Gonglewski wrote that the Internet allowed learners opportunities to connect with other individuals outside of school-related assignments, e.g., for personal enjoyment or enrichment beyond the school setting itself (Gonglewski, 1999, p. 358).

The influence of the Internet on standards-based instruction has an impact on the present study in the following ways. First, the content goals of the five C's provide a basis to justify the use of the Internet in language instruction as suggested by Gonglewski. For example, the use of Internet resources was suggested as a method to communicate with native speakers, participate in communities at home and abroad, and understand cultural perspectives of native speakers. Since the researcher found a document written by the foreign language teachers on the five C's, it was thought that the two German teachers might apply the content goals of the five C's in their classroom practice. Second, Gonglewski was able to cite examples of Internet use that were extensions of the content goals of the five C's. At the research site, not only did the two German teachers have access to the document on the five C's, they also worked in an environment with extensive technology resources. It was possible that the Internet was one existing technology resource at the research site, therefore the researcher considered that the Internet might be used by the two German teachers in their classroom instruction as a teaching and learning resource.

One issue that has emerged in the foreign/second language literature is that foreign language educators feel intimidated by the process of getting on-line and having difficulties is dealing with the glut of information available on the World Wide Web (Green, 1997, p. 253). Foreign/second language

67

scholars have attempted to introduce the Internet to teachers as a way of reducing fears about the Internet, specifically, coping with its complex, technical jargon (Scinicariello, 1998, p. 33).

Understanding the Nature of the Internet in Second Language Instruction

The Internet has been described as a source of language teaching material, as well as a source of information on integrating on-line assignments into instruction, creating a Web site, and finding current research about technology (Green, 1997, p. 258). The Internet provides language learners at the beginning, intermediate, and advanced proficiency levels the opportunity to improve their language skills in the following ways: by using e-mail to communicate with native speakers with relatively immediate feedback and little panic; sharing information about articles they read on the Web; and designing Web pages about themselves or the culture they study in the target language (Green, 1997, p. 259).

Referring to the *Communities* standards, Green described the Internet as a "friendly place to travel," meaning that the Internet acted as an equalizer, in which no person is bound to a hierarchical structure (Green, 1997, p. 260). In essence, a new culture ("cyberculture") is created on the Web in which people are not bound to preconceived ideas or prejudices (Green, 1997, p. 260).

Another aspect of language learning with the Internet is that it is a provider of content-based teaching material. Research on content-based instruction has established the belief among foreign/second language scholars that a second language is acquired more effectively when used as a tool to teach content rather than emphasizing the acquisition of structure (Genesee, 1997; Terrell, 1986; Guntermann, 1993). Brinton, Snow and Wesche (1989) established five principles of content-based instruction:

- The content-based curriculum takes into account the interests and needs of the learner

- It (content-based curriculum) incorporates the eventual uses the learner will make of the target language

- It builds on the students' previous learning experiences

- It allows a focus on language use as well as usage

- It offers learners the necessary conditions for second-language learning by exposing learners to meaningful language in use (Brinton, Snow and Wesche, 1989, p. vii).

The five principles above relate to the present study because they are in agreement with current philosophies about language instruction that relate to curriculum development. According to these principles, when a content-based curriculum is created, the learner and use of the language are the central focus. Because content-based instruction is in agreement with contemporary views on language learning and

teaching, the researcher considered this type of instruction as a possible method used by the two German teachers in their own curriculum development and classroom practice. Because the research site had extensive technology resources, it was considered that the two German teachers might be implementing similar types of activities with the Internet in their classes.

Standards 2.1 and 2.2 are focused on the study of cultures other than a learner's home culture. In the next section, research is presented that shows how the Internet as well as other computer-based technologies might be used by language learners to understand culture.

On-line Technologies in the Study of Culture

According to Lafford and Lafford (1997), on-line technologies such as the Internet provide students and teachers with up-to-date content-based materials, which helps facilitate second language acquisition and helps students appreciate the target culture they are studying (Lafford & Lafford, 1997, p. 217). When students have access to the World Wide Web, the Web "facilitates the learner's understanding of the various social and psychological forces at work today in the target culture and provides a context in which students can interpret the behavior of the target culture's inhabitants (Lafford & Lafford, 1997, p. 218)." This statement relates to

70

Standards 2.1 and 2.2 (Culture), as well as *Standard* 1.2 (Communication, interpretive mode).

Students can learn about cultures other than their own by using non-interactive and interactive technologies. Non-interactive technologies are reference tools that provide target language input, including Web sites and on-line newspapers (Lafford & Lafford, 1997, p. 221). With non-interactive technologies, students can learn about the target culture by reading the text of an on-line newspaper or taking a virtual tour of an art museum, or by listening to audio or watching a video. Interactive technologies require students to produce the target language in oral or written form, examples of which include e-mail, chat rooms and MUDs (Lafford & Lafford, 1997, p. 221).

Lafford and Lafford emphasized that the use of on-line technologies provides students an engaging environment in which they can communicate in the target language, especially if students work in collaboration (Lafford & Lafford, 1997, p. 259). Collaboration among students in Web-based activities gives learners opportunities to gather information in the target language, talk about that information together and present that information in the target language to the rest of the class. Collaboration is seen as a motivating factor in increasing student interest in Web-based activities (Lafford & Lafford, 1997, p. 257).

The information presented above relates to the present study in the following ways. First, the use of interactive and non-interactive technologies relates to the content goals of *Standards* 1.1, 1.2, 1.3, 2.1 and 2.2. These technologies are tools that help learners communicate in the interactive, interpretive, and presentational modes and provide students a context in which to learn about cultures other than their own. In effect, the use of such technologies can be seen as a component of standards-based instruction. Also, collaborative learning is a contemporary conception about language learning that can be supported by Web-based activities. Since the Web was considered as a possible technology used at the research site, the researcher considered that the two German teachers might implement collaborative activities in their classes with the Web as a teaching tool.

In summary, it appears that the Internet and other on-line technologies are developing popularity as teaching and learning resources in standards-based instruction. Findings from previous research in the literature also seem to indicate that the use of the Internet in language learning and instruction supports the content goals of the five C's. In addition, the emergence of the Internet has led to new methods of teaching foreign/second language that were not carried out in the past, especially teaching with on-line materials.

Research studies on instruction with technology have taken place in a variety of educational settings and in

various academic disciplines. In the next section, research on the use of technology outside the foreign/second language profession is presented.

Research on Teachers' Use of Technology in Instruction Outside
the Foreign/Second Language Profession

The third part of Chapter 2 is focused on research by educators who reported using technology in classroom instruction outside of the foreign/second language profession. These researchers conducted their work in the fields of mathematics and science. This body of research is presented here as preceding investigations of reported teacher uses of technology leading up to the present study. Although the studies were conducted in math and science classrooms, the findings were considered by the researcher as informative to his own study as well as to other educators in the foreign/second language profession.

Given the minimal number of studies in the field of foreign/second language education on technology in high school classrooms, research conducted by mathematics and science scholars are presented in this part of the literature review. The researchers of these studies dealt with concepts introduced in Chapter 1, such as project-based learning and collaborative learning with peers. The conclusions the researchers reached may have relevance to foreign/second

language educators, thus the studies are included in this review.

One pedagogical application of technology used in a variety of academic disciplines is the use of the Internet. In the next section, a study is presented in which a researcher investigated learners' use of the Internet in a middle school science class. The study was relevant to the researcher's work because research on pedagogical uses of the Internet is applicable to the foreign/second language profession.

Middle School Science Class and the Internet

New potentials for learning in a middle school science class were investigated by Songer (1996), who studied learners' engagement with an Internet telecommunications network. Songer's purpose in conducting this research was to explore learning potentials of the students, described by the author as "the study of students' knowledge development as it progresses from less articulate and less integrated understandings to increasingly complex and explanatory forms (Songer, 1996, p. 298)." In previous research on classroom use of technology, key educational characteristics such as infrastructure, access, teacher training, and curriculum development seldom resulted in educational learning opportunities (Software Publishers Association, 1995). Songer claimed that integration of the Internet into the middle-school science classroom had the potential to foster

challenging learning goals for students, help teachers develop
a curriculum by seeing their students at work with the
technology, and provide a new way for researchers to
investigate the learning potentials that develop in learners
(Songer, 1996, p. 300).

In the Songer study, known as the *Kids as Global
Scientists* (KGS) project, a six-week weather curriculum
utilizing telecommunications resources of the Internet was
introduced. In creating a curriculum for the project, known as
Global Exchange, the research team investigated relevant
practices and theories of learning, including the social
construction of knowledge. The researchers determined that
activities needed to be designed that helped a wide range of
students develop more complex forms of thinking, including
critical thinking, question formulation and refinement, the
development of sophisticated explanations, and communication
skills (Songer, 1996, p. 300). They considered the Internet to
be a tool that might provide students information quickly and
could help students construct knowledge within a social
community, especially through the use of interactive dialogue
through electronic mail with peers and scientists worldwide
(Songer, 1996, p. 301). Songer hoped the students would take
their newly acquired knowledge and share it with other
students who acquired knowledge about the same subject matter
they did, creating a larger global learning community (Songer,
1996, p. 303).

The *Global Exchange* curriculum consisted of two phases: a research phase and an exchange phase. In the research phase, students worked in groups of two to three individuals in order to become experts in one specific weather area, such as winds, precipitation, severe weather, etc. They were required to answer sample questions about topic-specific areas and return answers to the researchers (Songer, 1996, p. 303). As the students conducted their research, some used dialogue with on-line scientists to answer their questions, while others primarily used library resources. The research phase lasted for three weeks.

The second half of the project consisted of an exchange phase. During this period of time, students were required to share the knowledge they had acquired by sending questions to other students who were studying the same topic at other school locations. As a result of this interactive dialoguing, the students were able to collect a range of materials that helped them understand the topic they were studying. This interaction was considered a key component of the project because learners engaged in the social construction of knowledge (Songer, 1996, p. 305).

Songer and her team of researchers collected data using written pre- and post-unit tests, clarifying interviews, group portfolios, e-mail dialogues, and classroom videotapes. As data were analyzed, five research questions were formulated:

- Did roles for participants change within an expanded learning community?

- Did students gain understanding in the content area of weather?

- Did real-time resources impact students developing understandings?

- Did gathering information from first-hand resources impact students developing understandings?

- Did motivational differences exist? (Songer, 1996, p. 312)

The questions listed relate to the present study because they are focused on learning communities and the use of Internet resources. One of the five C's is *Communities*, which deals with learners developing collaborative learning groups within and beyond the school setting. In these questions, one understands how technology contributes to the learning in a community. The academic subject is not foreign language, but a community of learners is formed. The use of Internet resources in this study can be related to the use of authentic materials in the foreign/second language classroom, which has been discussed in the literature by Phillips, Gonglewski, and Pusack and Otto. The resources were used as tools to enhance student understandings. Internet resources have been suggested in the foreign/second language literature as tools to not only enhance student understandings, but to help students improve their language learning skills.

The results of Songer's study indicated that the use of real-time resources and firsthand information had the potential to influence student understandings, thus it appeared the technology had some positive impact in developing student content knowledge (Songer, 1996, p. 324). Written assessments of students showed only small differences in knowledge development, but qualitative differences observed with the regard to the nature of student understanding between groups were significant (Songer, 1996, p. 324). The researchers concluded that using an Internet telecommunications network needed to be considered in curriculum development because this method helped students formulate their own personalized questions and motivated them to explore new areas of knowledge (Songer, 1996, p. 325).

Songer's research is relevant to the present study because the establishment of learning communities is a component of the five C's. Although her research was in the field of science rather than foreign language, developing learning communities is a content goal of the *National Standards.* The research is also relevant to the present study because of the role technology played in student construction of knowledge, a contemporary concept about student learning in the literature. Songer's study helped the researcher develop a knowledge base for his own observations of the two German teachers. In his observations of the German classes, he wanted to see how the two German teachers might use technology in

78

their instruction, whether lessons were teacher-driven or student-driven. Songer's research also offered one possible method of how technology might be implemented in a learning environment, in order to enhance student understandings. In addition, Songer's research also offered the researcher one model about curriculum development in which technology plays a role in a teacher's instruction.

Features of the World Wide Web include Websites, hyperlinks and search engines. On-line learning, a term defined in Chapter 1, often consists of lessons with the use of Web-based material. On-line learning conducted in a science classroom with sixth grade students is the subject of the next section.

On-line Learning in a Sixth-grade Classroom

Four researchers (Wallace, Kupperman, Krajcek & Soloway, 2000) investigated how sixth-grade students used the World Wide Web to develop their knowledge about science. The students carried out an inquiry project on the Web in which they visited Web sites and collected evidence on various areas in ecology, such as conducting lab experiments on groundwater. The researchers wanted to know how the students interpreted the assignment and put it into action, what methods students used to collect information on the Web, and the ways in which students used Web technologies (Wallace, et al., 2000, p. 76).

The researchers noted that this study was conducted at a time when research on the use of the Web in K-12 classrooms was still at an early stage, although some studies had been published prior to the start of their work (Wallace, et al., 2000, p. 76). The researchers expected that the learners would have early success in using Web browsers and search engines, but no previous research studies had indicated the extent to which students explored the potentials and pitfalls of using the Web for collecting information for an assignment (Wallace, et al., 2000, p. 79).

When the study began, the students were given an assignment in which they had to pose three questions based on previous information learned in class. The students were expected to find information about these questions on the Web. In a preliminary activity, the students were instructed in how to use hyperlinks and they performed key word searching with search engines. This activity was done in pairs. For the on-line activity, the students visited Web pages that were created by the researchers. The Web pages had links to on-line reference materials, Websites about ecology, search engines, and a discussion page for posting messages about the material they found on-line (Wallace, et al., 2000, p. 81). Eight students, four boys and four girls, participated in the study, each working together in pairs. Their interactions were recorded on videotape and audiotape. The students were also required to write journals.

The research findings yielded results that the researchers did not expect. Students had created three learning goals during the assignment that ran counter to the original intention of the research, learning about something of personal interest. Instead, the students were most concerned with finding a perfect Web page, getting a small number of hits, and finding "ready-made" answers to their questions (Wallace, et al., 2000, p. 84).

In the area of information-seeking, the students were the most focused during the searching stage of the process (Wallace, et al., 2000, p. 87). The original goal of the assignment was for students to find answers to their three questions. Questions could be changed to reflect more interest and more focus (Wallace, et al., 2000, p. 87). However, most of the students did not develop their questions further, rather, they focused on their original questions for long periods of time without progressing, i.e., not refining their questions based on information found on Web sites (Wallace, et al., 2000, p. 88).

Another surprising result to the researchers was that the students did not search a large number of Web sites as expected. Since the researchers were well aware of Web users' tendency to surf, they expected the students would do so, even exploring Web sites that were unrelated to the original instructions of the assignment. However, the students ended up staying "close to home"; that is, they rarely followed links

within Web sites, scrolled through the page, then returned to search results and search engines they were familiar with (Wallace, et al., 2000, p. 89).

A third area that the researchers focused on was the use of the technology tools, specifically how the students designed strategies for navigation and searching. Students used the BACK button as the primary means to navigate through pages. In fact, two of the boys used the BACK button 25 consecutive times to find the page they were looking for (Wallace, et al., 2000, p. 95). Only four bookmarks were created among the groups and the researchers described the use of hyperlinks as "infrequent" (Wallace, et al., 2000, p. 95). In devising search strategies, the students used simple, repetitive key words, not using the feedback from the search engines to modify words and subsequently narrow their searches. In one group, two girls submitted 37 searches using 16 key words, and ended up searching in a way described by the researchers as "unsystematic" (Wallace, et al., 2000, p. 96). This means that the girls repeated the same search, did not look at the search results and were conducting the assignment for the purpose of staying busy rather than looking for answers to their original questions (Wallace, et al., 2000, p. 96).

The conclusion reached by the researchers was that the Web was not so much a tool that would revolutionize information seeking. The Web was described as a useful tool

that engaged learners in complex thinking tasks to the extent
that students knew what they were asked to do and learned how
to use a tool like the Web that could help them accomplish
their objectives (Wallace, et al., 2000, p. 97). However, the
researchers also suggested that the Web tools themselves
needed improvement. Using the Web was not a problem for the
students, but based on the research findings, the researchers
concluded that the Web tools may not be appropriately designed
to support learning (Wallace, et al., 2000, p. 98).
Specifically, the Web provided students information, but did
not help students to process that information and make sense
of it (Wallace, et al., 2000, p. 98). A third problem that
emerged was the nature of the content students found. The
content on the Web, especially for K-12 science inquiry, was
unpredictable, changing, and at times difficult to find
(Wallace, et al., 2000, p. 98). In conclusion, issues such as
those mentioned above were critical areas to investigate in
further research on scientific inquiry and technological tools
(Wallace, et al., 2000, p. 99).

The above information was relevant to the present study
because the research site had computer-based technology
resources, including the Internet. The researcher considered
the possibility that the two German teachers were using the
Internet as part of their language instruction, and he
considered that the teachers might use the Internet following
similar methods of the Wallace study. Guided by his research

questions, the researcher was informed with information from the Wallace study to guide his observations of the two German teachers. In addition, on-line learning in foreign/second language instruction is a topic that has emerged in the literature. With the amount of resources available at the research site, including the Internet, the researcher considered that the two German teachers might be implementing on-line learning activities in their classrooms.

Project-based learning was defined in Chapter 1 (p. 18). In the next section, research on problem- and project-based learning is presented. The following research study was conducted by scholars who incorporated principles of these concepts into a classroom with fifth-grade mathematics students.

Problem- and Project-based Learning

Project-based learning first became popular in American schools during the early part of the 20th century. The term "project" was used to describe various activities in classroom learning until a unified term was created by Kilpatrick in 1918, who wrote that students learn best when wholeheartedness of purpose was accentuated (Barron, et al., 1998, p. 272). In the Barron study, the researchers assigned students problems using video-based stories (Barron, et al., 1998, p. 273).

The researchers created a set of four principles underlying how problem- and project-based learning could lead to student understanding. These four principles were:

- Learning-appropriate goals

- Scaffolds that support both student and teacher learning

- Frequent opportunities for formative self-assessment and revision

- Social organizations that promote participation and result in a sense of agency (Barron, et al., 1998, p. 273)

The four principles above are examples of contemporary conceptions about student learning. Scaffolding is a concept present in the literature on learning in a sociocultural context, which was described by Vygotsky (Lantolf & Appel, 1994, p. 5). Self-assessment is a current form of assessment (process-oriented) discussed in the literature, showing a break with the past when assessment was regarded as product-oriented (Kohonen, 1992). Because these concepts are current topics of discussion in the literature, they are relevant to this study.

The researchers developed two goals based on these four principles. The first goal was for learners to acquire content and skills, the second to help students become aware of their learning activities in order to take on more responsibility and ownership of their learning (Barron, et al., 1998, p. 273). The researchers combined these principles into a single

project that illustrated doing with understanding in action. Students discovered how basic concepts of geometry were related to architecture by designing playgrounds and playhouses. In addition to showing examples of the students' work, the researchers shared analyses of pre-test to post-test changes across classrooms as a function of prior achievement levels (Barron, et al., 1998, p. 273).

The researchers stated that technology played an integral role in carrying out the goals of problem- and project-based learning with the integration of video-based problems. Scaffolding open-ended projects could help students and teachers continually reflect on how and why their current activities related to the overall goals of a large-scale project (Barron, et al., 1998, p. 277). Video-based problems supported the "development of a student's mental model of the problem-solving situation (Barron, et al., 1998, p. 277)." Scaffolds were embedded within the problem materials to help students grapple with complicated patterns of thought. In addition, the problem materials included "just-in-time" teaching tools that could be used when students encountered a difficult issue in solving a problem (Barron, et al., 1998, p. 277).

The researchers designed a software program called *Blueprint for Success*, or *Blueprint,* that was intended for a project in which students designed two- and three-dimensional representations of a playhouse and explained its features to

an audience on videotape (Barron, et al., 1998, p. 286). For supplemental material, the developers created a series of video programs called the *Jasper Challenge*. The *Jasper Challenge* consisted of four programs that supported formative assessment, reflection, and contact with a larger community, intended to be shown on a just-in-time basis to the students (Barron, et al., 1998, p. 290).

The findings from this study were confined to measures of student learning. In all three measures, students showed gains in their abilities to understand, use and present geometric concepts. The first two measures were carried out by administering a pre-test and post-test to students, who were grouped according to low-achievers, middle-achievers, and high-achievers. Each group of learners advanced to a higher percentile after having worked on their projects, as measured by a test that required them to design a chair and a test measuring standards-based geometry concepts. For the third measure, students were required to present their playhouse designs to a panel of evaluators known as *Jasper* Central. Of 37 designs submitted, 84 percent were judged accurate enough to be built. Based on the results of this study, the researchers concluded that students were able to organize themselves in small groups and were able to complete their work on time, which was one week in length (Barron, et al., 1998, p. 303).

The previous study guided the researcher in the following manner. First, the Barron study was centered on contemporary conceptions of learning, including concepts such as scaffolding and project-based learning. Although these concepts applied to mathematics, their contemporary nature guided the researcher to think that the two German teachers might also have knowledge of these concepts, thus applying them in their own classroom practice. The Barron study was also helpful to the researcher in preparation for teacher interviews. The researcher prepared to probe the teachers' thoughts about student learning in order to find out how technology was integrated into the classroom. Third, in the Barron study, technology was used as a tool to carry out problem- and project-based learning in the geometry classroom. The researcher wished to find out in classroom observations and teacher interviews how technology was being used in the German classroom, considering the possibility that project-based learning might be one possible use of the technology resources at the research site.

In summary, the findings from these research studies in mathematics and science may be informative to scholars in the foreign/second language education profession. These studies have shown how math and science scholars have grappled with contemporary conceptions of learning. In addition, the studies have shown how the scholars investigated the role of technology in modern-day mathematics and science learning. The

findings from these studies may spur foreign/second language educators to further investigate the implementation of technology in language learning, as well as finding applications of technology to project-based learning, collaborative learning, etc. For the future, a research base exists in which the instructional role of technology can be further investigated by foreign/second language scholars.

One factor that may influence the implementation of technology in a learning environment is the personalities of the people who work there. This phenomenon is discussed in the literature by scholars who study character traits of individuals who show tendencies to adopt ideas and innovations readily and those who take a longer time to adjust. This area of research, known as diffusion research, has been conducted primarily by Rogers (1995). A discussion of selected findings from the diffusion research literature follows in the next section.

Characteristics of Innovators and Early Adopters

Adopters of innovations are classified by Rogers as having a high degree of *innovativeness*, defined as the degree to which individuals adopt innovations earlier than other members in a work environment (Rogers, 1995, p. 252). Rogers investigated agricultural, consumer and other work environments in order to determine the percentage of

89

individuals who adopted innovations faster than other people did. Five categories of innovation adopters were identified: innovators, early adopters, early majority, late majority, and laggards. The categories were organized into a normal frequency distribution representing the percentage of individuals in a work environment who adopted innovations. Rogers' data showed that 2.5% of the individuals were classified as innovators, 13.5% were early adopters, 34% were classified as early majority, 34% were late majority, and 16% were classified as laggards (Rogers, 1995, p. 264).

Rogers created definitions for all five categories. Innovators are individuals who have a high degree of venturesomeness; that is, innovators have a desire for the rash, the daring and the risky (Rogers, 1995, p. 264). They have an interest in developing new ideas and build relationships outside of their local system of peer networks, such as making friendships with other innovators (Rogers, 1995, p. 263). Innovators have the ability to understand and apply complex technical knowledge as well as express feelings of certainty about an innovation when it is adopted (Rogers, 1995, p. 264).

Early adopters separated themselves from innovators by working within their local social systems, whereas innovators tended to go on the outside of the system (Rogers, 1995, p. 264). In the early adopter category, individuals of this type tended to express opinions more than other people and were in

positions of leadership. As leaders, early adopters were often asked for advice about information and innovations. The peers of early adopters showed respect because the adopter embodied the successful use of new ideas (Rogers, 1995, p. 264). Early majority individuals took a longer period of time to adopt innovations than early adopters, but their role in the adoption of innovations was considered important because the largest number of individuals in most systems comprised this category (Rogers, 1995, p. 265). Because of the position these individuals were in, early majority individuals provided "interconnectedness" between the interpersonal networks of the system (Rogers, 1995, p. 265).

Individuals in the late majority and laggard category took the most time to adopt new innovations (Rogers, 1995, p. 265). Making up one-third of the population in a work environment (Rogers used the term *system*), these individuals regarded innovations with skepticism and caution, and generally did not adopt an innovation until other individuals in their environment did so first (Rogers, 1995, p. 265). The late majority usually did not adopt an innovation until pressure from peers forced them to do so (Rogers, 1995, p. 265). Laggards were individuals who were always last to adopt an innovation. They tended to isolate themselves from the social networks of their system and tended to look toward the past, not to the future (Rogers, 1995, p. 265). These individuals often needed to be assured that a new innovation

would not fail before they finally adopted it (Rogers, 1995, p. 266). Laggards were often in precarious economic positions, which forced them to be cautious in adopting innovations (Rogers, 1995, p. 266).

Factors that influence the nature of innovative behavior were termed adopter variables, and these can be classified into three headings: socioeconomic status, personality values, and communication behavior (Rogers, 1995, p. 268). In terms of socioeconomic status, early adopters tended to have more years of formal education than later adopters, higher social status, a greater degree of social mobility, and they possessed larger units (such as farms, schools, companies, etc.) (Rogers, 1995, p. 269). Rogers wrote that early adopters were less dogmatic than later adopters, had greater empathy, a greater ability to deal with abstractions, greater intelligence, and a more favorable attitude toward science and change (Rogers, 1995, p. 273). Early adopters tended to cope with uncertainty and risk better than late adopters (Rogers, 1995, p. 273). In the third category, communication behavior, Rogers wrote that early adopters engaged in more social participation than later adopters, had more interconnected interpersonal networks, had greater exposure to mass media and interpersonal communication channels, had greater knowledge of innovations, and tended to seek information about innovations (Rogers, 1995, p. 273).

Diffusion research was relevant to the present study because the study focused on teacher use of technology in a

technology-rich environment. The researcher considered the possibility that the degree of innovativeness in the two German teachers might influence their use of technology in their classes.

Diffusion research was also considered important to the researcher for his interviews with the two German teachers. Specifically, the researcher planned to ask the teachers about their backgrounds with technology, identify types of technology they used in the classroom, and probe their thoughts about the use of technology in the German classroom. Through an investigation of the two teachers' views on technology, it was possible for the researcher to document the reasons for the ways the teachers used or did not use technology in their instruction.

Conclusion

The research reviewed in this chapter reflects content from a variety of subject areas, including the development of content and performance standards, the use of technology in foreign/second language instruction, technology use in mathematics and science classrooms, and diffusion research. The literature reviewed in this chapter reflects contemporary principles of language learning as well as contemporary teaching practices with technology that form the knowledge base for studying the two German teachers at the research site. The next chapter is focused on the methodology of this study.

CHAPTER 3

METHODOLOGY

To collect data at the research site, the researcher
employed a qualitative research design. In the first section
of this chapter, characteristics of qualitative research are
discussed, including characteristics of descriptive studies.
The second part of the chapter is a brief description of the
researcher's background and how he chose to conduct his study
at the research site. The third part of this chapter is a
description of four qualitative research methods the
researcher used to collect data in this study. In the fourth
section, the procedures used to verify the data are described.
In the fifth section, the researcher shows how a qualitative
research software program was used to organize and interpret
the data. In the final section, the researcher describes his
stay at the research setting and presents his daily schedule
of activities during his residence.

Characteristics of Qualitative Research

In Chapter 1, it was stated that the purpose of this descriptive study was to conduct baseline research on a high school German program in which the teachers included technology as a component of their instructional goals in both the curriculum and in their classroom practice. In order to provide a rich description of data of the German program and the teachers' use of technology in their instruction, the researcher selected qualitative research methods for the study. Collecting a rich sample of data required the researcher to interact with the research participants, which was done through interviews, spontaneous conversations, by observing class sessions, and gathering information about the teachers' knowledge about technology on a questionnaire.

Qualitative inquiry sets itself apart from quantitative research in that reality is viewed from multiple perspectives rather than from a single point-of-view (Guba & Lincoln, 1994, p. 106). Human behavior is understood with "reference to the meanings and purposes attached by human actors to their activities," not as an object that can be manipulated (Guba & Lincoln, 1994, p. 106). Some contemporary paradigms that have influenced qualitative research include critical theory (i.e., reality is shaped by social, political, cultural, economic, ethnic, and gender factors) and constructivism (i.e., reality

is understood as multiple mental constructions, socially and experientially based).

A central function of qualitative research is that the researcher interacts with the people he/she studies, and does not regard these individuals as subjects as in experimental studies (Guba & Lincoln, 1994, p. 110-111). In this study, the researcher collected data by interacting with the research participants. Interaction with people in the research setting was a key component in the emergence of data. To allow the researcher to understand the personalities of the research participants as well as the nature of the research context, words and actions of the participants were observed and recorded in fieldnotes.

A key principle of qualitative inquiry is thick description of data. According to Geertz (1983), thick description refers to data that are described by a researcher in as detailed a manner as possible. Included in the described data are the observed behaviors of the participants in the research setting. To describe data in a detailed manner, the researcher records the "circumstances, meanings, intentions, strategies, and motivations" that characterize the behavior of the studied individuals in the research setting (Schwandt, 1998, p. 161). Description is the starting point for interpreting the meaning of human behaviors that take place in a given context, which leads to theory building about these observed behaviors (Clifford & Marcus, 1986).

In Chapter 1, this research project was defined as a descriptive study of one German program in a single high school. Although this descriptive study was not a case study, the researcher reviewed characteristics of case studies from the literature to inform his observations of the two German teachers. Stake (1994), a leading scholar on case studies, wrote that case studies are based on a view that social phenomena, human dilemmas, and the nature of cases are situational and influenced by factors of many kinds. This view is in agreement with the belief that human experience is understood from a variety of perspectives and is not based on a single reality (see Chapter 1)(Denzin, 1989; Diesing, 1972; Guba & Lincoln, 1994; Lincoln & Guba, 1985).

Perhaps the most important characteristic of case studies that a qualitative researcher must consider is understanding the uniqueness of the case (Stake, 1994, p. 238). Stake describes the uniqueness of individual cases in this manner:

> With its own unique history, the case is a complex entity operating within a number of contexts, including the physical, economic, ethical and aesthetic. The case is singular, but it has subsections (e.g., production, marketing, sales departments), groups (e.g., students, teachers, parents), occasions (e.g., workdays, holidays, days near holidays), a concatenation of domains--many so complex that at best they can only be sampled (Stake, 1994, p. 239).

Based on Stake's description, the school selected for this study had its own subsections, groups, and occasions that

97

defined its uniqueness. As described in Chapter 1, the school had various academic departments whose individual teachers wrote their own departmental curricula. Groups of individuals present in the research setting were the 265 faculty and staff members, and a student body of over 600, consisting of tenth graders, 11th graders, and 12th graders. Occasions considered for study were the interactions that took place between the teachers and students during class time and outside of class.

In qualitative research, researchers must make themselves aware of their subjectivity. A researcher's subjectivity is defined by Peshkin (1988) as an "amalgam of the persuasions that stem from the circumstances of one's class, statuses, and values interacting with the particulars of one's object of investigation (p. 17)." In essence, a researcher's personal qualities about himself/herself, including his/her ideological views, may influence the research process and data that emerge (Peshkin, 1988, p. 17). The recognition of researcher subjectivity runs counter to principles of the positivist paradigm, in which research results are said to be objective and not influenced by the researcher (Guba & Lincoln, 1994, p. 110).

Janesick (1994) wrote that a qualitative researcher must identify his/her own ideological biases throughout the entire research process, as well as identify appropriate informed consent procedures and be willing to deal with ethical issues. According to Janesick (1994), no value-free or bias-free

research design exists. Because researchers deal with research participants on a daily basis, they must be "attuned" to making ethical decisions, which is a normal occurrence in the field (Janesick, 1994, p. 212). For this study, the researcher used a reflective journal to monitor his subjectivity, which is further discussed in the data management procedures section.

The Researcher's Background and Site Selection

Prior to the start of his doctoral studies, the researcher was a German teacher at a school in the Midwest during the 1996-97 school year, where he taught students from the eighth through twelfth grade. He was the single German teacher at the school, teaching the beginning, intermediate, and advanced-level students. At the school, the researcher made use of two computer laboratories (with Macintosh workstations) in his German instruction. For example, he taught students to use programs such as *HyperStudio* to write autobiographies in German, and he assigned his students research projects by finding German language sites on the World Wide Web. This year of teaching service helped the researcher gain knowledge and experience about the teaching of high school German, as well as the integration of technology into his German instruction.

The researcher first visited the research site for a week in 1996, when he participated in a technology workshop for German instructors. During that time, he met Herbert and became familiar with the technology resources of the school. During the autumn of 1998, when the researcher was considering a school to conduct his doctoral research, he met with Herbert during a professional conference and discussed the possibility of conducting research at the research site, recalling the experience of 1996. A plan to conduct the research project was discussed during the first half of 1999, and a pilot study was planned for September 1999. After the pilot study was conducted, and finding that the two German teachers were systematic in their implementation of technology in their instruction, the researcher chose Herbert and Ute's school as the research site for his study.

Although the researcher considered a variety of schools in which to conduct his research, he intended to find a site in which the German teachers were systematic in their implementation of technology in their instruction. He also searched for a school that had a computer-rich setting in order to minimize accessibility as a factor in the use of technology by the German teachers. During the pilot study, the researcher found that access to technology resources was not an issue for the two German teachers or their students at the research site. Thus factor contributed strongly to the researcher's decision to conduct his work there.

100

Discussion of the Research Methods

The methods employed in this study included the distribution of a questionnaire to the two German instructors, a content analysis of the German curriculum, observation of individual German classes, and interviewing, which included meetings with the two German teachers and the curriculum and assessment coordinator. For the content analysis, the researcher collected paper and on-line curricular documents, and analyzed the content of each document. A comprehensive discussion of all four methods follows.

Questionnaire Distribution

During the first week of data collection, the researcher distributed to the German teachers a questionnaire developed expressly for this study. The questionnaire was created by the researcher to provide information on the teachers' knowledge, skills and experience in teaching with technology. The information collected on the questionnaire served as a benchmark for the researcher to obtain a general knowledge base about the teachers' technology skills and the ways in which the teachers applied these skills in their classroom practice.

The researcher collected the questionnaires at the end of the first week, which allowed him to analyze the teachers' responses in preparation for teacher interviews and to guide

his observations of the teachers' classroom practice. During subsequent weeks of the data collection, the researcher combined the questionnaire responses with his observations of individual German class sessions to confirm the teachers' self-reports (see Research Question 2, Page 13).

The questionnaire contained fill-in-the-blank, short answer responses. These two response types were judged by the researcher as appropriate to identify specific hardware and software known and used by the German teachers. In addition, the researcher wished to identify pedagogical tasks in which technology was used in the instruction of German. The researcher used the category "Other" to allow the teachers the opportunity to provide information not already identified in the questionnaire. The design of the questionnaire, including the use of fill-in-the blank answers, was modeled after a questionnaire by Hale (1993), another researcher at the university where the researcher was studying. The researcher's questionnaire was developed during Autumn 1999, was refined after pilot testing, and the final version was completed prior to the beginning of data collection. The complete questionnaire is found in Appendix B.

Content Analysis

Another method employed in data collection was a content analysis of the foreign language department's curriculum, which was conceived and written by all nine foreign language

teachers. Written curricular guidelines existed for all competency levels ranging from the introductory to the advanced level (i.e, first-year through fifth-year). Although fifth-year courses existed at the research setting, a fifth-year German course was not offered during the 1999-2000 school year. The fourth-year course (German 4) was the upper limit for German students who had reached the advanced level.

The researcher analyzed the content of the curriculum by reading each written document. In his reading, the researcher also searched for written content on technology. He also analyzed the content goals to compare relationships to the *National Standards* and the Illinois Standards. The foreign language department issued written drafts of the curriculum in 1998 that the researcher used for the content analysis, although the written content was undergoing revision during data collection. According to Christa, the curriculum and assessment coordinator for the foreign language department, the curriculum was not finalized at the time the researcher was present at the research site.

After the researcher studied the curricular content, interviews with teachers were conducted to solicit teachers' interpretations of the content they had written. During the interviews, the researcher also probed the teachers' thoughts about the application of the curricular content to their classroom practice.

The analysis of the written curricular content also served as a benchmark for observations of teachers and students in the classroom. By comparing the written content of the curriculum with the *National Standards* and the Illinois Standards, the researcher was able to understand how the written guidelines were applied by the German teachers in practice. Since one of the basic assumptions of this study is that teachers are unique individuals, it was assumed that the local curriculum was influenced by the teachers' unique interpretations of the curricular guidelines and also by their instructional experiences in teaching German. In essence, the content analysis, observation of the German classes, and interviewing consisted of a three-step process that helped the researcher triangulate the data collected.

In order to achieve thick description of data in this study, the researcher relied on *triangulation. Triangulation,* a key method of qualitative research, was defined by Janesick (1994) as the use of several kinds of methods or data. Denzin (1978) defined data triangulation as the use of a variety of data sources in a study.

The content analysis took place during the first two weeks of data collection. The researcher conducted follow-up analyses of the curricular content during the remaining weeks of data collection to examine specific content details and relate them to the interview content and classroom observations.

Observation

The third method of the data collection was observation. Principles of observation were defined by Adler and Adler (1994), who wrote that the purpose of observation is to look for larger trends, patterns and styles of behavior among the individual participants in a given setting. By choosing observation as a method to collect data, a researcher defines a role for himself/herself. Four possible roles include: the complete participant who actively interacts with the people being studied; the participant-as-observer, who interacts with the research participants but maintains some detachment from the people he/she studies; the observer-as-participant, who generally maintains distance from the participants and minimizes interaction with them; and the complete observer, who is completely detached and often unseen by the participants (Adler & Adler, 1994, p. 379).

The researcher was visible at all times when he conducted his observations of the German classes, however, his role changed during the study because the degree of closeness and detachment to the teachers and students changed in various situations. The researcher was able to develop closeness with the teachers and students because he resided in a dormitory room and ate meals at the school cafeteria, including weekends. He used the school's fitness center when students and faculty were present. The researcher also had a desk to work at in the foreign language department office, allowing

him to observe the teachers outside of class and engage in spontaneous conversation with them.

Moments also occurred when the researcher maintained detachment from the teachers and students. For example, while the students were sitting at the workstations in the foreign language laboratory, the researcher conducted his observations from a workstation in the same room while students worked independently on assignments. During class sessions, the researcher sat at a desk (chosen randomly, he did not sit in the same place for all class sessions) and took notes as he observed the interactions of the teacher and students, but he also participated in class activities at various times. This continuous shift of detachment and closeness is an example in agreement with the theory of Adler and Adler (1994), who wrote that the research process evolves through a series of different activities as it progresses from start to finish.

The researcher observed 82 class sessions. During the course of each class, the researcher typed fieldnotes using a laptop computer. After completing his work each day, the researcher transferred the fieldnotes to a desktop computer with a word processing program. Once the fieldnotes were transferred, the researcher organized the fieldnotes using QSR NUD*IST 4.0, a qualitative data analysis software program. A description of QSR NUD*IST 4.0 appears later in this chapter.

Observation of classroom sessions required the researcher to rely on his sight and auditory skills in addition to note-

taking. Sight, auditory faculty, and note-taking were essential in documenting the observed behaviors of the two German teachers in a detailed manner in order that interpretation of the data could be done in an accurate manner during the data analysis stage of the research project.

As the data collection process continued, the researcher observed behaviors that showed how instruction with technology was carried out. Although it was impossible for the researcher to document all behavior instances in his fieldnotes, he documented his observations in a detailed manner to achieve thick description. Sample fieldnotes from a German class are presented in Appendix G.

Interviewing

Interviews were conducted with both German teachers and the curriculum and assessment coordinator. In the interviews, the teachers had the opportunity to talk about teaching experiences and express their opinions. Teachers also discussed their beliefs and opinions about technology as a language learning tool and its role in German instruction, as well as standards-based instruction. The interview procedures are presented below.

Interview procedures.

The researcher designed his interviews according to principles established by Patton (1990). The researcher judged interviews with the two German teachers essential to data

collection because observations alone were not enough to collect a rich base of data. According to Patton (1990), interviewing helps researchers enter into another person's perspective, as well as find out information from the research participants that cannot be observed.

The basic format used by the researcher was the standardized open-ended interview. A standardized open-ended interview is designed with questions that are written out in advance *exactly* the way they are to be asked during the interview session (Patton, 1990, p. 285). Standardized open-ended interviews reduce the necessity for interviewer judgment during the interview (Patton, 1990, p. 285). As seen in Appendix C, the researcher conducted all his interviews with a list of questions he wrote out ahead of time.

Both German teachers were interviewed twice. Interviews lasted 45 minutes to one hour. The first round of interviews was conducted during the first week of data collection. The content of the interviews centered on the backgrounds of the teachers; including their teaching experience, knowledge and experience with technology, lessons taught (with and without the use of technology), beliefs about the foreign language (i.e., German) curriculum, and the reactions of students to their lessons. In the first round of interviews, the researcher also posed questions about the questionnaire responses the teachers wrote.

A second round of interviews was conducted with the German teachers during the later stages of data collection. The content of these interviews were focused on observations conducted in individual classes, including a discussion of the two teachers' classroom practice, and their interpretations of the foreign language curriculum. Another discussion topic was the perceived benefits of technology.

The researcher asked both teachers some of the same questions, such as about their teaching backgrounds, their knowledge and experiences with various technologies and how the present school setting influenced their teaching. Other questions the researcher asked were created solely for Herbert, the lead German teacher, and some questions were created solely for Ute. During each interview, the teachers were allowed time to answer while the researcher listened. However, if a teacher brought up a subject that the researcher wanted to know more about, he asked spontaneous questions that were not on his list in order to probe further each teacher's perspective. These questions were used not only as a method of probing the teacher's thoughts on a particular subject, but also to establish an atmosphere of informal conversation during the interview. The researcher also took notes while he interviewed the teachers in order to formulate new questions as they developed spontaneously, as well as to document nonverbal behavior of the teachers, a method advocated by Patton (1990).

Although the researcher had a structured list of questions with him for each interview, he did not adhere to a strict procedure of a standardized open-ended interview; that is, he did not pose his questions according to the exact chronological sequence on paper, rather he asked his questions in a random sequence, choosing a question based on the content the teacher discussed, as well as on his perception of the teacher's comfort level with the interview rapport. In essence, the format of the interviews evolved into informal conversational interviews, in which the interviewer pursues information in whichever direction seems appropriate (Patton, 1990, p. 281).

An example of the interview format is provided In Appendix F. In this sample protocol of Ute's second interview, the researcher began the interview with a question from his list, adhering to a standardized format. As the conversation continued and became more informal, he asked spontaneous questions based on previous responses Ute gave.

Interviews with the two German teachers took place individually, and because the teachers had breaks in their schedule between classes, interviews were conducted during school hours. All interviews were recorded on audiotape with the two teachers' consent.

The researcher also conducted one interview with Christa, a French teacher who served as the curriculum and assessment coordinator for the entire foreign language faculty. The

researcher did not originally intend to interview Christa until he was informed by the foreign language teachers that she had expert knowledge on curricular issues. During the first week of the data collection, the researcher asked Christa's permission for an interview and she consented. The interview took place during the third week of data collection and was conducted in the same manner as that of the German teachers. The duration of this single interview was approximately one hour.

Following Janesick's (1994) beliefs that a qualitative researcher must obtain appropriate consent forms for interviews, the researcher obtained consent forms from his university research office prior to the start of data collection. A sample consent form that the researcher distributed to the three teachers is presented in Appendix D. As seen in Appendix D, the researcher customized the language of the consent form for the research site.

Verification of Data Collected

The procedures used to verify the data in this study are described in two sections. The first section is a discussion about Lincoln and Guba's (1985) criteria of transferability, dependability, credibility and confirmability. The second section is a description of the approach used for the content analysis of the foreign language curriculum.

<u>Transferability.</u>

In their influential work on qualitative research, Lincoln and Guba (1985) set the reference for the verification of data in a research study with a qualitative design. Lincoln and Guba defined four components: transferability, dependability, credibility and confirmability.

The first criterion, transferability, deals with the researcher's responsibility to provide readers a sufficient sampling of data on a single case studied (Lincoln & Guba, 1985, p. 316). When a researcher provides a thick description of data, individuals (i.e., teachers and educational administrators) who read the research report may make transferability judgments to their own contexts based on the thick description of data (Lincoln & Guba, 1985, p. 316). A researcher is responsible to provide as complete a data base as possible in the event others wish to apply the findings of the study to their own contexts (Guba & Lincoln, 1989, p. 242). It was the intention of the researcher to provide a thick description of the single educational context that he studied.

<u>Dependability</u>

According to Guba and Lincoln (1989), methodological changes and shifts in hypotheses are expected as the emergent design of a study evolves and further data is collected. Such changes and shifts must be documented in order for outside

reviewers to judge the conceptual issues the researcher

grappled with to determine certain decisions and

interpretations (Guba & Lincoln, 1989, p. 242). During data

collection, the researcher wrote a journal using the format

created by Lincoln & Guba (1985), which included the following

characteristics:

- Daily schedule and logistics of the study
- A personal diary reflecting on the researcher's practices
- Developing a log to reflect on methodological decisions, personal values, and how his presence affected the collection of data

In essence, the journal was a medium the researcher used to

monitor his collection of data, reflect on the meaning of the

data, and to monitor his own subjective influences on the

interpretation of the data.

Credibility

To establish the credibility of the data, the researcher

used multiple data sources. Documents used for collecting data

included the foreign language curriculum, paper handouts

distributed in classes, and Web pages posted on the foreign

language department's Website. Other documents consulted by

the researcher were the *National Standards* and the Illinois

Foreign Language Guidelines. In obtaining information about

the foreign language curriculum, the researcher collected data

not only from Herbert and Ute, but also from Christa, who was

the spokesperson for the department on curricular matters. The

German teachers were relied upon as data sources on the basis

of observing their behavior in class sessions and obtaining their feedback in interviews.

Another technique used to affirm the credibility of data is to conduct *member checks*. Member checks allow a researcher to test hypotheses, data and interpretations with the participants in order to correct errors of fact and/or interpretation (Guba & Lincoln, 1989, p. 238, 240). Member checks took place with the two German teachers during data collection and after the researcher left the research site, usually when the researcher needed clarification about a statement made in an interview or a behavior observed during a class session. After exiting the research site, the researcher conducted member checks on his interpretations by contacting the participants by telephone or email.

Confirmability

The criterion of confirmability establishes that data and interpretations of a study are not imaginative inventions created by the researcher, rather that the findings, interpretations and recommendations that emerge are supported by data (Lincoln & Guba, 1985, p. 318). Keeping a reflective journal was one way the researcher established confirmability of the data. In addition, electronically recorded materials generated by the QSR NUD*IST program also established confirmability. The researcher used the NUD*IST program to generate electronic materials such as written fieldnotes,

commentaries of fieldnotes, summaries of working hypotheses
and hunches, written notes about methodological decisions and
trustworthiness of data, personal notes to himself about his
subjective influences on the collection of data, and schedules
for observation.

Curriculum Analysis: A Semiotic-structuralist Approach

In analyzing the written content of the foreign language
curriculum, the researcher employed a semiotic-structuralist
approach. Semiotics, defined by Manning and Cullum-Swan (1994)
as the science of signs, is grounded in a set of assumptions
and concepts permitting analysis of a symbolic system.
Language, the basis of sign systems, can reveal meaning about
a context. Manning and Cullum-Swan describe the work of social
semioticians as follows:

> Social semioticians see social life, group
> structure, beliefs, practices, and the content of
> social relations as functionally analogous to the
> units that structure language. By extension of
> this semiotic position, all human communication is
> a display of signs, something of a text to be read
> (Manning & Cullum-Swan, 1994, p. 466).

Structuralism is a mode of analysis created by Saussure,
who posited that social reality is constructed largely by
language (Manning & Cullum-Swan, 1994). Documents are seen as
"texts," or analytic phenomena produced by definitions and
theoretical operations (Manning & Cullum-Swan, p. 47). As
described by Manning and Cullum-Swan (1994), structuralism is

115

intended to identify the units of a system to discover deeper relationships or patterns underlying an event or series of events.

In analyzing the language of the curriculum, the researcher attempted to understand the written text as a symbolic system of language created by the nine foreign language teachers in the research setting. In creating the curriculum, the nine teachers were seen as members of a symbolic system (i.e., the context of the school), who brought their philosophies of language learning and teaching into the written text, as well as their understanding of documents such as the *National Standards* and the Illinois Standards. The written curriculum was a product of the context the teachers were situated in. By interpreting the meanings of the written curriculum, the researcher attempted to understand the content goals teachers believed the students should achieve. By observing the pedagogical methods teachers applied in classroom practice, the researcher saw the techniques the German teachers used to achieve the objectives of the written content standards. After analyzing the curriculum, the researcher used the content of teacher interviews to test his interpretations of the content that the teachers had created in the written curriculum.

Analysis of Data with QSR NUD*IST 4.0

In this section, the researcher describes how he analyzed his data using the data analysis software titled QSR NUD*IST 4.0. The QSR NUD*IST program is described along with an account of how the software was used in this study.

QSR NUD*IST 4.0

The data from the study were coded and analyzed with the qualitative data analysis program QSR NUD*IST 4.0. NUD*IST stands for Non-numerical Unstructured Data Indexing Searching and Theorizing. Its purpose is to create an environment for the researcher in which he/she "creates, manages, and explores ideas and categories," which in turn helps him/her discover new ideas and build on them (NUD*IST Newsletter, 1999, p. 2).

The program is designed for the researcher to ask questions that build and test theories. Functions of the program that fulfill this purpose are searching for patterns in coding, the clarification of ideas and discovery of themes, the construction and testing of theories about the data, the generation of reports that include the text, coding patterns and/or statistical summaries and the display of matrices and models that link to graphical display software. In essence, NUD*IST allows a researcher to use inductive analysis in organizing data, which means that categories, themes, and patterns emerge from the data (Janesick, 1994, p. 215).

NUD*IST is composed of three different systems:

Document System -- This system contains information about every document imported into the program (NUD*IST Newsletter, 1999, p. 3). It allows the user to write memos about each document in order to keep track of the data and organize it in the index system (NUD*IST Newsletter, 1999, p. 3). For this study, all fieldnotes and interview transcripts were classified as documents and were electronically transferred into the program.

Index System -- This system is composed of nodes, which are described as the "containers of thinking" for the entire project (NUD*IST Newsletter, 1999, p. 3). The nodes store the index categories that are created by the user. In each category, the user defines the title and definition of the node, writes memos about the node and defines the references to parts of documents coded at the node (NUD*IST Newsletter, 1999, p. 3).

Search Procedures -- This function allows the user to search document text or coding of nodes in order to discover and explore patterns and themes, as well as construct and test theories (NUD*IST Newsletter, 1999, p. 3). The user can search for patterns by focusing on certain patterns of text, or he/she can perform searches that find patterns of similar coding in any number of documents he/she wishes. Subsequently, the user can create matrices from these searches to display visually the results of the search he or she has conducted.

An important part of using this program is to minimize the clerical routine of the research process and maximize flexibility, which is arguably slowed down when the user does not use a computer program (NUD*IST Newsletter, 1999, p. 3). All fieldnotes from class observations, all interview transcripts, and all researcher logs were entered into NUD*IST.

After observing class sessions during a typical day, the researcher organized and analyzed his fieldnotes with NUD*IST. After opening a document for a class, he began to assign codes to the text he read. As he coded, lines of text were coded into individual nodes to which the researcher assigned names. For example, a node was created by the researcher titled "Technology." Underneath this node, he created 28 subnodes that described specific hardware, software, and instructional uses of technology from his observations of the German classes. Examples of the subnode names were "Web pages", "videos", and "World Wide Web". The researcher named the subnodes in this manner to describe the types of technology used in the research setting in more detail.

To organize the themes emerging from the data, the researcher used the text search and index search functions of the program. In the text search function, the researcher attempted to determine how often a particular text string appeared in all of the nodes. For example, the researcher searched all of the nodes to find all instances of word

"vocabulary." NUD*IST created a node with the results of the search, which totaled 26 text units. A sample display of the technology nodes is shown in Appendix H.

Researcher's Length of Stay

The data collection began on January 10, 2000 and ended on February 17, 2000. During this time period (a total of 31 seven-hour school days spent at the site), the researcher was engaged in various activities each day in which he used the four methods to conduct the data collection. Table 3.1 summarizes the principal activities of the researcher from January 10 – February 18.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Jan. 10: Research-er arrives. Curri-culum analysis begins.	Jan. 11: Herbert's classes observed. Question-naire distri-buted to teachers.	Jan. 12: No obser-vation Coding and analysis begins. Question-naire returned. Curri-culum analysis continues	Jan. 13: All classes observed. Research-er creates interview questions for Ute and Herbert.	Jan. 14: All classes observed except German 3. Ute and Herbert interview	Jan. 15: Fieldnote coding and analysis. Interview transcrip-tion begins.

Table 3.1 Summary of activities at the research site
(continued)

120

Table 3.1: continued

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Jan. 16: Fieldnote coding and analysis. Interview transcribing continues	Jan. 17: Martin Luther King Jr. Day. Classes not in session. Coding, analysis, transcrip-tions continue.	Jan. 18: All classes observed. Coding, transcrip-tions continue	Jan. 19: Classes in session. All classes observed. Coding, transcrip-tions continue.	Jan. 20 German 1 observed. German 2 and 3 not observed due to exam.	Jan. 21: German 1 cancelled German 2, 3, 4 students take exam. Research-er proctors German 3 test.	Jan. 22: Fieldnote coding and analysis. Curri-culum analysis concludes
Jan. 23: Fieldnote coding and analysis. Consent letters prepared for students.	Jan. 24: Ute's classes observed. Herbert ill, his classes cancelled	Jan. 25: Ute's classes observed. Herbert ill. Questions prepared for Christa.	Jan. 26: Christa interviewed Coding and transcrip-tions continue.	Jan. 27: Herbert returns, all classes observed. Coding and analysis continue.	Jan. 28: All classes observed. Coding and analysis continue.	Jan. 29: Fieldnote coding and analysis continues Interview transcrip-tions continue
Jan. 30: Fieldnote coding and analysis continues Interview transcrip-tions continue	Jan. 31: All classes observed.	Feb. 1: All classes observed. Coding and analysis continue.	Feb. 2: Research-er meets with teachers. Coding and analysis continue.	Feb. 3: All classes observed. Coding and analysis continue.	Feb. 4: All classes observed. Coding and analysis continue.	Feb 5: Fieldnote coding and analysis continues
Feb 6: Fieldnote coding and analysis continues	Feb. 7: All classes observed. Questions prepared for interview	Feb. 8: All classes observed (except 10:30 German 2); Herbert's 2nd interview	Feb. 9: Morning classes in session. Winter recess begins. Research-er leaves research setting.	Feb. 10: Winter recess Research-er in home city. Coding and analysis continue.	Feb. 11: Winter recess Research-er decides to return for one more week. Coding and analysis continue.	Feb. 12: Coding and analysis continue. Interview transcrip-tion. Questions prepared for interview

Table 3.1: continued

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Feb. 13: Research-er returns to research setting.	Feb. 14: All classes observed.	Feb. 15: All classes observed. Ute's 2nd interview	Feb. 16: No observ-ation	Feb. 17: Ute and Herbert out of town for rest of the week. Research-er leaves research setting.	Feb. 18: End of study. Research-er continues coding, analysis, and transcrip-tions.	

As seen in the table, the researcher was engaged in various activities each day. When the researcher was not observing classes, conducting an interview, or analyzing the curriculum, he coded fieldnotes and interview content, began to develop hunches (i.e., theorizing) about the data that emerged, and also kept a log of the events that took place every day. A sample log is included in Appendix G.

The collection and interpretation of data took place simultaneously during the researcher's stay. As the study continued, the researcher added new data to the previous data already collected, allowing him to test the theories he had formed in the analysis as well as develop new theories. Data collection and interpretation was ongoing throughout all six weeks of the study.

One issue the researcher encountered as he continued to code data and theorize was *theoretical saturation*. *Theoretical saturation* is a point in time when a researcher stops

122

analyzing a concept or theory because the data that emerge from observing additional instances of behavior, events, or activities no longer reveal anything new (Schwandt, 1997, p. 61). On January 27, the researcher wrote in his log that he was reaching theoretical saturation based on his observations of the three German 2 classes. This meant that the researcher was finding no new information about concepts that developed from his observations in the three German 2 classes. By the end of the fourth week of data collection (February 5), the researcher wrote that no new information was emerging from the German 1 class. At the same time, he wrote that theoretical saturation was gradually being reached as he observed the two German 3 classes. By February 7, the week winter recess was about to begin, the researcher began to consider if the study could be ended around February 17 or 18 because theoretical saturation was being reached based on new observations in the German 1, German 2, and German 3 courses.

During winter recess (February 9-10), the researcher returned to his home city and reported on a sample of the data he had collected. Upon consultation with the dissertation project director, it was mutually agreed that sufficient data had been collected and the study did not have to be extended beyond February 17 or 18.

After meeting with the project director, the researcher returned to the research setting for a final week to observe classes and to complete the interviews. On February 17,

Herbert informed the researcher that he and Ute would be away
from school during the next two days, and would thus cancel
all the German classes. With no classes to observe, the
researcher officially ended data collection on February 17 and
departed from the research site.

Conclusion

Qualitative research methods were used in this study in
order for the researcher to understand the context from
multiple perspectives in which the German program was housed.
The data that emerged from the researcher's observations and
conversations are presented in Chapter 4.

CHAPTER 4

PRESENTATION OF DATA

In this chapter, data are presented in three sections. In the first section, specific features of the research site are described, including the organization of the foreign language department, the daily schedule, and the types of technology available at the school. The second section is a presentation and discussion of the written responses by the two German instructors to the questions on the questionnaire regarding their technology knowledge and experience. In the final section, the data that emerged from observations of the German classes and from the interviews conducted with the two German teachers and the curriculum and assessment coordinator are presented and discussed. The courses are presented in order of instructional level, beginning with the single German 1 class, continuing with the three German 2 courses, the two German 3 classes and concluding with the only German 4 class. Each level begins with a content analysis of the curriculum, then a presentation of fieldnotes from the researcher's observations of the particular German classes, followed by selected interview excerpts from the two German teachers and the

125

curriculum coordinator. To provide a context for the discussion of the data, the data have been synthesized and described according to the framework of the *National Standards for Foreign Language Learning* (1999 edition), with emphasis on the communication and culture standards as exemplars of the five C's (Communication, Culture, Connections, Comparisons, Communities).

Description of the Research Site

The features of the research site presented in this section include the organization of the foreign language department, the daily schedule of the German teachers and their students, and the types of technology available at the school. Information presented in this section came primarily from print and on-line curricular documents produced in the foreign language department, the researcher's observations, written documents about the entire school made available to the researcher, on-line information about the research site taken from the school's Website, interviews with the two German teachers, and from random conversations with teachers and students during the field visit.

Organization of the Foreign Language Department and Basic Philosophy

The foreign language department was staffed by nine teachers: two French, two German, one Japanese, two Russian

and two Spanish. The main goal of the department was to provide students the opportunity to communicate in the target language in what the department called an immersion-based learning environment. In the foreign language curricular documents at the research site, the term "immersion"*[1] was defined as students communicating in the target language beyond their normal comfort level, and learning to function within a (language) system unfamiliar to them, thus developing "real-world proficiency" in another language and learning about other cultures (Foreign Language Curriculum, 1998, unpaged). Christa, the curriculum and assessment coordinator for the foreign language department, reported that immersion-based instruction at the research site involved teachers and students communicating "primarily, if not exclusively" in the target language (Christa, personal communication, January 26, 2000). She also reported that students were not <u>required</u> to communicate exclusively in the target language. English could be spoken during class sessions (Christa, personal communication, January 26, 2000).

According to the school's published foreign language standards, one of the key departmental objectives in teaching foreign language was for students "to engage, on a deep, intellectual, and personal level, in new ways of seeing, thinking, interacting and communicating (Foreign Language Curriculum, 1998, unpaged)." In order to achieve this goal, it

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[1] *It is recognized that the usual meaning of the term "immersion" in the foreign/second language profession is either "full" or "partial" use of the foreign language as the medium of communication in the language program.

was expected that the students would come in contact with "a communicative system" and "cultural perspectives different from their own (Foreign Language Curriculum, 1998, unpaged)." Based on these local standards, the teachers claimed that what they called the "immersion approach" was the best way in which key foreign language teaching objectives could be achieved at the research site.

Reported below is a list of ten goals the foreign language teachers specified in their curricular documents. These goals were listed as follows:

- Nurture students' consciousness of the complexity of language and culture

- Provide students with opportunities to explore relationships and interconnections within language and other disciplines

- Provide experiences through which students develop and extend their ability to investigate and explore, think critically, solve problems, and apply communication tools in a variety of situations using multiple strategies, approaches, and techniques

- Encourage the development of metacognitive skills so that students will become more aware of themselves as language learners and as learners in general

- Establish opportunities for authentic assessment, including the use of video assessment, journals, and portfolios

- Challenge students to use appropriate technology to enhance learning and communication

- Foster, in each student, the importance of learning and practicing ethical behavior in individual work, collaborative work, and assessment situations

- Encourage and support student participation in a variety of foreign language activities outside the classroom, including language and culture clubs, involvement in

128

authentic language experiences in surrounding
communities, and travel and study abroad

- Organize international exchanges and partnerships with
  schools and communities

- Support and promote the development and dissemination of
  innovative and integrative pedagogy, curriculum,
  assessment, and philosophy within and beyond (the
  research site) through such activities as publications,
  Web sites, and participation in professional
  organizations, workshops, presentations, and committee
  work (Research Site Learning Standards, 2000, unpaged).

This list of goals seems to indicate that the foreign
language instructors created their program goals by identifying
principles that were in agreement with the content goals of the
five C's and curricular elements of the *Standards.* For example,
the first two goals list items that deal with the understanding
of language, cultures, and their relation to other academic
subjects. These points reflect the content goals of
Communication, Cultures, and *Connections*. The second goal
listed is a near-verbatim wording of *Standard* 3.1. The
encouragement of student foreign language use beyond the school
setting is in agreement with *Standard* 5.1, focused on
Communities.

Selected items listed above reflect the content of the
seven curricular elements of the *Standards*. The use of
appropriate technologies to enhance learning and communication
relates to technology as a curricular element in the *Standards*
document. Other areas, including metacognition, thinking
critically, using multiple strategies, are worded in a similar
manner to the curricular elements *Learning Strategies* and
Critical Thinking Skills of the *Standards.*

129

Other content areas in the goals listed above seem to apply mainly to the entire school context, and they were not found in the written content of the *Standards* document. Examples included the display of ethical behavior by learners and the promotion of effective language pedagogy outside of the school setting.

In summary, it seems that the list of content goals mentioned above shows that the nine foreign language instructors used the *Standards* for the development of their curriculum. The content included in their goals reflects the content of the *National Standards*, both in the five C's and the seven curricular elements. Further discussion of the importance of standards as an important base for contemporary foreign language programs will be presented in Chapter 5.

German Class Schedule

Table 4.1 outlines the daily schedule of all the German classes in the research setting. Wednesdays are not included in the table because classes were not in session. The shaded sections indicate that no German class was in session during that period of time. An explanation of the term "module" is presented after the table.

Module Number and Time	Monday (A-day)	Tuesday (B-day)	Thursday (C-day)	Friday (D-day)
Module 1 (7:30-7:50 a.m.)	German 2	German 2	German 2	German 2
Module 2 (7:55-8:15 a.m.)	German 2	German 2	German 2	German 2
Module 3 (8:20-8:40 a.m.)	German 2	German 3	German 2	German 3
Module 4 (8:45-9:05 a.m.)	///////////////////	German 3	///////////////////	German 3
Module 5 (9:10-9:30 a.m.)	///////////////////	German 3	///////////////////	German 3
Module 6 (9:35-9:55 a.m.)	///////////////////	///////////////////	///////////////////	///////////////////
Module 7 (10:00-10:20 a.m.)	///////////////////	///////////////////	///////////////////	///////////////////
Module 8 (10:25-10:45 a.m.)	///////////////////	German 2	///////////////////	German 2
Module 9 (10:50-11:10 a.m.)	German 2	German 2	German 2	German 2
Module 10 (11:15-11:35 a.m.)	German 2	German 2	German 2	German 2
Midday Break	///////////	///////////	///////////	///////////
Module 11 (12:10-12:30 p.m.)	German 2	German 2	German 2	German 2
Module 12 (12:35-12:55 p.m.)	German 2	German 2	German 2	German 2
Module 13 (1:00-1:20 p.m.)	German 2	German 4	German 2	German 4
Module 14 (1:25-1:45 p.m.	///////////////////	German 4	///////////////////	German 4
Module 15 (1:50-2:10 p.m.)	///////////////////	German 4	///////////////////	German 4
Module 16 (2:15-2:35 p.m.)	German 3	///////////////////	German 3	///////////////////
Module 17 (2:40-3:00 p.m.)	German 3	///////////////////	German 3	///////////////////
Module 18 (3:05-3:20 p.m.)	German 3	German 1	German 3	German 1
Module 19 (3:25-3:45 p.m.)	German 1	German 1	German 1	German 1
Module 20 (3:50-4:10 p.m.)	German 1	German 1	German 1	German 1
Module 21 (4:15-4:35 p.m.)	///////////////////	///////////////////	///////////////////	///////////////////

Table 4.1: Class schedule at the research site

131

The school day was organized into units of time called modules, also known at the site by the term "mods." Each module lasted 20 minutes. Class sessions in German were two or three modules in length, meaning that the duration of class was either 40 minutes or 60 minutes. German 3 and 4 classes lasted 70 minutes per session.

Herbert taught his first class at 2:15 p.m. on Mondays and Thursdays, meaning his mornings on these days were free from teaching, but included other duties. On Tuesday and Friday mornings, after teaching his German 3 course, he spent his extra time performing other duties. As Webmaster of the foreign language department, Herbert was responsible for creating and maintaining the department's Web pages. In addition, he supervised the language laboratory, and was the primary support person for the other foreign language teachers. He assisted the teachers in developing both computer-based activities and using the language lab console. He also served as the department liaison to the technical support staff of the school, and was responsible for showing teachers and students how to access the school's server and how to create a computer account.

Ute's work day (except Wednesday) began at 7:30 a.m. She taught three classes on Mondays and Thursdays, four classes on Tuesdays and Fridays. Ute was not assigned extra responsibilities like Herbert because she taught a greater number of classes.

Technology Available in the Research Setting

At the research site, students and teachers used various types of technology, mostly computers and software. Specific technology types included: computers, review grammar software, word processing programs, multimedia, the Internet, the language lab console, video cameras, the school television production laboratory, and other technology resources. Listed below are specific technologies that were available, including a brief description of their uses.

Computers.

The foreign language department was assigned a language laboratory with two rooms. Both rooms were equipped with computer workstations, 50 in all. Lab A was equipped with 25 computers (Macintosh Quadra 660AV units), and Lab B was equipped with the remaining 25, which were IBM compatibles (Shamrock). The IBM compatibles (the term "PC" will be used for the rest of this discussion) were installed during the beginning of the 1999-2000 academic year and were put into operation by the time data collection began in January 2000.

All computers were connected to the school's network server, which was a component of the school's local area network (LAN), which allowed faculty and students to send and receive electronic mail, gain access to information on the World Wide Web, and save their work in electronic folders on the network. The network was equipped with three operating

systems: Windows NT (version 4.0), used for running applications; Redhat Linux (version 6.0), which provided teachers and students services to the Lightweight Directory Access Protocol (LDAP), the Domain Network Server (DNS), Web access, e-mail access, and file serving and printing. Novell Intranetware was also installed on the network server, which provided file storage, access to shared applications, and printing services for the faculty and staff. Students used file and print services provided by Linux servers. In the main building, four networks were available: one for faculty, one for students, one for administration, and a fourth server called "miscellaneous."

The majority of the students had computers in their dorm rooms. To gain access to the school network, the students were required to have a PC with a network card and a Windows operating system (Windows95, Windows98, or Windows NT). Students set up their computers for network access by following a four-step process (i.e., supplying the appropriate IP address, identifying themselves as clients on the Microsoft Network, obtaining a password patch, selecting a printer). On-line support materials to obtain network access were written by the school's computer service department and made available on the school's Website. Students could also go to computer labs in the dorms that were equipped with Macintosh and PC machines, all of which were connected to the school network via network ports.

All the foreign language teachers had networked Macintosh computers at their desks. An additional Macintosh computer equipped with a scanner was located in the foreign language department office for the purpose of creating computer-based teaching materials. Students who worked for the foreign language department used this computer to assist teachers in developing materials for classes.

Software Programs

The computers in the foreign language laboratory were equipped with software specialized for various language learning tasks. The software is classified into the following types: review grammar, word processing, multimedia programs, and the Internet. Each is described below.

Review grammar.

Review grammar software was installed on the Macintosh computers in the foreign language laboratory. French and Spanish grammar review programs were divided into two levels (French Grammar I and II, Spanish Grammar I and II) whereas only one review program was available for German (German Grammar I). Software was unavailable at the site for Russian and Japanese.

The review grammar programs were developed between 1992 and 1994, and featured multiple choice questions for which the students had to supply the correct grammar form in a sentence.

135

Various activities comprised each program. For example, the German program allowed students to practice definite articles for nouns, adjective endings, and past tense forms. These grammar software programs are known in the foreign language profession as drill and practice programs.

Word processing.

The students used word processing programs to practice writing in the target language. *Microsoft Office*, which contained the word processing program *Microsoft Word*, was the most commonly used program. Another word processing program, *Nisus Writer 5.1*, was installed for Japanese because the teacher was dissatisfied with *Word* in that it did not allow the use of Japanese characters as effectively as *Nisus Writer* did.

Students of French, German, and Spanish were expected to learn how to type the characters unique to individual languages, such as the accent aigu and grave for French, the umlaut for German and the tilde for Spanish. Additional fonts and character sets were installed on the computers for learners of non-Western languages, e.g., Japanese and Russian. The students chose the appropriate language set from a software pull-down menu, which set the keyboard to function in the language the students had chosen. The researcher was informed that the students were taught how to use the

character sets at the beginning of the school year (Herbert, personal communication, January 14, 2000).

All the Macintosh computers were equipped with a device called *Robotel*, a system that allowed teachers to interact with students in writing while students wrote compositions in the target language. Teachers were able to monitor the students' progress as they wrote and offer suggestions to the students when they made errors in grammar or needed to improve the content of their writing.

Multimedia.

Macintosh computers were equipped with a program titled *HyperStudio*, which added additional functions to a word processing program. Not only did students use *HyperStudio* to write in the target language, they also used the program's features to enhance screen appearance and perform interactive functions on the screen. For example, students could create graphics, play sounds and interactive videos, set up transitions (i.e., by drawing buttons) to navigate from one page to the next, and draw art work on the screen using specific program tools (i.e., lines, shapes, boxes, color enhancement features, etc.). *HyperStudio* projects could also be uploaded to the World Wide Web on the school's network server, if desired.

The PCs were equipped with a program called PC-VCR. Although the language laboratory had three television screens

from which students could view video recordings, the PC-VCR software program allowed students to view the video programs on an individual computer screen. After the teacher started a video-cassette from the language lab console, the students opened the PC-VCR program and watched the video on their own computer screens, listening to dialogue and other audio through their headphones. They controlled the volume by pressing a button on a "remote" that was simulated on their computer screens.

Internet resources.

All the computers were equipped with the Web browser program *Netscape Communicator,* which allowed the students access to the Information Superhighway. The PCs also had *Microsoft Internet Explorer* installed. With computer connections to the school's local area network, Websites usually loaded in five seconds or less.

Since *Netscape Communicator* was installed on all the computers, faculty and students had access to the program's Web page editor, *Netscape Composer.* The program allowed students and faculty to upload their Web-based work to the network servers. *Microsoft Word* was also equipped with a Web page editor that allowed students and faculty to create their own Web pages and upload their work.

By using *Netscape Communicator* and *Microsoft Word,* the German students could compose their pages in the target

language, insert pictures into their pages, and create textual hyperlinks in order to access other German Websites. The purpose of using Web page editors was to give students an opportunity to show their work in German to an audience in addition to teachers and students at the research site (Herbert, personal communication, January 14, 2000).

Language lab console.

Located in the PC room of the language laboratory was a console equipped with its own computer. The console, a Sony ER-9060 unit, was connected to all the audiocassette players installed at the PC workstations and was equipped with a VHS cassette player. The console was equipped with a video monitor that allowed the teacher to supervise the students as they recorded their voices on audiocassette. The teacher was able to listen to students talking on the headphones and could talk directly to any student by pressing a button on the screen that opened the audio channel to individual workstations. All video broadcasts on VHS cassette transmitted over the lab's three television sets or the PC-VCR program originated from the video cassette recorder located in the language lab console.

Video cameras.

Teachers in the foreign language department used VHS camcorders to tape their students who read and spoke in the

target language. Activities with video cameras were carried out primarily with the students who were in the first year of study, but second, third, and fourth-year students also used the equipment depending on the nature of the task assigned. Students were required to sign out equipment before using it.

Television production laboratory.

Some students in the foreign language classes used the school's television production laboratory to film skits and TV programs while speaking in the target language. For example, during the previous school year, some of the German students taped a cooking show and used the lab's digitally-enhanced editing equipment to edit the recorded material to a length of five to ten minutes. The television production laboratory was operated by two full-time staff members with assistance from student workers.

Other technology available.

In addition to the aforementioned technologies, other equipment was used by students and faculty. 8 millimeter (mm) and Hi-8mm camcorders were available for use. Students and faculty were allowed to use cameras (digital, 35mm, and Polaroid), a stereo mixer, ELMO visual presenters, audio-cassette recorders, slide projectors, microphones, laser-disc players, and televisions equipped with video-cassette recorders (VCRs). The school also had an instructional

technology laboratory equipped with multimedia workstations and equipment for fiber-optic teleconferencing. To help faculty and students with technical questions, the computer and network services lab staff helped connect individual computers to the school network and offered training sessions on learning software and how to use video.

Synthesis: Description of the Research Site

To synthesize this first section of Chapter 4, the research setting was equipped with a wide variety of technology resources. Access to technology was not an issue for teachers or students because the resources were available throughout the campus, including the foreign language laboratory, other technology laboratories, in the faculty work areas, in the residence halls, and in the student dorm rooms. Network access was possible because the entire campus was equipped with a local area network. Because of the access to these resources, the German teachers had opportunities to use the technology as part of their regular lessons. Based on the numerous resources at the research site, the researcher was able to confirm that the research site was a technology-rich environment, particularly in hardware and software.

In his reading of the foreign language department's curricular documents, the researcher found that the language learning philosophy held by the teachers appeared to conform to the content goals of the *National Standards* and the

Illinois state guidelines. The immersion approach to language
learning, which emphasized communication in the target
language, was in agreement with the *Communication* standards,
as well as Illinois State Goal 28 (Communication). Other
language learning principles in the documents were in
agreement with the content goals of the five C's and the
Illinois guidelines. For example, students exploring
relationships between languages and cultures was a concept in
agreement with the *Connections* and *Comparisons* standards, as
well as State Goal 30 on *Connections and Applications*.
Establishing learning opportunities outside of the school
setting, including travel and study abroad programs conformed
to the *Communities* standards. Based on this information, the
foreign language teachers established language learning
principles that conformed to the content goals of both the
Standards and the Illinois Guidelines.

The list of curricular elements present in the research
site documents were written in a similar manner as the seven
curricular elements in the *Standards*. The teachers at the
research site believed technology could be used as a tool to
enhance the language learning experience. Such thinking is in
agreement with the authors of the *Standards* who emphasized
that access to various technologies helped students improve
their linguistic skills, interact with peers and learn about
contemporary culture and everyday life in the target country
(*Standards*, 1999, p. 35). Other curricular elements written by

the foreign language teachers conformed to curricular elements present in the *Standards. Critical thinking skills* and *learning strategies* are two such elements that were frequently referred to in research site documents.

The class schedule at the research site allowed the two German teachers time to perform teacher-related duties other than teaching classes. This was especially true in the case of Herbert. Herbert had extra time in his schedule to attend to technology matters, such as supervising the language laboratory and serving as Webmaster for the foreign language department. He demonstrated characteristics of an early adopter (see Rogers' research in Chapter 2), in that he had expert knowledge about technology and was consulted by the other teachers for technology assistance.

It seems that the foreign language teachers were following the principles described by Phillips (1998), as well as the language learning principles based on the content goals of the *Standards*. In addition, they were equipped with numerous technology resources for language instruction, including the Internet. It seems that the teachers followed a basis for a standards-based curriculum, and they had the technology resources available to support the goals of that curriculum.

The next section of this chapter is a discussion of the ways in which the school's technology resources were utilized for the purpose of foreign language teaching. The discussion

begins with the teachers' responses on the questionnaire distributed to them by the researcher during the first week of data collection.

Questionnaire Content

During the first week of data collection, the researcher distributed a questionnaire to Ute and Herbert; it was intended to provide him background information about the two teachers' technology knowledge and skills. The questionnaire content served as a baseline assessment for the researcher to help him understand how the teachers applied their technology knowledge and skills in their classroom practice. In this section, answers from the teachers on the questionnaire items are presented in addition to the feedback obtained from their interviews. Data collected from the teachers' questionnaire responses to six questions are presented in Table 4.2:

Questions	Ute	Herbert
1. What kind of computer experience do you have (i.e., types of hardware and software used?)	Limited PC use; Macintosh computers; Word processing; e-mail; Web browsers	10 percent PC use; 90 percent Macintosh use; Word processing; Spreadsheets; Presentation software; e-mail; Web browsers; PhotoShop; Desktop publishing; Web page design; Also knows HTML and JavaScript
2. How have you developed your computer experience?	School workshops; Experience on the job; Voluntary choice	School workshops; Workshops outside of research site; Experience on the job; Voluntary choice; help from students
3. What software programs have you used in your classroom teaching (including levels and purpose)?	Word processing; World Wide Web for student research; e-mail; audio and video; HyperStudio; HyperCard; Used computers in all four levels for reading comprehension, writing practice and designing Web pages	Word processing; World Wide Web for student research; e-mail; audio and video; HyperStudio; HyperCard; Used computers in all four levels for reading comprehension, writing practice designing Web pages, speaking practice, listening comprehension, and review of grammar
4. What other technologies have you used in your teaching?	ELMO presenter; Video camera, TV production lab, Video cassette player	ELMO presenter; Video camera, TV production lab, Video cassette player, laserdisc player

Table 4.2: Ute and Herbert's questionnaire responses
(continued)

Table 4.2: continued

Questions	Ute	Herbert
5. For what reasons do you <u>not</u> use technology in your teaching?	Programs too difficult; Programs become obsolete; Materials not available for language; Not enough time to develop materials independently or adequately learn	Technology doesn't help me achieve my goals
6. For what reasons do you use technology in your teaching?	Job requires it; Personal enjoyment; Abundance of resources (sometimes); Easy time using it (some things); students like it	Job requires it; Personal enjoyment; Have attended workshops; Abundance of resources; Easy time using it (not always); students taught me to use it; Helps achieve my pedagogical goals

Discussion of Questionnaire Data

The answers Ute and Herbert wrote showed differences in their technology knowledge and skills. In Question One, Herbert's responses revealed that he had experience with technologies such as Hypertext Markup Language (HTML) and JavaScript. He was also familiar with Web page design and the graphics program *PhotoShop*. Ute listed her experience using electronic mail, word processing, and Web browsers, but did not mention using HTML, JavaScript, or being familiar with Web page design. Other differences were evident in the teachers' responses to Questions Five and Six. Ute listed more reasons not to use technology than Herbert, while Herbert listed more reasons to use technology than Ute.

Similarities between Herbert and Ute's technology
knowledge and experience were shown in Questions Two, Three,
and Four. Both teachers developed their skills at professional
development workshops (Ute at the research site, Herbert at
and outside of the research site), experience on the job, and
working with hardware and software voluntarily (i.e., not
related to a job-related task). Ute and Herbert used software
for all German language levels for similar pedagogical
purposes (i.e., reading comprehension, writing practice,
designing Web pages), although Herbert also used review
grammar programs and listed uses of technology for speaking
practice and listening comprehension.

In summary, both German teachers used computer-based
technologies in their instruction, and both used technology
for similar pedagogical purposes. Both developed their
technology knowledge and skills in similar ways, such as
attending professional development workshops. Differences
emerged in the kinds of experiences the teachers had with
technology, as well as the reasons the teachers did and did
not use technology as part of their German instruction.

Technology Data from Teacher Interviews

Ute's technology skills.

Ute reported that before she began teaching at the
research site, her technology skills were "nonexistent,"
meaning that she did not use computer-based technology in her

German instruction (Ute, personal communication, January 14, 2000). This was due to the fact that computer-based technology was not present in the school where she previously taught (Ute, personal communication, January 14, 2000). According to her questionnaire response, Ute developed her skills through professional development workshops and experience on the job, experiences that took place in the research setting (Ute, personal communication, January 14, 2000). Two workshops Ute participated in included one led by Herbert on conducting on-line research with Websites, and the second was a *Robotel* workshop taught by company representatives who distributed the device to the school (Ute, personal communication, January 14, 2000).

On a daily basis, Ute tended to use computer- and non-computer-based technologies that required minimal skill and effort to operate, such as the ELMO presenter, televisions, audio-cassette players, and video-cassette players. Ute reported that the ELMO presenter was her personal preference (Ute, personal communication, January 14, 2000). Ute said that she also liked using paper handouts in various colors along with laminated pictures (Ute, personal communication, January 14, 2000). Ute said that having the computer in her office was an important technology she "could not live without," because she used it for word processing, especially for the creation of handouts she used for class (Ute, personal communication, January 14, 2000). Ute also used the World Wide Web to conduct

her own research (Ute, personal communication, January 14, 2000).

Ute reported that she lacked the time to learn about new software programs and new ideas about technology. Part of her time was devoted to teaching three to four courses a day. As written in her questionnaire response, she lacked time to learn or develop materials with technology adequately on her own. She said that when she encountered a specific technology that she did not understand and lacked knowledge about, she avoided using it (Ute, personal communication, January 14, 2000). However, she also said her experience at the research site improved her technology skills, and made her general teaching experience positive, which she confirmed in her interview (Note: All direct quotes from research participants are presented verbatim, including pauses and hesitations):

> Researcher: How would you say your teaching techniques have developed over your 22-23 years of teaching experience?
>
> Ute: In leaps and bounds once I got (here). Um, relatively smaller class sizes. Um, no reliance on textbooks, in fact, um, for most of the time, I've been developing my own materials anyway. All of us (do it), and we've got access to almost everything. Uh, there's no, uh, restriction on copying, so we can make handouts by the bundle if we want, and we've got all of the technology we need.

The two German teachers at the research site tended not to use textbooks in their instruction. The German 1 and 2 students had textbooks (*Deutsch aktuell)* in their possession, but the book was used primarily as a reference text. The

149

researcher noted that the German 1 and 2 students never used their textbooks during any observed class sessions.

Ute reported she used paper handouts daily due to the lack of restrictions on copies (Ute, personal communication, January 14, 2000). With more computer-based resources and teaching materials available to her, Ute was able to improve her teaching skills. When asked how she thought her knowledge and skills with technology had progressed, she said the following:

> Ute: I've learned a lot but I wouldn't say that I'm really good at it. I wouldn't say that I have a lot of knowledge and skills, but I've learned a lot. So, it's all relative.
>
> Researcher: What's your definition of "good?"
>
> Ute: Well, maybe around here it's a little bit different because when I say what I do, if I tell other people at other schools what I do it seems like a lot. But around here where there's so many people who have really advanced technological skills, then it's not much at all.

This quote is significant because Ute's technology skills improved, but her skills were not as advanced as other teachers, including Herbert. She tended to use computer-based technologies and instructional materials such as paper handouts, but she was not familiar with Web page design. Her comment also confirms that the research setting was a technology-rich context with individuals who possessed the skills to use technology in various learning situations. It is

implicit in Ute's statement that other schools she visited did not have the extensive technology resources, nor did they have teachers who had technology skills, which confirms the assessment of the research setting as a "technology-rich" context.

Herbert's technology skills.

Herbert developed his knowledge and skills in computer-based technologies starting in the 1980s (Herbert, personal communication, January 14, 2000). He said that he "never felt uncomfortable" using technology (Herbert, personal communication, January 14, 2000). During the 1980s, he began to introduce technology into his German instruction. He first used electronic equipment such as the tape recorder and ELMO presenter. He eventually developed more knowledge and skills with sophisticated technologies, especially the computer, software and video cameras.

During the time that Herbert learned to use video cameras, he began training to become a certified tester for the ACTFL Oral Proficiency Interview in German (OPI) (Website: http://www.actfl.org). After completing his training, Herbert and his colleagues created video assessment procedures that were adapted to the school's instructional context. He and his colleagues visited educators at Alverno College in Wisconsin, who developed a method of assessment called "Student Assessment-as Learning" that is, educators elicited samples of

performance from students that represented expected learning outcomes from a course or program. In addition, the video assessment procedure provided the students feedback as well as the opportunity for self-assessment (Website: http://www.alverno.edu/academics/ac_curriculum.html). In effect, Herbert and his in-school colleagues created a modified OPI interview conducted in front of a video camera. Herbert commented on the creation of this procedure:

> Herbert: That's probably the first time that I used video technology in a different way. I had recorded skits beforehand and things like that but specifically with this to put together a historical record of the students' growth over time.

All the foreign language teachers used video assessment as part of their teaching, namely in their first-year classes, which was a requirement in the first-year curriculum. Video assessment was not required in Levels 2 through 5, but individual teachers could assign video projects for students enrolled in these levels.

In addition to using video cameras, Herbert learned to use computers along with various software programs, eventually developing his own computer-based teaching materials. By learning the Macintosh-based programs *HyperCard* and *HyperStudio,* as well as learning how to use laser-discs, Herbert organized teaching units using the software, beginning with a unit on Expressionism in Germany. After learning *HyperCard,* Herbert mastered *HyperStudio* and taught his

students to use the program. Attempting to make the language learning experience less passive and more interactive for students, Herbert assigned the students to create electronic books with *HyperStudio* (Herbert, personal communication, January 14, 2000).

With the introduction of the Internet, Herbert learned Hypertext Mark-up Language (HTML) and how to use Web page editors. With that knowledge, he began designing Web pages for his German classes and subsequently taught his students how to create their own Web pages. During the 1999-2000 school year, Herbert created Web pages that were teaching units. For example, Herbert created a Web site for his third-year classes about the German author Johann Wolfgang von Goethe, whose 250th birthday was celebrated in 1999. He created hyperlinks on his pages to Websites written by native German speakers about Goethe in order to give his students some background information about the author and the works he wrote in the German language.

Herbert also created Web-based exercises by using the JavaScript scripting language. For example, he created an exercise about the famous fairy tale *Rotkäppchen (Little Red Riding Hood).* After reading the fairy tale in German, the students completed the following exercise:

On the screen were four illustrations depicting various scenes from the fairy tale. Underneath the pictures were short passages of text from the story written in German. The learner

had to match the picture that depicted the correct German text. Using the mouse, the learner clicked on a button (from a selection of four buttons) on the screen to match the picture with the correct German text. If the wrong button was pressed, no action occurred on the screen. When the learner pressed the correct button, the correct picture moved from the top of the screen below to a position on the screen directly above the correct text. After arranging all four pictures with the correct German text, a feedback box appeared on the screen with the words "Sehr gut (very good)" and a new page appeared with four new pictures with corresponding German texts. In essence, the learner's knowledge of German as well as background knowledge about the fairy tale were utilized in completing the exercise.

Herbert created Web-based exercises for all German levels, although he used only exercises for German 1 and German 3 during data collection. Herbert explained why creating Web pages was important to his teaching:

> Herbert: I think language learning has to have a context of some sort. I think the Internet can provide a context. However, I think it needs structure and I like to build lessons around topics that allow the students to use the Internet and experience the spontaneity of the Internet, but yet at the same time, build into the experience certain structures to have something to learn like vocabulary, grammar, or whatever it is, they're going to experience. So, I've put together a lot of lessons.

Herbert's comments about context reflect *Standard* 1.2,
that students understand and interpret written and spoken
language on a variety of topics (*Standards*, 1999, p. 43).
According to the authors of the *Standards*, the context in
which the students experience the language may have an impact
on the development of comprehension, especially if learners
begin their language study without previous experience
(*Standards,* 1999, p. 43). The authors of the *Standards* also
wrote that content knowledge often affects successful
comprehension because students understand content that
reflects their interests or content about which students have
some background knowledge (*Standards*, 1999, p. 43). Herbert's
philosophy about context also reflects Gonglewski's belief
about *Standard* 2.1, that culture needs to be taught in context
so that learners can see how cultural practices relate to
native speakers' perspectives (Gonglewski, 1999, p. 355). In
essence, Herbert's beliefs about language taught in context
reflect the contemporary language learning philosophies of the
foreign/second language profession.

Herbert developed Web-based exercises for all four German
levels with content that reflected the interests of students.
In his German 1 class, for example, Herbert's exercises dealt
with students' personal interests such as families, school,
free time, etc. Herbert also wrote supplementary exercises for
students to practice further the vocabulary and grammar
structures learned in class.

155

Herbert also composed a Web page in which he explained his personal philosophy about using technology as a teaching tool (Herbert, personal communication, January 14, 2000). Herbert referred to the *National Standards* in his document*,* highlighting technology as one of the seven curricular elements, which provided him content goals for the use of technology in his own German classes. He wrote that technology helped him provide students with access to cultural and linguistic material, mainly by using the Internet and the World Wide Web. This philosophy is in agreement with Gonglewski, who wrote that student access to authentic cultural and linguistic materials helped students develop cross-cultural awareness (Gonglewski, 1999, p. 356). Through the use of technology, Herbert was able to develop learning activities that allowed students to process this cultural and linguistic material, and achieve a larger degree of independence and flexibility as they learned the language. Providing students more independence and flexibility is in agreement with the philosophy of Pusack and Otto, who wrote that student anxiety is reduced when learners have a sense of control in their learning (Pusack & Otto, 1997, p. 9). In his first interview, Herbert said that one reason for writing about teaching with technology was because of the educational potential for technology in the future.

> Herbert: I think that computer technology and the
> Internet is going to revolutionize, is in the process
> of revolutionizing the way we do things. I think the
> potential of the Internet, we don't clearly understand
> yet what it's going to do, um, it's just in terms of
> seeing things, video things, it can drastically change
> the way people interact with the world in which they
> live and how they get information and the amount of
> information that they are going to get. That's just
> the reality and if we don't use what's available,
> we're not going to exist in the real world anymore.

Herbert's beliefs about the potential of technology reflects characteristics of innovative behavior, as defined by Rogers in the diffusion research literature. Specifically, Herbert's attitude about technology reflected a characteristic of early adopters, a favorable attitude toward science and change (Rogers, 1995, p. 273). Another characteristic of early adopters that he showed was expressing opinions and assuming a position of leadership (Rogers, 1995, p. 264). Not only did Herbert make his philosophies about technology and language learning public, he also served as a contributing writer to the Illinois Foreign Language Committee, a group of Illinois foreign language educators who wrote the content goals for the Illinois standards document. According to Herbert, he was one member who encouraged that technology be included in the state standards framework, emphasizing technology's role as a teaching tool that helps teachers fulfill their pedagogical goals (Herbert, personal communication, January 14, 2001).

Synthesis: Questionnaire Content

Both German teachers possessed technology knowledge and skills, and both wrote in their questionnaires that they used technology in their classroom instruction. Differences in the personalities of both German teachers and of their experiences, however, were also reflected in their attitudes about technology.

Herbert experimented with HTML, JavaScript, and Web page design. He developed his own Web-based teaching materials, and articulated his teaching philosophy about technology on his Website. He said he liked to create technology activities for class that reflected Green's principles, such as providing information on integrating on-line assignments into instruction, creating a Web site, and finding current research about technology and language learning (Green, 1997, p. 258). He believed that technology was going to revolutionize the world, a statement that reflected comfort with science and change. In addition, he explicitly said he was comfortable using technology.

Ute demonstrated characteristics of early majority individuals. She had no knowledge or experience with technology before she arrived at the research site. When she started working at the research site, she developed knowledge and skills with word processing programs, using the World Wide Web, and learning how to use *HyperStudio.* Although she said she avoided using technologies that she had no knowledge or

experience with, she also mentioned that the computer was a technology that she could not live without. By saying that her technology skills increased by leaps and bounds, she confirmed that the technology-rich environment she worked in contributed to increasing her knowledge and experience.

Both German teachers' philosophies in using technology appeared to be grounded in contemporary conceptions of language learning. The German teachers used technology in order to provide students a context for developing knowledge, developing interactive skills to communicate, using computer-based technology like the World Wide Web to obtain information, and allowing students to self-assess their progress. These practices are also in agreement with Gonglewski's statement that access to various technologies helps students' language development from linguistic skills to interaction and helps them acquire knowledge about culture in order to communicate (Gonglewski, 1999, p. 356). The issue of teaching language in context was a philosophy the German teachers considered important, and using the Internet was a method of putting this philosophy into practice. This philosophy was in agreement with Lafford and Lafford, who wrote that the Internet provided a context in which students can interpret the behavior of the target culture's inhabitants (Lafford & Lafford, 1997, p. 218).

In the previous section, the general uses of technology by the two German teachers in their classes were presented. In

the next section, observed uses of technology in the German classes are presented, including references to technology in the German curriculum.

Data from the Curriculum, Observations and Interviews

In this section, further data collected during the researcher's stay are presented, including the analysis of the curriculum, a presentation of fieldnotes from class observations, and excerpts from the teacher interviews. In addition, the relevance of the data to the *National Standards* is discussed, specifically the relevance of the data to the standards of *Communication* and *Culture*. The discussion of the written curricular guidelines begins with background information about its organization and development. Quotes from Christa, the curriculum and assessment coordinator of the foreign language department, are interspersed throughout this section to provide additional context for the reader.

Background Sources of the Research Setting Curriculum

According to Christa, all academic departments at the research site were required to develop standards during the 1995-96 school year (Christa, personal communication, January 26, 2000). While researching various standards documents from which to model their own curriculum, Christa and her foreign language colleagues found that the *Standards for Foreign Language Learning* was the most appropriate resource from which

to develop the curriculum for the foreign language department (Christa, personal communication, January 26, 2000). The faculty was especially pleased with the concept of the five concentric circles that included the five C's of the *Standards* (see Figure 2.1), which was adopted as a component of the departmental framework (Christa, personal communication, January 26, 2000). Christa and her colleagues then applied principles from the *Standards* and the Illinois foreign language standards to form the framework for their own foreign language curriculum (Christa, personal communication, January 26, 2000).

The curriculum was based on seven content standards. Students enrolled in foreign language study at the research site were expected to learn the following:

- Communicate in multiple modes (interpersonal, interpretive, and presentational)

- Understand the relationships among the practices, products, and perspectives of the cultures studied

- Reinforce and further knowledge of other disciplines through the foreign language

- Acquire information and recognize the distinctive viewpoints that are only available through the foreign language and its cultures

- Understand the nature of language through comparisons of their own language and the language studied

- Understand the concept of culture through comparisons of their own culture and the cultures studied

- Use knowledge of language and culture both within and beyond the school setting for personal enjoyment and enrichment (Foreign Language Curriculum, 1998, unpaged)

The written language of the research site standards was similar to the language of the *National Standards.* For example, the three communicative modes described in the first standard are the exact terms used for the Framework of Communicative Modes in the *Standards* document (i.e., interpersonal, interpretive, and presentational). The third standard on reinforcing knowledge of other disciplines is written in a similar manner to *Standard* 3.1 (*Connections*) of the *Standards;* specifically, that "students reinforce and further their knowledge of other disciplines through the foreign language (*Standards,* 1999, p. 9)." The sixth standard is worded in a similar fashion to *Standard* 4.2 (Comparisons); that "students demonstrate understanding of the concept of culture through comparisons of the cultures studied and their own (*Standards*, 1999, p. 9)." It appears that the foreign language teachers regarded the *Standards* as a key point of reference in developing their own content standards. Christa commented about the significance of correlating the department's language standards to the *National Standards*:

> Christa: I think the feeling is they (foreign
> language standards) don't need to nail down every
> single activity that you do, but can in turn use
> (those) standards as your guideline, and when you're
> designing your curricula, and you're talking about
> what are you going to end up doing on a day-to-day
> basis, you're going to be able to tie back what it is
> you're doing in the classroom back to the standards
> you've identified. So that's how we do that.

This statement is significant because the foreign language faculty evaluated the Illinois standards, but

162

determined that the Illinois guidelines were content specific
(Christa, personal communication, January 26, 2000). The
Illinois standards were still integrated into the department
framework due to a legal mandate, but the *National Standards*
became the primary document the teachers drew upon (Christa,
personal communication, January 26, 2000).

The foreign language standards of the research site were
also cross-referenced to the school's global standards of
learning, known in the research setting by the acronym SSL's.
The SSL's were five processes of learning that students were
expected to develop in their three years of study in all
academic courses. These principles included the following:

- Develop the tools of thought

- Thinking about thinking

- Extending and integrating thought

- Expressing and evaluating constructs
- Thinking and acting with others
  (Research Site Standards of Learning, 1996, unpaged)

In the third heading, extending and integrating thought,
students were expected to use "appropriate technologies" as
extensions of the mind. Specific technologies listed were word
processing, modeling software, graphing calculators, super-
computers, still-frame photography, digital video-disc (DVD),
multimedia, microscopes, mass-spectrometers, telephones and
the World Wide Web. Students were required to learn and
various types of technologies such as those listed above
during their course of study.

The SSL's, which applied to all academic departments, became school policy before all the departments adopted learning standards, prompting the foreign language teachers to cross-reference their curricular standards to the SSL's (Christa, personal communication, January 26, 2000). In regard to the interdisciplinary nature of the learning standards, Christa was asked how the school philosophy of "inquiry-based, problem-centered, and competence-driven" learning applied to the foreign language curriculum. Christa responded:

> Christa: I think it's just a perfect fit because we're creating experiences where the students have to perform in the language, they have to do all this problem-solving within the larger context.
>
> We're not talking about doing a math problem, but we may be talking about going to a flea market and negotiating a price on something. So, we create those types of activities where they really do use the language in creative ways, and so it's not that we're sending them out to do heavy-duty research on something, but I think that's how we translate it.

An example of Christa's point was observed during a German 1 class session. Herbert showed a video to his students one day in which the students were able to see a school in Germany, including a German class, an English class and a mathematics class. As the students watched the math class portion of the video, they noticed that the native German teacher and students were working on a geometry problem, calculating the distance of lines in triangles. After the video ended, Herbert presented the same geometry problem to his students and asked them to solve it. The German 1 students

164

brought out their calculators immediately and began working on the problem. The students were not able to finish the problem because the end of class had come. During class the next day, one student said he had solved the problem and he then shared the information with the rest of the class. This example shows how contextual features of the research setting, including the practices of problem-solving, made their way into the German classroom.

Another characteristic of the department standards was flexibility. The term "flexibility" means that the standards were not content specific, which allowed the German teachers to teach the language without having to interpret a standard in a literal, strict manner (Christa, personal communication, January 26, 2000). For example, a standard in the foreign language curriculum may be written in a way such that students were expected to narrate in the past tense, but the teacher was not strictly required to teach the past tense during a certain year (Christa, personal communication, January 26, 2000).

Various sentences were listed in the foreign language curriculum that referred to technology, most of which were found in the objectives and assessment sections of the written documents. For example, in the third year curriculum, when students narrated and described events in the past, present and future, they made a video recording at the end of the unit to show the progress of language skills they had developed

165

over the course of that unit (Level 3 curriculum, 1998, unpaged). Assessing students with the aid of video was one option for teachers, according to Christa, since video assessments were optional for Level 3 classes (Christa, personal communication, January 26, 2000).

Technology use in instruction, other than video assessments in Level 1 courses, was not defined in the foreign language curriculum or learning standards as a requirement; that is, foreign language teachers decided on their own if they wanted to use technology to accomplish the objectives defined for various tasks (Christa, personal communication, January 26, 2000). Students were implicitly expected to develop technology skills, even in foreign language classes. According to Christa, students were expected to develop a comfort level with word processing software and be able to research various Websites on the World Wide Web (Christa, personal communication, January 26, 2000). Christa said that the foreign language department was not the only department that contributed to increasing students' comfort level with technology, but all academic departments in the research setting were expected to accomplish this goal (Christa, personal communication, January 26, 2000).

Background information on the curriculum is important in understanding its conception and application to all four levels of German instruction. The content of the curriculum at the research site was based on the content goals of the

National Standards and the Illinois foreign language guidelines. In addition, references to technology were present in the curriculum, reflecting technology as a curricular element written in the *Standards* and Illinois guidelines. All three documents reflected contemporary conceptions of language learning defined by the profession today.

The discussion of the data now turns to the German curriculum and observations of the German classes for all four levels. In the presentation of the German classes, curricular content goals are introduced, including accompanying technology references; the researcher's observations of class interactions are described and discussed; and excerpts from the interviews with both German teachers are discussed. To synthesize the discussion, the data are presented in the framework of the *Communication* and *Culture* standards of the *National Standards*. Although all five C's were given reference in the foreign language curriculum, the researcher found in his content analysis that the written document contained the most references to communication and culture.

German 1

Curricular components.

The curriculum for German 1 was centered on a theme titled *I and My World*. This theme was divided into separate teaching units, each with a sub-theme of its own. Teaching units were focused on the individual student, family, friends,

school, and free time; in other words, the student's immediate world (Level 1 curriculum, 1998, unpaged). German 1, which was intended for students who had no prior experience in the language, was designed so that students could understand basic skills in the language in order to survive (Level 1 curriculum, 1998, unpaged).

The single activity in the Level 1 German course that required the use of technology was video assessment. This type of assessment was used to evaluate the oral proficiency of students by recording their speech on videocassette. This assessment was based on a framework created by educators at Alverno College (see Questionnaire Content, Page 152), in which students made video recordings of themselves to monitor their academic achievement and personal growth, and on the ACTFL Oral Proficiency Interview (OPI) (Christa, personal communication, January 26, 2000). At the beginning of the school year during the first two weeks of instruction, a student recorded a sample of speech (sometimes alone with a prop or object, as a skit with other students, or as a one-on-one interview with the teacher) in the target language in front of a video camera, then watched the video to detect errors. Although some students chose not to evaluate themselves, they eventually met with the teacher and both of them watched the video and evaluated it, determining strategies to correct speech patterns and monitor personal progress. The first assessment was regarded as the baseline

(i.e., starting point) for students to measure their proficiency and was intended for the purpose of evaluation, not for a grade. Since the school year was divided into four grading periods, called "quarters" at the research site, the students recorded themselves once per quarter to monitor their progress in the language over the entire school year.

The researcher observed a video assessment in a Spanish course during the September 1999 pilot study. The students, who organized themselves in groups of three or four, created skits that lasted three to five minutes. The students created the written script and performed their dialogue in front of a VHS camcorder while the Spanish teacher operated the camera. After the skit was over, the teacher gave the students the videocassette, encouraging them to watch the tape in order to assess their performance. The teacher said no grade would be assigned for this initial assessment.

Video assessments were an integral part of the foreign language curriculum and were conducted at all levels, but only first-year students were required to be evaluated. The benefit for teachers was that they could provide feedback to students and have a concrete record of students' progress in order to determine a grade (Level 1 curriculum, 1998, unpaged). Students not only monitored their progress, they also reviewed what they were going to do before recording the video; in other words, they engaged in metacognitive strategies that

helped them achieve their personal objectives for the video project (Level 1 curriculum, 1998, unpaged).

The use of video assessments was written in the curricular guidelines. The foreign language teachers argued that unless video assessment was fully integrated into the curriculum and classroom practice, it would not be successful (Level 1 curriculum, 1998, unpaged). The teachers wrote that if video assessment was integrated into the normal flow of foreign language instruction, not just added as an ancillary activity, the more successful video assessment would be (Level 1 curriculum, 1998, unpaged). According to Christa, one factor that contributed to the success of video assessment at the research site was the administration's approval to purchase one VHS videocassette for each student in the first- and second year classes (Christa, personal communication, January 26, 2000).

Other than video assessments, explicit references to technology were not present in the Level 1 German curriculum. Despite the lack of references on paper, this does not mean that Herbert and his students did not utilize the technology resources available to them. Examples of individual technology use are presented from the researcher's observations of the German 1 class.

Observations of the German 1 class.

When data collection began, Herbert and his students had
started the second semester. On the first day of observation,
Herbert introduced a new topic (i.e, teaching unit) to his
students, school. He began class by shaking hands with all his
students and greeting them, then he asked them about their
holidays in German. Changing over to English, he started a new
activity by placing a transparency on the ELMO presenter with
a graphic of circles. Each circle included the various themes
that made up the content of the Level 1 curriculum on it,
i.e., I am, my family is, my school is, etc. In presenting the
new unit, Herbert spelled out his expectations for the unit
and the new semester, telling the students he did not expect
to hear English from them and they were not going to hear
English from him. He expected the students to be in class and
punctual and take personal responsibility for their learning,
adding: "You will never know something (nouns) is der, die, or
das unless you work at it (Jan. 11, 2000)." *Der, die,* and *das*
refers to the three definite articles in German.

Herbert made additional comments to the students during
the first class that revealed his teaching philosophy.
Motivation, maturity, and personal responsibility were three
important issues students needed to think about if they wanted
to succeed in German. He also mentioned the importance of not
being afraid to make mistakes. His specific comment was:
"Success is determined by your willingness to participate. You

won't learn anything unless you make a mistake (Jan. 11, 2000)." It seems apparent from Herbert's comment that communicating in the target language was an important component of the class, a philosophy in agreement with *Standard* 1.1 (*Communication*). He also mentioned that he had looked at the students' Web pages and said that the students were going to add more writing content to the pages during the second semester. This was the first comment in which the researcher discovered that the students were using computer-based technology in their learning of German.

Table 4.3 contains a chronology of the German 1 class during the period of data collection. In each box is a summary of the class activities that took place during each class session. Wednesdays (with the exception of January 19) are not included in the table because classes were not in session. All data depicted in the table are based solely on observations the researcher conducted in the German 1 class

Week	Monday	Tuesday	Thursday	Friday
Week 1 (Jan 10,11, 13, 14)	Researcher arrives -- Class not attended	Vocabulary: school subjects and grades, Herbert reads listening dialogue	Telling time, partner exercise, writing school schedule	Question and answer; new adjectives; partners discuss schedule; telling time
Week 2 (Jan 17- Jan 21)	Quiz on time; review class schedules; interview with a partner	Review of time; partner work; vocabulary on objects in class; Web pages	Web-based exercise on school; record voices on cassette; write responses	Herbert ill--class cancelled
Week 3 (Jan 24- Jan 28)	Herbert ill--class cancelled	Herbert ill--class cancelled	Germans and religion; new vocabulary with verbs; describe teachers (partners)	Dictation; talk about favorite teacher(partners) interview favorite teacher
Week 4 (Jan 31- Feb 4)	Writing Web pages using interview content	Writing exercise, do you like math? Partner interview report to class; watch video	Listening exercise on grades; cultural information on German schools	Review of grades vocabulary identify school rooms (listening) Web pages
Week 5 (Feb 7- Feb 11)	Tongue twisters; classroom vocabulary sentence structure	Tongue twisters; partner exercise and quiz on vocabulary; Web pages	Winter recess-- Class not in session	Winter recess-- Class not in session
Week 6 (Feb 14- 18)	Valentines Day vocabu-lary German rock group partner work with pictures	Letters from Germany; Web pages	End of study	End of study

Table 4.3: Summary of activities in German 1 class

173

Vocabulary exercises were focused primarily on words and phrases that one would use in a school context. For example, during the February 7 class, Herbert taught his students about various objects one would find in a typical classroom, like a computer, eraser, blackboard, pencil, pen, ruler, etc. During the January 27 class, Herbert wrote a sentence on an overhead transparency: Ich habe _____ gern (I like _____), deliberately leaving a blank in the sentence. Students would then fill in the blank with words describing academic subjects. Herbert would then change the verb *haben* (to have) to another verb like *schreiben* (to write) and the students would fill in the blank again. Vocabulary was taught during the majority of class sessions. Herbert emphasized his philosophy of learning vocabulary by saying to all the students: "Vocabulary is one of the nuts and bolts of language (Herbert, February 8, 2000)."

Question and answer refers to moments in class when Herbert would ask the students questions and have them respond. For example, on January 14, Herbert started class by asking the students questions about their regular class schedule in German. Below is an excerpt of the interaction between Herbert and his students during the lesson. All student names are pseudonyms

Herbert: Bob, was hast du dritte Stunde Mittwoch?
(Bob, what do you have third hour on Wednesday?)
Bob: Ich habe keine Klasse.
(I don't have class.)
Herbert: Sabine, was hast du zweite Stunde
Freitag?
(Sabine, what do you have second hour on Friday?)
Sabine: Nein. Frau Weber.
(No. Mrs. Weber)
Herbert: David, was hast du erste Stunde
Freitag?
(David, what do you have first hour on Friday?)
David: Physik, Herr Lawrence.
(Physics, Mr. Lawrence)
Herbert: (to a girl) Wie findest du Frau Berry?
(How do you like Mrs. Berry?)
Girl: Nicht so gut.
(Not very well.)

This exercise was a review of the vocabulary on school subjects and time that the students had learned during two previous class sessions. Herbert asked questions that were focused on the students themselves, establishing a context for the students to recall their background knowledge. As seen here, the German 1 students had not reached a point where they could speak in more than one sentence.

Another in-class activity Herbert assigned on a frequent basis was partner exercises, which allowed students to practice speaking. Partner exercises varied from day to day. Sometimes students would work in pairs, sometimes in groups of three or four and at other times students would walk around the room and talk with an unlimited number of their classmates. During some class sessions, Herbert would call on individual students to report information they found out from their classmates.

175

An example of a partner exercise comes from the February 7 class. Herbert divided his students into partner groups and said in English that the partners would tell each other what they did in class. He gave his students a specific instruction in English: "Think about what it is you're going to tell your partner and what you do there (what do you in class)." The students were observed talking to each other as partners using sentences and vocabulary they had learned from previous class sessions. After five minutes, Herbert said in German: "Ich möchte, daß eine Person sagt, was du in der Schule machst (I'd like to know from one person what you do in school)." Two students responded to the question in German.

In the February 4 class, the students were assigned to do an interview in groups of three or four, finding out what information they found out from an interview with a favorite teacher. Again, Herbert gave them instructions in English, saying: "You should talk a minute and a half per person."

Herbert assigned the students an out-of-class activity to interview their favorite teacher or residence counselor in English, translate the answers into German, then bring the answers back and write them on their individual Web pages. Every time the students worked on their Web pages, they went to the language laboratory and worked there instead of the regular classroom. As previously described, the written exercise was used as part of a speaking exercise between three or four student partners.

The video Herbert showed his students was about attending
school in Germany. The students saw four settings: a family at
home eating breakfast, then they saw a German class, an
English class, and a math class. After viewing each setting,
Herbert stopped the video and asked the students in English
what they comprehended. For example, he translated a sentence
from the video "Immer mit der Ruhe" as "Hold your horses."
After the German class sequence, Herbert asked his students:
"What was the teacher trying to do here? Catch anything? What
did you see?" One of Herbert's students responded in English:
"She forced the student to go to the board." Herbert answered
back in German: "Germans go to the board a lot." It seemed
clear that the video exercise was intended for the learning of
culture. Herbert's students had the opportunity to see a
native German family at breakfast and real classes in a real
German school.

   German rock group refers to an all-male a cappella rock
group named *Die Prinzen (The Princes)*. Herbert brought in a
compact disc recording of this group and played two songs for
his students. The students listened to the song first, then
Herbert showed them the accompanying text in German on an
overhead transparency. Herbert said in class: "Und die Prinzen
sind gut für uns, weil sie klar sind (And the Princes are good
for us because they sing clearly)." It appeared Herbert wanted
a rock group that his students could understand easily,
therefore he picked *die Prinzen.* He said during the same class

session that he played a compact disc of a group called *Rammstein* during a past class, but the performers were hard to understand.

Tongue-twisters included play-on-words activities including the words *Brautkleid* (bridal gown) and *Blaukraut* (blue cabbage), and a famous German tongue-twister about the city of Ulm, where Albert Einstein was born. During the lesson, Herbert would give the students an opportunity to use their background knowledge to figure out the vocabulary. For example, to understand *Blaukraut*, Herbert said: "Wenn ich Hunger habe, esse ich gern Kraut. Sauerkraut ist sehr gut (When I'm hungry, I like to eat cabbage. Sauerkraut is very good)." The students were observed showing reactions of disgust at the mention of *Sauerkraut*. After an explanation of the tongue-twister meanings, Herbert had individual students repeat the actual tongue twisters. Most of the students struggled to say all the words.

If a class session took place during a holiday, like Valentine's Day on February 14, Herbert used the occasion to teach his students words and expressions associated with the holiday. During the exercise, he said to his students: "Wenn ich an Valentinstag denke, denke ich an Liebe (When I think of Valentine's Day, I think of love)." He then proceeded to draw a heart on an overhead transparency, then gently pounded his chest to demonstrate his heart beating. The purpose of this teacher-centered lesson was to prepare the students for

listening to the compact disc of *die Prinzen*, who sang a song about two teenagers in love. In effect, a context was being established.

Table 4.4 lists the computer-based technologies and teaching materials Herbert and his German 1 students used during class time. The data from the table are based solely on the researcher's observations of the German 1 class.

Week	Monday	Tuesday	Thursday	Friday
Week 1 (Jan 10, 11, 13, 14)	Researcher arrives -- Class not attended	ELMO presenter, paper handouts	Classroom clock, wrist-watch paper handouts, ELMO presenter	Paper handouts, ELMO presenter Student Web pages (on paper)
Week 2 (Jan 17- Jan 21)	Paper handouts; ELMO presenter	ELMO presenter textbook trans-parencies paper handouts; Web page editor	Web browser; cassette player and head-phones word proces-sing lab console	Herbert ill--Class cancelled
Week 3 (Jan 24- Jan 28)	Herbert ill--class cancelled	Herbert ill--class cancelled	ELMO presenter	Textbook trans-parencies ELMO presenter; paper handouts
Week 4 (Jan 31- Feb 4)	Web browser; Web page editor; word processing	ELMO presenter; video recorder; paper handouts	Paper handouts; trans-parencies	ELMO presenter; paper handouts; trans-parencies
Week 5 (Feb 7- Feb 11)	Objects in room; ELMO presenter	Paper handouts; objects in room; Web page editor; word processing	Winter recess-- Class not in session	Winter recess-- Class not in session
Week 6 (Feb 14- Feb 18)	Audio-cassette recorder; ELMO presenter; paper handouts	Letters from Germans; paper handouts; Web page editor, word processing	End of study	End of study

Table 4.4: Technologies and instructional materials used in German 1 class

Herbert typically used the ELMO presenter to write down words and phrases for the students as well as to display the color transparencies from the textbook. He was not observed using the blackboard. Paper handouts consisted of instructions for activities, quizzes, practice exercises, dialogues, and general homework. When the students went to the language laboratory to compose their Web pages, the majority of them used the Web page editor *Netscape Composer*, while others elected to use the Web page editor feature of *Microsoft Word.* The students were able to publish their pages to the school Web server by using the publishing features on both programs.

During the January 20 class session, Herbert's students went to the language laboratory to record their voices on audio-cassette. All the students used PC workstations because the Macintosh workstations were not equipped with audio-cassette players. Giving the students instructions in English, Herbert told the students to open their Web browser programs and go to a page that he had created on the German 1 Website. Herbert's specific instructions were: "I want you to practice and to record things that pertain to talking about school. I do not want you to rewind. You can talk as much as you like."

On the computer screen, Herbert had written a series of exercises. First, the students were instructed to say five things about their courses during the year. Herbert provided cues for the students to develop their own sentences, including: *Dieses Jahr* (This year), *Ich mag* (I like), and

Dieses Semester (This semester). Second, the students imagined that they were in Germany and wanted to tell someone about how well they did at school in various academic subjects. In the third exercise, the students put together five sentences to talk about a typical day at school. Fourth, Herbert pasted pictures of eight clocks on the Web page so students could practice telling time. The fifth exercise involved oral practice on the daily schedule, in which students spoke about which classes they were enrolled in and what day they attended class. The sixth and final exercise was an opportunity for students to express their opinions about their classes. For all the exercises, Herbert provided students the opportunity to activate their background knowledge by providing sentences in German for the students to read and comprehend before they spoke on the cassette.

During the exercise, most students worked individually at their workstations, but some students had to share a workstation because there were not enough for each individual student. Herbert went to individual students who were having problems and spoke to them in English. Some of the students who were sitting together worked through the Web-based exercise together in English.

During three class sessions, the German 1 students went to the language laboratory and worked on their individual Web pages. The students worked independently, but Herbert would come over to them and help if they had technical problems. For

technical problems, Herbert spoke in English. During the January 31 class, one of the technicians from the technical support staff was present to solve problems the students were having. During that day, the students encountered difficulties with the school Web server and could not upload their Web pages. Herbert spent the majority of this class session consulting with the technician.

Feedback from Herbert's Interviews.

One salient feature of the German 1 class was the minimal usage of textbooks. The students brought a textbook, *Deutsch aktuell,* into the class each day, but the textbook was never used as part of instruction during any class session. Herbert used the color transparencies that accompanied *Deutsch aktuell* during one class session, but none of his lessons were based on the content of the textbook. During his second interview, Herbert said the goals of the foreign language curriculum allowed him to structure his teaching without a textbook. Specifically, he said the following:

> Herbert: But I know my curriculum, and I know what my objectives are and I know what you need to meet the objectives of the curriculum. And there's no textbook available that does it exactly the way that I do it.

This comment indicates that Herbert created language learning tasks for class using the technology resources available at the research site, rather than relying on a method of teaching prescribed by a textbook. He made another

183

comment about using technology activities in his classes
rather than the textbook.

> Herbert: I think that different aspects of
> technology are, to some extent, the textbook. And I
> have some control over what that's going to be.

The researcher observed in the German 1 classes that
Herbert assigned his students to compose Web pages and upload
them to the Web for a global audience to see. As shown in
Table 4.4, the German 1 students made visits to the language
laboratory during class time to work on their individual Web
pages. Herbert was asked to talk about the significance of
assigning the Web page work to his students. His answer to the
next question, presented verbatim, is in two parts. The first
question dealt with the use of student-produced Web pages to
develop communicative skills in German.

> Researcher: How is the work on the student Web pages,
> how is this helping the students produce the language
> in written and oral form?
>
> Herbert: I think all the so-called student basic
> skills complement one another. Uh, you have to read
> to write, and you have to write to speak, and uh, you
> have to hear the language to be able to reproduce the
> language in one way or another. It, uh, one thing
> feeds off the other and one supports the other, I
> think.

Herbert's comment here relates to the interpretation of
the *Connections* standard in the foreign language curriculum.
As stated in Chapter 2, the teachers at the research site
believed that using the voice and technology in conjunction
with the modalities of speaking, reading, writing, and

listening, students could gain access to knowledge monolingual
speakers could not.

The second part of Herbert's answer dealt with the
technical and practical aspects of writing the Web pages.
Herbert talked about the benefit of students being able to
return to the language laboratory to update their work.

> Herbert: The nice thing about the Web pages, they
> (the students) can now go back to what they wrote and
> they can easily insert these additional ideas, so if
> they have a paragraph about their favorite class
> English, or their favorite teacher so-and-so, and
> they can now build into some additional things. It
> sort of, you know, has a residual effect without
> doing that whole thing at once. They can go back to
> the, you know, "Hi, my name is..." thing they wrote
> in September and with whatever they have at their
> fingertips, they can plug that in. That's the nice
> thing about the pages and the computers. They are
> easily changeable. You can edit them very, very easy
> and as you grow in the language you can come back to
> these things over and over again.

The development of Web pages is an example of the
presentational mode of communication, in which students create
the Web pages but do not have native speakers in their
presence to give them direct feedback, a key principle of the
Standards. Green wrote that students could use the Internet by
writing Web pages about themselves or the culture they study
(Green, 1997, p. 259).

One reason Herbert assigned his students to create Web
pages was to provide them an opportunity to communicate, which
also fulfilled the communicative objectives of the foreign
language curriculum. The researcher posed Herbert a question
about the Web pages:

185

> Researcher: How can you tell that the technology is helping them (the students) acquire the language and when it's not helping them acquire the language, specifically the Web pages?

> Herbert: It seems to me that if they're able to put together sentences and paragraphs that communicate information in a clear and understandable fashion, then they made some sort of progress. And if there is some sort of carryover then to their ability to communicate with one another in class, then that's a pretty good indication that they can do those things too.

Herbert said the evidence he had to show the progress of the students' communicative abilities were not only the Web pages, but also the video assessment tapes of students (Herbert, personal communication, February 9, 2000). With the students' samples of oral German on tape, he and the students could assess the samples of speech together and determine the progress of a student's proficiency. In essence, writing Web pages and communicating orally on videotape allowed students to build on the language skills they had developed previously. This philosophy is similar to the goals of the Barron study, in which students acquired content and skills, as well as took on more responsibility and ownership for their learning (Barron, et al., 1998, p. 273).

Synthesis: German 1, Technology and the *National Standards*

Despite the use of English, Herbert structured his class according to the content standards of the German curriculum, which was based on the *National Standards.* The German 1 course

186

instruction reflected the standards of *Communication* and *Culture,* as well as the principles of the Framework of Communicative Modes (interpersonal, interpretive, and presentational). Below is a synthesis of the activities Herbert presented in class that reflected the characteristics of the *Standards*.

Standard 1.1 Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions.

The German 1 students were provided opportunities to engage in conversations in the target language. These opportunities primarily took place as partner exercises or working in groups of three to four people. Herbert also required the students to report information from the conversations that took place with their classmates. Students expressed feelings, emotions, and opinions; namely about school. After Herbert had provided the students with the language input to be able to converse (found on paper handouts or Herbert's class Web pages), his lessons helped students speak in German.

Standard 1.2 Students understand and interpret written and spoken language on a variety of topics.

In the German 1 class, students engaged in one-way listening and reading tasks in various classes, although listening tasks were more prevalent for this proficiency level. Students listened to the song lyrics of *die Prinzen* and

187

heard native Germans speak the language on the video of the German school. In addition, the students listened to Herbert speak to them during class, such as his talk about Valentine's Day and love. For reading activities, students read the German written on the Web page Herbert had prepared for them. In general, classes were structured on the theme of one teaching unit, school, but other topics such as Valentine's Day and the geometry problem were integrated into lessons during class time.

Standard 1.3 Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.

The activity that illustrated the principle of this standard was students working on their Web pages. Writing Web pages allowed students the opportunity to present information and ideas on a variety of topics, including information about themselves, their families, their school, freetime, etc. As Herbert reported, students could also return to their Web pages at a later time and improve their writing after acquiring further language structures in subsequent classes. Students spent one class session recording their voices on cassette, producing German orally as much as they could. Writing Web pages and recording speech were two examples of how technology helped students communicate in the presentational mode.

<u>Standard 2.1</u> Students demonstrate an understanding of the relationship between the practices and perspectives of the cultures studied.

The use of the video in German class was an opportunity for the German 1 students to understand the cultural practices of German society. They saw an authentic German family at breakfast and saw native Germans in three classes. Herbert monitored his students watching the video and provided cultural information when the students had difficulty understanding the action on the screen. He also used the color transparency to show a floorplan of a school to help students understand how a German school was physically organized.

<u>Standard 2.2</u>   Students demonstrate an understanding of the relationship between the products and perspectives of the cultures studied.

Students were able to see cultural products in the video they observed on the German school. At the breakfast table, the German 1 students saw the foods the Germans ate and drank (e.g. bread, hard rolls, jam, coffee, etc.). The German 1 students observed native Germans using a blackboard in their classes. They also saw native Germans learning English, seeing how students in German culture learned a foreign language. Another cultural product was the compact disc of *Die Prinzen.* Although compact discs were are a product of American culture, the German 1 students heard a song in the target language that reflected the perspectives of the native performers.

Herbert and his German 1 students used technology on a daily basis. Although the written guidelines of the curriculum listed only the use of video assessments, Herbert and his students used technology in their activities beyond the original guidelines. It appears in the German 1 course that Herbert's actual implementation of technology confirmed what he said on his questionnaire about how he used technology in the classroom, based on the researcher's observations of the German 1 classroom and the feedback from Herbert and the three students.

Based on the observations and interviews, the German 1 class was taught in a manner that reflected contemporary views of language learning held by the profession. Herbert said he knew his curriculum, which was developed based on the *National Standards*. Observations of the German 1 class showed that students had opportunities to learn German according to the standards-based curriculum of the research setting following principles of the *Standards*. As part of the learning process in German 1, students had opportunities to use technology in their language learning activities, through activities such as watching the video or using Web page editors to write in German.

German 2

Curricular components.

In the Level 2 curriculum, instruction in German continued from the content of Level 1, building on the skills students learned in the first-year class. While the *I and My World* theme focused on the immediate world of the first-year student, second-year students were introduced to a more global concept called *I and My Extended World*. Students were expected to increase their language fluency from the sentence level to the paragraph level (Level 2 curriculum, 2000, unpaged). The students began to spend more time developing their comprehension skills in listening and reading, learning new vocabulary in addition to using vocabulary taught in Level 1, learning about historical and cultural topics by reading fairy tales, children's literature and watching films (Level 2 curriculum, 2000, unpaged).

Like the Level 1 curriculum, Level 2 was organized around thematic teaching units. The teaching units included content about food, health and personal hygiene, geography and culture, travel, family and youth issues (including music, driving, dating, consumption of alcohol), education and career, and leisure time (a continuation of the Level 1 theme). In addition, a new unit on the 21st century was added that pertained to students' career and professional goals (Level 2 curriculum, 2000, unpaged).

191

Unlike Level 1, the Level 2 curriculum had more references to technology than just video assessments, but no prescriptive teaching method for use of technology in the classroom was listed. In the unit on family, students were assigned a project to e-mail students in German schools where they talked about issues that concerned teenagers, such as dating and driving. In the travel unit, students found travel brochures to find places they wanted to go.

The Internet was given specific reference in various units (e.g., food, geography and culture, travel, education and career, leisure time) as a resource for students to find authentic materials. In the travel unit, students found Websites on various cities in Europe, collected information from the sites and presented what they found to their classmates (Level 2 curriculum, 2000, unpaged). In the leisure time unit, students planned a weekend in a city by accessing information about movies, clubs, museums and concerts on various Websites (Level 2 curriculum, 2000, unpaged). In the food unit, an Internet exercise designed exclusively for German was mentioned (Level 2 curriculum, 2000, unpaged). Students shopped at an electronic grocery store called *Onkel Emma* and bought individual items of food. A user was allotted 500 German Marks with which to buy food. The Website was designed to deduct money from the user's account each time he/she added an item to the grocery list. Herbert created his own Web exercise for the travel unit in which students went to

the Web and researched geographical and cultural information about Austria. Part of the exercise involved students comparing prices of youth hostels and camping sites in the individual provinces of Austria. Herbert created "quiz questions" with JavaScript to test students' knowledge of what they learned.

The viewing of video materials was given explicit mention in all of the Level 2 units (Level 2 curriculum, 2000, unpaged). Students listened to native speakers talk about food, leisure time, family, and other topics of interest (Level 2 curriculum, 2000, unpaged). In the assessment section of every Level 2 unit, an explicit reference was present for teachers to conduct video assessments as the final activity for each unit. Unlike Level 1, in which video assessment was a requirement, teachers were given the option to use video assessment with their Level 2 students (Level 2 curriculum, 2000, unpaged).

Observations of the Level 2 class.

Ute taught all three German 2 classes. Each day, Ute taught the same lesson to all three classes. No one class was ahead of the other two. Normally, Ute could not teach the entire lesson to the 10:30 class on Mondays and Thursdays because the duration of the class was 40 minutes, while the other two classes met for 70 minutes. The 10:30 class lasted 70 minutes on Tuesdays and Fridays, whereas the two other were

shortened to 40 minutes. By the end of two days, all the German 2 students had caught up with each other.

Ute was observed using her sense of humor in most class sessions. She brought a cup of coffee into each class every day. She often joked about needing a drink of coffee, saying during one class: "Das war nur eine Ausrede. Ich muss Kaffee trinken (That was only an excuse. I must drink coffee)." Students were also seen bringing food into class. The 7:30 a.m. students often brought in caffeinated drinks because of the early start time, whereas students in the other two classes brought in fruit or the cafeteria's soft-serve ice cream cones. Food and drink brought into class often became a subject of conversation in German, especially during the beginning portion of class.

Ute utilized her sense of humor in the form of words and dramatic gestures. As she talked to students, she would often use German expressions, such as "Hast Du alle Tassen im Schrank?" (Do you have all your cups in the cupboard?) or "Hast du eine Schraube los?" (Do you have a screw loose?). During a class on January 24, she said the second expression to a student. When the student did not understand, Ute replied in English: "Here we say you're one French fry short of a Happy Meal." During the January 25 class, Ute acted out the part of a little girl who had lost her dog named Fritzi. She maintained the sad voice of the girl as she read a description of the dog to the students in German. She then passed out

laminated pictures of various dogs to see if the students could choose the correct picture based on the German description. Depending on the situation, some students were observed laughing, while others showed confusion. Regardless of students' reactions, Ute used humor during most class sessions.

Ute was observed speaking German during most of the classes, although she said some short sentences in English like the one above. Unlike Herbert, who gave directions to his German 1 students in English, Ute gave directions to her students in German. Ute said that she had one class in which students learned German easily and spoke more in the target language than in the other two classes, one class with students who learned German slowly and spoke English on a frequent basis, and a third class in which students spoke German more than one class but less than the other (Ute, personal communication, February 15, 2000). She would explain points in English more to the students who struggled, but she remained talking in German with the students who produced the target language more. When Ute worked with students one-on-one in the language laboratory, she often explained grammar and vocabulary to individual students in English. Ute said she did not have a problem explaining grammar to students in English because she believed English was the best language to use so that the students understood clearly what she was talking about (Ute, personal communication, February 15, 2000). Ute

195

also said she talked more in German with her German 2 students because of the proficiency level. She said German 1 students had become accustomed to speaking the language. When students were in German 2, they regarded speaking the target language as "normal conversation" (Ute, personal communication, February 15, 2000).

Table 4.5 lists the activities that were observed in Ute's German 2 courses. The information presented in this table is based solely on the researcher's observations:

Week	Monday	Tuesday	Thursday	Friday
Week 1 (Jan 10, 11, 13, 14)	Researcher arrives -- Class not attended	Classes not attended Researcher arranging observation schedule with Ute	Exam preparation; listening comprehension reading a short mystery (partner)	Exam preparation (grammar); reading a short mystery; vocabulary
Week 2 (Jan 17- Jan 21)	Exam prep-aration (grammar); finish reading mystery	Exam prep. (Reading comprehension general grammar); vocabulary on animals	National German Exam -- Class not in session	National German Exam -- Class not in session
Week 3 (Jan 24- Jan 28)	Discussed exam; more animal vocabulary (adjec-tives); partner exercise	Exercise on animals and machines; Wilhelm Busch poem; finding a lost dog	Partner exercise; vocabulary; Mini-drama in groups; coat-of-arms	Discuss coat-of-arms; German history and heraldry; Partner exercise speaking
Week 4 (Jan 31- Feb 4)	Discussion of student coat-of-arms; new vocabulary for story; start of story	Quiz on medieval vocabulary; find 5 mistakes; read story	Write-ups on coat-of-arms; quiz on vocab-ulary; reading story continues	Pass back quiz and coat-of-arms write-ups; reading story continues
Week 5 (Feb 7-Feb 11)	Partner exercise on vocabulary and grammar; grammar on dependent clauses	Group work on unusual pets; grammar on comparative and superla-tive	Winter recess--Class not in session	Winter recess--Class not in session
Week 6 (Feb 14- Feb 18)	Partner exercise, interview on unusual pet; video projects; writing composi-tions	Papers passed back; Writing compositions on animals	End of study	End of study

Table 4.5: Summary of activities in German 2 classes

During the first two weeks of data collection, Ute prepared her students to take the National German Exam, a standardized language exam distributed by the American Association of Teachers of German. To help her students prepare, she gave them copies of exams from previous years (1996, 1998, and 1999), selecting certain sections for in-class practice. The listening comprehension section was done in-class with the use of a cassette tape and an audio-cassette recorder. Ute assigned the grammar and reading comprehension sections for homework. Both sections were discussed during class-time with Ute providing feedback to the students. Although the amount of fieldnotes was reduced on the days the students wrote the actual exam, the researcher was present in the language laboratory and noticed that the language lab console was used for the listening comprehension portion of the exam. Another teacher was present to administer the exam because the test instructions required Ute not to be present during the time period when students were writing. Ute said that she was planning to give the students a grade for the exam. The previous exams from three separate years were intended for students to have enough practice for the real test (Ute, personal communication, January 14, 2000).

During class preparations for the exam, Ute played an audio-cassette, gave the students the correct answers and answered questions on specific portions of the practice exams, mostly on vocabulary. Ute was observed giving English

198

definitions for the German words the students did not understand. While correcting the grammar portion of the test together, Ute asked the students to tell her individually what the correct answers were. She offered explanations of the grammar in English when students did not understand. The students were observed conversing in English while working on the exam. Ute did not devote all class time to the exam. She continued on with her regular lessons and students conversed in German.

The teaching unit Ute and her students worked on during data collection was focused on animals. The students learned vocabulary on various animals, including sounds animals make and animal body parts. Ute supplied the vocabulary words to the students on paper handouts, including a word list and a handout with pictures of animals. Later, the students learned vocabulary about medieval history in preparation for reading a story about animals and a medieval city later in the language laboratory. The machines and animals exercise was intended for the students to understand how attributes of animals were used by people to create various inventions, (e.g., an elephant's trunk was modeled for a garden hose). In this exercise, Ute had the students identify the inventions and animal functions themselves, then had the students respond in German when answering.

The content of a Wilhelm Busch poem was written about a bird that became stuck to a tree, but chose to stay where it

was and sing. In the exercise, students not only learned about the German poet (Busch), they also learned aspects of the poetic language of German, like the word "quinquillieren" (the art of a bird singing sweetly), which one would not hear in contemporary German conversation. The majority of the students in all three classes were observed showing curiosity about the meaning of the word.

A coat-of-arms activity was designed for the students to create their own coats-of-arms. In the original assignment, Ute provided the students with a paper handout of coats-of-arms of various countries, and regions of Germany like Bavaria, Prussia, etc. This activity was followed by an assignment that allowed the students to create their own coats-of-arms. Ute said in class that students could draw their coat-of-arms by hand or use an appropriate computer drawing program like *CorelDraw* or *Adobe Illustrator.* She assigned the students a writing exercise to explain in German how they drew the figure and to explain the attributes of it. In later classes, the researcher observed that some students drew the coat-of-arms by hand whereas others used a computer drawing program, and printed out their work on color printers.

After the previous assignments were completed, the German 2 students went to the language laboratory to read a story in the target language. The story the students read was *Der Mann vom Bärengraben*, which was installed on the Macintosh computers in the language laboratory. To view the story, the

students used the software *HyperStudio*. In the story, an unemployed elderly man visits the bear pit in Bern, Switzerland (a city with a medieval history) and performs gymnastic tricks for the three bears that lived there. One day, the man falls into the pit, but instead of attacking him, the mother bear plays games with the man. As a result, the man obtains a job at the bear pit in which he tends to the bears. *HyperStudio* was installed on each Macintosh workstation in the language laboratory, so students were able to read the text and view the color pictures on their own individual computer screen.

Ute had a copy of the *Bärengraben* book that contained color pictures and text in black font. The book was the only copy Ute had in her possession. During an interview, Ute explained that the technical support staff, which included students, scanned the color pictures and text into the *HyperStudio* program. Finding that the black font of the text was not legible after scanning, the staff created text boxes on individual pages and re-typed the text in the boxes. After all the pages were scanned in the document and the text recreated, the entire story (now on *HyperStudio*) was uploaded on all the Macintosh workstations (Ute, personal communication, February 14, 2000). When the researcher investigated the software installed on the Macintosh computers, he noticed that another *HyperStudio* story had already been installed. Ute said that the German 2 students

read this first story during the beginning of the school year. *Der Mann vom Bärengraben* was the second story and a third story was planned for the spring (Ute, personal communication, February 14, 2000).

Following the reading assignment, Ute assigned her German 2 students a project about an unusual pet (e.g., a pet one could not have in a house, like a tiger, elephant, or shark). Students were required to write a composition about why their unusual pet was a good pet for them. All of the students composed their papers using word processing programs, namely *Microsoft Word.* For the final assignment on the animals unit, Ute passed out written instructions (the researcher obtained a copy) for producing a video on the unusual pets, which the students would tape on their own without Ute's supervision. For the video project, students were instructed to find a partner who had a pet with similar characteristics (i.e., appearance, eating habits, etc.), then they wrote a text together designed in the form of an interview in which one student would ask the other about the unusual pet, then the students would reverse roles. The students were encouraged to use their own ideas but also use vocabulary and grammar structures learned from previous classes. Ute allowed the students to use class time to develop their projects.

Table 4.6 is a summary of the technologies and instructional materials that were used in the German 2

classes. All data shown in Table 4.6 are based solely on the

researcher's observations.

Week	Monday	Tuesday	Thursday	Friday
Week 1 (Jan 10, 11, 13, 14)	Researcher arrives – Class not attended	Classes not attended Researcher meeting with Ute to arrange schedule	Audio-cassette recorder; paper handouts; ELMO presenter	Paper handouts, ELMO presenter
Week 2 (Jan 17– Jan 21)	Paper handouts; ELMO presenter	ELMO presenter; paper handouts	National German Exam--Used language lab console	National German Exam-Used language lab console
Week 3 (Jan 24– Jan 28)	Paper handouts; ELMO presenter	Paper handouts, ELMO presenter laminated pictures	Paper handouts; pictures of coat-of-arms	Paper handouts; ELMO presenter authentic German money
Week 4 (Jan 31– Feb 4)	Paper handouts (with student work); ELMO presenter; HyperStudio	Paper handouts; HyperStudio	Paper handouts; HyperStudio	Paper handouts; HyperStudio
Week 5 (Feb 7– Feb 11)	Paper handouts; ELMO presenter	Paper handouts; ELMO presenter pictures of animals	Winter recess--Class not in session	Winter recess--Class not in session
Week 6 (Feb 14– Feb 18)	Paper handouts; ELMO presenter word process-ing	Paper handouts; word processing	End of study	End of study

Table 4.6: Technologies and instructional materials used in German 2 classes

Ute used an audio-cassette recorder to play a cassette

for the practice listening comprehension portion of the

National German Exam, which was done in the regular German

203

classroom. When the students wrote the actual exam, the test proctor placed a single cassette into the language lab console and all the students could hear the German dialogues from their headphones.

As shown in Table 4.6, Ute routinely used the ELMO presenter and paper handouts. She frequently used paper handouts with illustrations, such as the coat-of-arms of medieval German regions or laminated pictures of animals for the students to work with in creating dialogues.

Ute allowed her students the opportunity to use technology for various assignments, even if she did not understand how to use the technology herself. Ute said that she would often leave an assignment "open-ended," which means that a student had the option of using the computer to complete an assignment if he or she desired (Ute, personal communication, February 15, 2000). Since some of her students had developed knowledge and skills with advanced computer programs, Ute said she had no problem allowing students to complete their assignments with technology on their own (Ute, personal communication, February 15, 2000).

Even though Ute allowed students to use technology, she did not want them to forget that the purpose of the assignments was to learn the language. She elaborated on her philosophy in one of her interviews:

Researcher: You've talked about the students and the technology skills they have, and that you can give them a task, and let them go off and do *PowerPoint* if they want to. How helpful has that been to you as a teacher being able to...(Ute speaks over the sentence)

Ute: It's extremely helpful because when they come back with a presentation the whole class pays more attention. They like *PowerPoint*. They like the graphics and the sound that they put in. It's very nice. The drawback is that when they make a presentation they don't speak much German. They just rely on the (program) to express it, so I think that's just a slight drawback. I've got to remind them that I want them to speak because otherwise you can't hear their German.

Ute's comments above reflect one of the conclusions of the Warren study. In that study, the researchers concluded that the use of the World Wide Web tools by the sixth graders was not revolutionary, but rather caused problems in the students' effective use of the technology. In Ute's class, students used *Microsoft PowerPoint* because they liked using the features of the program, but in their use of the program, they did not necessarily make use of the language learning potential of the program.

On the other hand, Tschirner wrote that technology (specifically, new media) was regarded as a tool of instruction that motivated learners (Tschirner, 1997, p. 125). Ute wrote on her questionnaire that one reason she used technology in class was because the students liked it, which is confirmed by her comments above.

<u>Feedback from Ute's Interviews.</u>

Like Herbert, Ute did not teach from a textbook in any of the German 2 classes, even though the students had the textbooks with them. Ute reported that she did not like to teach with textbooks, mainly because she did not want students to become dependent on memorizing lists (Ute, personal communication, February 15, 2000). As in the German 1 class, Ute's classes were comprised of various teaching units focused on content such as animals and medieval history. She discussed this method of curricular organization:

> <u>Researcher</u>: What are the benefits of organizing class around these themes?
>
> <u>Ute</u>: I think that there's nothing but advantages to doing that sort of thing.
>
> For one thing, we've got a whole curriculum designed so that we touch major topics in the kids' lives at different levels and we keep spiraling up. Um, it's stuff the kids need and want in order to communicate with others.
>
> If we would do, let's see, cat and dog and I had a pet and that sort of thing in Level 1, and in Level 2 we are looking more at unusual types of pets and we're talking in great detail about animals and then be reading after that so that they can do something in ecology, for example. And it just keeps spiraling up. And if you have topics like that, you know, you get the kids engaged.

Ute's philosophy about curriculum development relates to Standard 3.1 (*Connections*), which states that "students reinforce and further their knowledge of other disciplines through the foreign language (*Standards,* 1999, p. 9)." Not only did students learn about animals in the target language,

206

the knowledge they gained from German class could carry over to other academic disciplines, in this case, ecology. Ute's comments also showed a relationship to Brinton, Snow, and Wesche's principles of content-based instruction. By introducing topics of relevance to the students in the research setting, the students' interests and needs were taken into account, and further lessons in German were built upon the students' previous learning experiences (Brinton, Snow and Wesche, 1989, p. vii).

During one class session, Ute told a student: "Wir bauen auf," (we're building up), as she passed out the instructions for the video project at the end of the teaching unit. In saying this, Ute did not want the students to see the video project as an isolated assignment from the rest of the activities they had already completed (Ute, personal communication, February 15, 2000). For example, the video project relied upon vocabulary the students had learned in previous classes through their reading of the story on *HyperStudio* and by speaking in their in-class dialogues(Ute, personal communication, February 15, 2000).

As shown in Table 4.5, Ute employed paper-based instructional materials printed on a variety of colored papers in almost every class. In contrast to a textbook, Ute said she liked to use various colors of paper so that students could create a colorful, illustrated book of their own (Ute, personal communication, February 15, 2000). Ute remarked that

students were required to turn in their textbooks at the end of the school year, but they could keep all the paper copies they had collected over time and use them for future German classes (Ute, personal communication, February 15, 2000).

Ute expressed optimism about the use of technology in her German classes. The amount of resources available to the students was one reason for Ute's positive opinion.

> Researcher: How would you say that using some of the (technology) resources that they (students) have here is helping them learn German, learn to speak more, learn to write more, learn to communicate better?
>
> Ute: Well, one thing, just having access to the World Wide Web and being able to research something in German, um, that's not made up for students, is really valuable. Even in the lower levels, you can have them be familiar with the topic by looking for (an) example in *Yahoo* in English for a certain topic, and then go for the same topic and be able to understand a lot more of the German so you can understand the concepts. It's more authentic. They like that.

Ute's comments about the use of the World Wide Web in her classes reflect various principles from the foreign/second language literature. For example, Ute's statement reflects Lafford and Lafford's point that up-to-date materials on the World Wide Web aid students' second language acquisition and helps students gain an appreciation of the culture they are studying (Lafford & Lafford, 1997, p. 217). Phillips' views are also reflected in Ute's comments, that technology should provide students learning experiences with authentic materials, which helps students interpret language, content, and perspective (Phillips, 1998, p. 33). Ute's comments also

reflected the views of Gonglewski, who said the World Wide Web allowed learners to draw from rich research resources (Gonglewski, 1999, p. 356-357).

By using the World Wide Web to find authentic materials, Ute and her students were able to access authentic language that they might not be able to find in a textbook. Depending on the lesson, Ute also sent students to the language laboratory to find materials on their own (Ute, personal communication, February 15, 2000).

The story of the *Mann vom Bärengraben* was presented to the students with *HyperStudio* rather than using the hardcover book or paper handouts. Ute explained why she used *HyperStudio* for this assignment rather than using handouts or the textbook:

>Researcher: You had the book with you. One of the options you probably had was that you could have taken that and made paper copies.
>
>Ute: And years before the *HyperStudio* capability was available to us, that's the way I would have had to do it. It just works so much nicer, this other way.
>
>Researcher: After the whole experience now, how do you think the kids responded?
>
>Ute: I've had some pretty positive feedback. This is the second book that we've done and we're going to do a third just like this in the same program. I think the kids like it because, for one, they like the colored pictures. They always like computers, for some reason, even if they're sitting there, even if they're doing nothing really special, they like the idea of sitting there at the computer doing something, rather than in the classroom all the time. And they can work at their own pace, which is really nice too, and then I can just circulate.

Ute's comments here relate to Tschirner's concept of
Individualisierung, in which students work at their own pace
on their work (Tschirner, 1997, p. 125). Ute seemed to realize
that using technology had motivational advantages to students
in addition to learning the language. The students maintained
their interest in class by using *HyperStudio* because they
could see pictures as well as utilize the computer. It
appeared that Ute had knowledge of students' interests, and
that she designed her activities to appeal to those interests
in addition to the goal of teaching the language.

Ute assigned the story as a constructivist learning task.
The researcher observed that Ute allowed the students to work
on their own and read the story at their own pace. Students in
all the classes were observed choosing their own Macintosh
computer to work on, but as observations continued, some
students were observed working together while others chose to
work alone. For example, the majority of the 12:10 students
sat at computers on one side of the room where they were all
together. In contrast, students in the 7:30 and 10:25 class
spread themselves out among various workstations in the entire
room. Ute sat at a table in the center of the room, but she
would often get up and walk over to students when they had
questions. Sometimes Ute and the students would talk in German
(questions on vocabulary), other times in English (questions
on grammar). In summary, the students were observed
interpreting the meaning of the story's content on their own,

while Ute was able to circulate and provide assistance when asked.

Synthesis: German 2, Technology and the *National Standards*

In comparison with German 1, Ute and her students communicated in the target language on a more frequent basis. Ute explained in one of her interviews about the increased use of the target language in German 2:

> Researcher: You do speak a lot of German to the kids. How well do you think the kids respond to you when you are speaking in German?
>
> Ute: Better every year (Laughs). The more they understand, the better they respond. But they're, the fact is that they see this as more natural. After, of course, you get them, uh, accustomed to it while they're in German 1. By the time they get to German 2, it is perfectly normal.

Ute's comments show the foreign language department's commitment to learning German according to the principles articulated by the authors of the *National Standards*, such as being able to interact with other speakers of the target language, interpreting written and spoken language, and presenting information in the target language on a variety of topics (i.e., the framework of communicative modes). The communication and culture standards were put into action in the activities Ute planned for class. Below is a summary of these activities and their relation to the *Communication* and *Culture* standards.

<u>Standard 1.1</u>
Students engage in conversations, provide and obtain
information, express feelings and emotions, and exchange
opinions.

The German 2 students had opportunities to communicate

orally in German during partner activities and in the final

video assessment exercise. Ute would often have students write

down first what they were going to say, e.g., when she had

students script the dialogue for the video exercise. When the

students talked about their unusual pets in class, Ute had

students prepare their dialogues for five to ten minutes

before they spoke. Unlike German 1, where students were

speaking in sentences, German 2 students were creating

conversations that lasted up to five minutes. Students could

also engage in spontaneous conversation in the target language

with Ute.

<u>Standard 1.2</u>
Students understand and interpret spoken and written language
on a variety of topics.

The German 2 students interpreted the written language of

German in a variety of assignments. In class, students read a

mystery story, a poem by Wilhelm Busch, and they read

information about German heraldry, all on paper handouts. The

longest assignment was the *HyperStudio* reading exercise that

lasted over a week. Not only did the students read the German

text, they also saw color pictures and used the on-screen

tools to navigate through the story.

Most interpretive activities in German 2 were centered on written German rather than spoken German. The interpretation of spoken language was centered primarily on listening to Ute and other students conversing in class.

Standard 1.3
Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.

Ute's German 2 students were assigned activities in writing and speaking to communicate information to others. Specifically, Ute assigned preliminary activities for students to learn vocabulary, grammar and culture in order for the students to produce the language in later activities. Students presented conversations on unusual pets, wrote compositions on their coats-of-arms, described their unusual pets, and prepared the oral presentations in front of the video camera. Students were able to use various technologies in the presentational mode, such as word-processing programs, drawing programs and the VHS camcorder.

Standard 2.1
Students demonstrate an understanding of the relationship between the practices and perspectives of the cultures studied.

In accordance with the global theme of the second-year curriculum, *I and My Extended World,* students demonstrated their understanding of cultural practices and perspectives by relating the knowledge learned to themselves. Ute organized class activities in a way that students learned about cultural

practices and perspectives before being able to demonstrate their understanding of that knowledge. Learning about cultural practices took place in assignments such as learning vocabulary about animals, learning about the city of Bern and the symbolism of bears to the city, and learning about heraldry. To demonstrate their knowledge of culture, students produced a product that related to themselves, i.e., creating their own coats-of-arms and describing the meanings of their products in speaking and writing, and describing their unusual pets in writing and speaking.

<u>Standard 2.2</u>
Students demonstrate an understanding of the relationship between the products and perspectives of the cultures studied.

Products of German culture that the German 2 students studied were the coats-of-arms, the poem by Wilhelm Busch and the story *Der Mann vom Bärengraben*. In general, students learned about these products of culture and related what they learned about these products to themselves. For example, the purpose of the heraldry assignment was for students to see actual coats-of-arms used throughout history. Using these historical products as models, the students created coats-of-arms of their own. In essence, the students were able to apply their knowledge of cultural products and perspectives to themselves.

Technology activities in class were carried out independently by the students. Ute allowed the students work on their own when they read the story on *HyperStudio*, and when

they created their video activities. Ute created instructions
for these assignments, but students were expected to
accomplish the goals of the lessons on their own. Ute seemed
to be aware that students' technology skills were adequate to
carry out the objectives of her assignments and because
students liked using technology, she created assignments that
allowed the use of technology as a component. As in German 1,
technology was used a medium to help students accomplish
communicative objectives in their language learning tasks.

For some learners at the research site, German 2 was the
terminal course point because they were required to complete
only two years of language study. Some learners moved on to
the next level of German study. German 3 is the subject of
discussion in the next section.

German 3

Curricular components.

In the third-year German curriculum, four goals were
listed for students to communicate in German (Level 3
curriculum, 1998, unpaged). Students were expected to
participate actively in extended oral and written discourse;
narrate, describe and critique past, present, and future
events; and learn how to handle difficulties and unexpected
events when placed into situations; and initiate and sustain
conversations (Level 3 curriculum, 1998, unpaged).

Six teaching units (defined in the curriculum as *learning experiences*) were described in the third-year document. The content areas included in these six units were the environment; the Middle Ages; social groups and German citizens (including minorities, foreigners and Americans in Germany); a stamp project; travel, tourism and cities; and urban planning and architecture (Level 3 curriculum, 1998, unpaged). Examples of German lessons with technology were interspersed throughout all of the teaching units with the exception of urban planning.

In the unit on environment, students used the German magazines *Focus* and *Bunte* as well as the World Wide Web to identify environmental issues in Germany and Europe. Students watched a video on the environment. Groups of two to three students presented a foam-board display of an environmental issue and presented it to the entire class (Level 3 curriculum, 1998, unpaged).

In the unit on the Middle Ages, students researched information on the World Wide Web about the medieval cities of Cologne, Erfurt, and Rothenburg ob der Tauber, and they watched videos about these cities. Students communicated with native German students at the research site's partner school in Erfurt by e-mail or by telephone. The students wrote letters, collected information from their native German friends and reported back to the class. In addition, students presented an "on-the-spot" news commentary on videotape that

tied together the history, events and people the students had learned about during the unit (Level 3 curriculum, 1998, unpaged).

The social groups unit involved the students working again with their native German colleagues on an e-mail project. Both American and German students watched a single movie (the Americans watched the German version and the Germans watched the English version, which did not take place during the data collection) and they communicated with each other to discuss the movie and relate the situations of the movie to those in their home countries. The students read literary and non-literary texts by and about minority groups in Germany. Various technologies could be used to help students learn vocabulary and concepts about minority groups, including picture-text matching, video, songs and the Internet (Level 3 curriculum, 1998, unpaged).

A project on postage stamps that was conducted in German 3 is a good example of project-based learning (see Chapter 1). The students selected a stamp issued by the German postal service of a person or event. The stamps were located on a Website designed by Herbert. Students researched their individual or event on the World Wide Web or with print sources in the library, then presented their findings in class. Next, students designed a stamp of a significant German person or event and justified their choice of person or event in writing (Level 3 curriculum, 1998, unpaged). Although not

given explicit reference in the curriculum, Herbert said that he assigned his students to write a brief biography to accompany the stamp, then the students uploaded the stamp and biography to the German 3 Web page (Herbert, personal communication, February 8, 2000). In past school years, the students wrote the biography using *HyperStudio*, but Herbert changed the assignment so that students could publish their work on the Web (Level 3 curriculum, 1998, unpaged; Herbert, personal communication, February 8, 2000).

Herbert mentioned that the stamp project was a contribution he suggested for the curriculum because of his personal interest in stamps and his desire to integrate a cultural-historical dimension into the curriculum (Herbert, personal communication, February 8, 2000). Ute assigned the stamp project in her classes when she previously taught German 3 (Herbert, personal communication, February 8, 2000).

In the travel and tourism unit, the students wrote and e-mailed business letters to travel offices in German-speaking countries in order to request information about the city. Learners also used the World Wide Web as a source to collect information about cities in Germany, Austria, Switzerland, and other cities where native German-speakers were present (Level 3 curriculum, 1998, unpaged).

<u>Observations of the German 3 class.</u>

As in the German 2 class, the German 3 students also took the National German Exam during the second week of data collection. The researcher observed the preparations for the exam and was asked to administer the listening comprehension portion to the 8:15 class. Herbert was not allowed to be present to assure fair administration of the exam. Fieldnotes were not as extensive during the exam days compared to regular class sessions, but the researcher observed the students writing the exam and wrote comments on what he observed.

The main unit assigned during the data collection period was the stamp project, shown in Table 4.7. Other activities conducted in the two German 3 classes are also listed. All data displayed are based solely on the researcher's observations of the two German 3 classes:

Week	Monday (2:15)	Tuesday (8:15)	Thursdays. (2:15)	Friday (8:15)
Week 1 (Jan 10, 11, 13, 14)	Researcher arrives - Class not attended	Exam preparation (listening comprehension and grammar); Grammar review	Exam preparation (listening comprehension and grammar); Grammar review	Did not attend -- Interview with Ute in progress
Week 2 Jan 17– Jan 21)	Exam preparation (Listening comp. and grammar); Grammar review	Exam preparation (Identification and grammar); more grammar review	National German Exam -- No class	National German Exam – Researcher proctors test
Week 3 (Jan 24– Jan 28)	Herbert ill-- class cancelled	Herbert ill-- class cancelled	Start stamp project, Albrecht Durer, describing a portrait (partner); writing	Start stamp project, Albrecht Durer, describing a portrait (partner); writing
Week 4 (Jan 31– Feb 4)	Describing a person (group); stamps introduced; stamps on the Web	Describing a person (group); stamps introduced; stamps on the Web	Talking about famous person; Thinking what to say; presentation; discussion	Talking about famous person; Thinking what to say; presentation; discussion
Week 5 (Feb 7– Feb 11)	More talk on famous people; presentation; discussion	More talk on famous people; presentation; discussion	Winter recess--Class not in session	Winter recess--Class not in session
Week 6 (Feb 14– Feb 18)	Presentation of famous people for stamps; discussion; stamp design	Presentation of famous people for stamps; discussion; stamp design	End of study	End of study

Table 4.7: Summary of activities in German 3 classes

The first two weeks of data collection were spent observing the German 3 students prepare for the National German Exam. Herbert brought his students to the language laboratory and used the lab console, where the students listened to audio portions of past listening comprehension sections with the headphones in the room where they eventually wrote the actual exam. Herbert and the students also spent the majority of class time reviewing grammar and devised successful test-taking strategies. Class sessions for the exam preparation were teacher-centered, but Herbert had students give answers to grammar questions and then allowed the students to ask questions. As Herbert and the students discussed the exam, they conversed in German and English. Herbert said during class that students traditionally had the most difficulties on the grammar section of the test (Herbert, January 11, 2000). Students struggled on this section because the memorization of grammar forms and rules was not the primary focus of the German courses (Herbert, personal communication, January 14, 2000).

During the exam, each student sat at an individual workstation in the PC laboratory. All the students stayed at their workstations for the entire exam and did not get up to ask questions. None of the students was allowed to leave until everyone had completed the exam. The students left the language laboratory immediately after the exam. Few students remained to express their reactions to the exam. However,

based on previous class observations in which students wrote practice exams, students found the listening comprehension portion easy, but had difficulty with the grammar section.

After students had written the exam, Herbert was absent for two days due to illness. When he returned, he began a new teaching unit with both of his German 3 classes. Following the German 3 curriculum, Herbert and his students commenced work on the stamp project.

The stamp project progressed in various stages. First, Herbert placed a transparency of an Albrecht Dürer self-portrait on the ELMO presenter and asked the students to guess who the figure was. During the lesson, Herbert gave the students clues, but would not reveal the answer to Dürer's identity.

Herbert gave his students a writing assignment along with some biographical information on Dürer so that students could practice describing Dürer in German to prepare for the next assignment. After discussing the homework in class, the students went to the language laboratory and looked for stamps on the World Wide Web by using Herbert's stamp project Web page. Herbert assigned the students to find a stamp of a famous person and to find appropriate biographical material on that person to present in class. During the fourth and fifth week of data collection, the students presented their topics for a three to five minute period of time in German. Herbert monitored class discussion, taking notes on who asked

questions and who remained silent. Herbert provided the students with feedback on content and grammar in German and English.

In the final stage of the project, students were to choose a different famous person (or event), write a description of that person or event and then present it to the class. The students wrote their descriptions with Web page editors with the knowledge that their pages would be uploaded to the World Wide Web. In addition, students were required to design a stamp of their own. Herbert allowed the students to draw the stamp by hand or use an appropriate computer program (i.e., *Adobe Illustrator*, *CorelDraw*, etc.). When the unit was complete, Herbert uploaded the completed stamps and accompanying texts in German to the school server. He created hyperlinks on the German 3 home page to each student's composition. Famous persons the students wrote about were Johannes Kepler, Marlene Dietrich, Günter Grass, Clara Wieck Schumann, Oskar Schindler, Maria Hummel, and Ferdinand Porsche. Other students chose famous German events: Oktoberfest in Munich, Karneval (Mardi Gras) in Cologne, the Bauhaus movement of the 1920s, and the rise and fall of the Berlin Wall.

The stamp project had been part of the Level 3 curriculum before the 1999-2000 school year, but Herbert informed the researcher that he had planned the unit as a Web-based assignment for the first time (Herbert, personal

communication, February 8, 2000). He and his work-service students had scanned the stamps onto his Web page, which he said was an eight to nine hour project (Herbert, personal communication, February 8, 2000). Since he was a stamp collector himself, Herbert used stamps from his personal collection and also obtained others from Websites and from Ute, who had taught German 3 the previous year (Herbert, personal communication, February 8, 2000).

As in German 1 and 2, computer-based technology was also used in the German 3 classes. In Table 4.8, all data displayed are based solely on the researcher's observations in the two German 3 classes.

Week	Monday (2:15)	Tuesday (8:15)	Thursday (2:15)	Friday (8:15)
Week 1 (Jan 10, 11, 13, 14)	Researcher arrives -- Class not attended	Language lab console; listening to cassette; paper handout	Language lab console; listening to cassette; paper handout	Researcher not in class -- Conduct-ing interview
Week 2 (Jan 17- Jan 21)	Language lab console; listening to cassette	Language lab console; listening to cassette	National German Exam --language lab console, listening to cassette	National German Exam --language lab console, listening to cassette
Week 3 (Jan 24- Jan 28)	Herbert ill-- class cancelled	Herbert ill-- class cancelled	ELMO presenter; transparencies paper handouts; map on wall	ELMO presenter; trans-parencies paper handouts; map on wall
Week 4 (Jan 31- Feb 4)	Web browser; actual stamps; paper handouts	Web browser; actual stamps; paper handouts	Paper handouts; Printed Web pages (found by students)	Paper handouts; Printed Web pages (found by students)
Week 5 (Feb 7- Feb 11)	Paper handouts; Printed Web pages (found by students)	Paper handouts; Printed Web pages (found by students)	Winter recess-- Class not in session	Winter recess--Class not in session
Week 6 (Feb 14- Feb 18)	Paper handouts; Web pages; stamp drawings	Paper handouts; Web pages; stamp drawings	End of study	End of study

Table 4.8: Technologies and instructional materials used in German 3 classes

In the German 3 classes, Herbert made use of technology and instructional materials by using the ELMO presenter, transparencies and paper handouts, and creating his own Web pages. Unlike German 1, in which Herbert provided cues in German for the students to produce the language, Herbert created hyperlinks to various German Websites for the German 3

students to find information. Herbert said the purpose of the stamp project was for students to have a cultural experience (Herbert, personal communication, February 8, 2000). Specifically, since the German 3 students had proficiency in German, they were prepared to understand why Germans commemorated certain people and events (Herbert, personal communication, February 8, 2000).

The German 3 students carried out the stamp project as a constructivist learning task. For example, in preparation for their oral presentations in class, the researcher observed that the students had gone to Web sites to find information without Herbert transmitting knowledge to them about their events or people. As Tschirner wrote, browsing the Internet is a way for students to learn the language according to their own learning styles and at their own pace (*Individualisierung*) (Tschirner, 1997, p. 125). Herbert said that according to his own observations, the research sources the students consulted had come from the Internet (Herbert, personal communication, February 9, 2000).

Feedback from Herbert's Interviews.

Herbert's feedback on the German 3 classes concerned the stamp project. The purpose for creating the project was twofold. Herbert wanted the students to gain insights into German culture, as well as talk about stamps and famous people (or events) with relative accuracy, especially in the past

tense (Herbert, personal communication, February 8, 2000). The project also allowed students to do basic research on famous people and events (Herbert, personal communication, February 8, 2000). Herbert said he knew ahead of time that research materials were available on the Internet for completing the project, so use of the Internet was encouraged (Herbert, personal communication, February 8, 2000).

Herbert began to conceive the stamp project as a Web-based teaching unit in 1996. His purpose for creating his own Web page on stamps was to provide material for student research on the Web, as well as to give students access to a source from which they could access stamps from around the world (Herbert, personal communication, February 8, 2000). On his Web page, Herbert classified the stamps into categories such as art, literature, science, and sports to appeal to the various interests of the students (Herbert, personal communication, February 8, 2000). In order to help students collect information, Herbert added hyperlinks on his page to the Deutsche Post AG (German post office) and to the Website of a native German stamp collector. A hyperlink was added to a German language lexicon so that students had a starting point from which to begin research on the famous person or event that they had talked about in class. Recognizing the various artistic talents of his students, Herbert decided to give them the option of designing their stamps either by hand or by

using a computer drawing program (Herbert, personal communication, February 8, 2000).

Herbert talked about the stamp project in his second interview. Specifically, he was asked if designing stamps helped the students become interested in learning German, even though the task was not a language-based activity. He responded:

> Herbert: They're intelligent students and I think there's some joy using that creativity. I mean designing the stamp in and of itself may not necessarily improve their German significantly, but maybe, I don't know, maybe a foreign language class isn't something necessarily always focused on language. I mean this is part of the bigger framework, if they get excited and into designing the stamp, there might be some residual impact on what they're doing with the rest of the project, I think it's good for those reasons.

Herbert's comments above reflect principles defined in the *Standards*, specifically *Connections*, *Comparisons*, and *Communities*. These three principles deal with the "larger framework" of learning language and culture, such as reinforcing knowledge, recognizing distinctive viewpoints, understanding the concept of culture, using the language in and beyond the school setting, and becoming life-long learners (*Standards,* 1999). Herbert's comments also reflect Tschirner's beliefs that technology is a tool that should motivate learners and give learners more opportunities to practice using the language (Tschirner, 1997, p. 125).

The German students had opportunities to communicate in German during various speaking situations, including

presentations in front of their peers. During class
observations, the researcher saw that the student
presentations proceeded in a similar manner. A student spoke
for three to five minutes while the rest of class listened.
Herbert listened and wrote notes as the students spoke. Every
student had prepared what they were going to say ahead of
time. Some students had 3 x 5 index cards with them whereas
others had brought in Web pages with information they needed
for the talk. The researcher observed that some students spoke
with fluency, whereas others had difficulties. The researcher
noticed that students attempted to use words that one would
not use in everyday speech. For example, one student had
trouble pronouncing the word "nitroglycerin" in German. After
each student presented, Herbert opened up the discussion for
questions in German. He expected students to participate in
the discussion and not sit passively (Herbert, personal
communication, February 8, 2000).

Each student showed a stamp to the rest of class with the
person or event on it as he/she presented. The majority of the
students printed out their stamps on color printers. The
language laboratory did not have color printers, therefore the
researcher concluded that the students had printed out their
work either in their rooms or in one of the other computer
classrooms.

Herbert was asked to comment on how the use of
technology was beneficial to students learning how to

communicate. He said that he did not try to use the technology

just to use the technology, rather he always had a

communicative objective in mind (Herbert, personal

communication, February 8, 2000). The technology was the

medium that helped him and the students achieve the

pedagogical objectives he had set out to achieve (Herbert,

personal communication, February 8, 2000). He described his

teaching methods using a metaphor:

> Herbert: Really it's like building a house, and I'm
> the general contractor. Uh, I can't put the roof up
> until the four walls are up, you know. And when the
> four walls are up, now it's time to put the roof on.
> Um, when we're working on something and I see that
> we're ready to put the linguistic roof on it, then
> we'll go ahead and we'll go do it. And I guess
> that's something as a teacher that you just sense,
> it's time to do this.
>
> Researcher: How can you tell when the technology is
> helping them acquire the language and when it's not
> helping them acquire the language?
>
> Herbert: It seems to me that if they're able to put
> together sentences and paragraphs that communicate
> information in a clear and understandable fashion,
> then they made some sort of progress. And if there is
> some sort of carryover then to their ability to
> communicate with one another in class, then that's a
> pretty good indication that they can do those things
> too. What samples of evidence do I have on that? I
> have different assessments (i.e., video assessment,
> samples of language recorded on tape, Web pages).

The above statement from Herbert reflects the principles

of Tschirner. Tschirner considered communication technologies

tools of learning that help students develop communication

skills and practice using them (Tschirner, 1997, p. 125).

Gonglewski's principles are also reflected in Herbert's

statement. She posited that technologies such as the World Wide Web help students develop their communication skills, including understanding the various genre and discourse styles the Web has to offer (Gonglewski, 1999, p. 353). These principles are important because the World Wide Web was a part of the German 3 students' language learning.

Synthesis: German 3, Technology, and the *National Standards*

Herbert's German 3 classes were organized around the standards of communication and culture in the *National Standards*. Not only were the students communicating in oral and written form, technology was intentionally included as an instructional component. A summary follows of the activities that took place in German 3 that were organized around the standards of communication and culture.

Standard 1.1 – Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions.

In German 3, the students engaged in conversations in which they described and narrated events in the past. They described Albrecht Dürer together as an entire class and in small groups, they then talked individually about famous German people and events. In addition, Herbert and his students spent class time conversing with each other in spontaneous small talk and about their assignments. The German

231

3 students also communicated information about their German events and people in their presentations.

Standard 1.2 – Students understand and interpret written and spoken language on a variety of topics.

Students spent time gathering information about their historical personalities and events by browsing the Internet, and interpreting the language written in the on-line documents. When Herbert passed out sheet of paper in order to describe characteristics of Dürer, students were required to understand concepts in German such as birthdates, occupations, significant events in the person's life, etc. The spoken language students interpreted included the listening components of the National German Exam, Herbert's conversations in German and conversations in the target language amongst themselves.

Standard 1.3 – Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.

The presentational mode of communication played a role in the German 3 classes. Students were twice expected to present information about the historical personalities and events they had chosen to investigate, once for practice and a second time to complete the stamp project. In the stamp project, students were expected to present in the target language in speaking and in writing. They showed their writing to the rest of the world by uploading their written work to the school's Web

232

server. Herbert added the ancillary activity of designing the stamp, which was not intended as a language production activity, but was included as a way of keeping students' interest in the project.

Standard 2.1 - Students demonstrate an understanding of the relationship between the practices and perspectives of the culture studied.

Herbert emphasized learning and understanding German culture in German 3. Students demonstrated their understanding of German culture throughout the stamp project, especially in the area of gathering information about German personalities and events using the World Wide Web. Students were required to understand German culture through the eyes of their historical personalities, understanding how these people contributed to German society. Students were also expected to understand why these people and events were revered by native speakers of German.

Standard 2.2 - Students demonstrate an understanding of the relationship between the products and perspectives of the culture studied.

One cultural product of German 3 was stamps. Students had the opportunity to see authentic German stamps on Herbert's Web site and on other selected German Web sites. After seeing these authentic stamps, students demonstrated their understanding of culture by creating a stamp of their own and describing in German the person or event that was depicted on the stamp.

Herbert also assigned his students to use technology as a mode of presentation, in accordance with *Standard* 1.3. In the presentational mode, students used computer-drawing tools to create their stamps and they used Web page editors to create their Web pages, presenting their finished pages for a global audience to view.

Most of the German 3 students were seniors and finished their language study at the research site upon graduation. Students who started their studies at the second-year level had the opportunity to enroll in advanced level classes once they started their senior year. German 4 is presented in the next section.

German 4

Curricular components.

The pedagogy of the fourth-year curriculum, described as the "Advanced Level," was based on the constructivist theory of knowledge, which was given explicit reference by the curriculum developers in the Level 4 document (Level 4 curriculum, 1998, p. 2). With constructivism grounding advanced level instruction, the curriculum designers created three specific teaching units: Slice of Time, Visual Thinking, and Science and Ethics. (Level 4 curriculum, 1998, p. 2).

The Slice of Time unit for the German 4 class was designed for students around the history of the Weimar Republic, the period of German history from 1918 to early

1933. For example, the students read the Brecht play *Die Dreigroschenoper (The Threepenny Opera)* in German (Level 4 curriculum, 1998, p. 27). Students not only read the entire text, they listened to audio recordings of the songs from the play and watched a video of the play performed by professional actors (Level 4 curriculum, 1998, p. 27). For background information on Brecht and Germany during the years of the Weimar Republic, the students watched video excerpts of Remarque's *All Quiet on the Western Front* and Trambo's *Johnny Got His Gun* (Level 4 curriculum, 1998, p. 27). They also viewed other films such as *Der blaue Engel (The Blue Angel),* which was released in 1931 and selected Expressionist films including *Metropolis, das Kabinett des Dr. Kaligari,* and *Nosferatu*. At the end of the unit, the Level 4 students synthesized the information by presenting a cabaret and film collage for the school community (Level 4 curriculum, 1998, p. 29). The students portrayed various elements of the historical period through "narration, song, art work, acting, etc (Level 4 curriculum, 1998, p. 29)." In preparation for the presentation, students used audio-visual technologies, multimedia presentations and the Internet to present information, film clips, slides and music (Level 4 curriculum, 1998, p. 29).

The Visual Thinking unit for the German 4 class was focused on art, specifically Expressionist art (Level 4 curriculum, 1998, p. 42). The students discussed various

paintings and connected feeling, smells and sounds of color to determine what the colors might represent (Level 4 curriculum, 1998, p. 42). They also read from Lenz's novel *Deutschstunde* as a way of understanding another perspective on Expressionist art (Level 4 curriculum, 1998, p. 42). Although students looked at visuals depicting the work of various artists, no reference to computer-based technology was present in the written description of this unit.

In the third unit, Science and Ethics, students read the works *Leben des Galilei* by Brecht about Galileo and Kippardt's *In der Sache J. Robert Oppenheimer* in order to develop their own positions about ethical responsibilities of scientists in modern society (Level 4 curriculum, 1998, p. 51). One technology component for this unit was the World Wide Web, which was students read and understand scientific texts and gather information about various ethical issues in science (Level 4 curriculum, 1998, p. 51). Students also developed their own personal/technical dictionary, although no reference to technology was listed that explained how the students should organize the dictionary (Level 4 curriculum, 1998, p. 51).

In the Level 4 curriculum, teachers were encouraged to discover ways of integrating technology into the curriculum (Level 4 curriculum, 1998, p. 2). One example found in the written curriculum was mention of students accessing data via Gopher servers and establishing contact with other schools

around the world by using the Internet (Level 4 curriculum, 1998, p. 3). The Level 4 curriculum included a specific reference that the foreign language faculty wanted to involve other schools in the state in joint projects and sharing ideas (Level 4 curriculum, 1998, p. 3).

Observations of the German 4 class.

Table 4.9 shows the activities that took place in the German 4 course during data collection. Since German 4 took place only on Tuesdays and Fridays, the remaining days of the week are not shown. All data displayed are based solely on the researcher's observations of the class.

Week	Tuesday	Friday
Week 1 Jan 10, 11, 13, 14)	Class not attended	Small talk; Exam preparation (listen-ing comp.); read Threepenny Opera
Week 2 (Jan 17- Jan 21)	Small talk; exam preparation (grammar); Three-penny opera (3PO) with music	National German Exam -- Class not in session
Week 3 (Jan 24- Jan 28)	Small talk & current events; Exam discussion 3PO with music	Small talk & current events; Discuss grammar; 3PO with music
Week 4 (Jan 31- Feb 4)	German Cafe; current events; 3PO with music	Current events; Video on Degenerate Art
Week 5 (Feb 7- Feb 11)	Small talk; relative clauses; Talk about art and jazz	Winter recess -- Class not in session
Week 6 (Feb 14- Feb 18)	Exam discus-sion; Watch Swing Kids	End of study

Table 4.9: Summary of activities in German 4 class

One prevalent feature of the German 4 class was the speaking that took place in the target language, especially at the start of class. Ute reserved the opening minutes of class for the students to talk, mostly about current events, but the students were also allowed to talk about any topic that came to mind. Some topics that were discussed were the Super Bowl, pitcher John Rocker's derogatory comments in *Sports*

238

Illustrated, the rise of a far-right political party in the Austrian elections, the development of a new supercomputer, and the release of the Windows 2000 operating system. During each class, Ute and the students arranged their desks in a circle in the center of room in order to establish a conversational atmosphere.

Ute described the eight German 4 students as highly motivated young people who had already begun to master their conversational skills in German 3 (Ute, personal communication, February 15, 2000). Almost any topic of conversation could be introduced into class discussion (Ute, personal communication, February 15, 2000). Herbert described German 4 as a course in which students consistently "wanted to be there (Herbert, personal communication, February 8, 2000)."

The German 4 students also took the National German Exam during data collection. All the students spent the majority of class time with Ute reviewing grammar, especially because the Level 4 test presented grammar concepts such as adjective endings and relative clauses (Ute, personal communication, February 15, 2000). They also practiced a listening comprehension portion similar to those on the Level 2 and 3 exams. Ute brought the audio-cassette recorder into class to play the cassette for the practice exams.

Following the Level 4 curricular guidelines, Ute and her students read and discussed Brecht's *Die Dreigroschenoper (The Threepenny Opera).* The students read various lines of

dialogue, playing different characters, and they talked about the text and its significant themes with Ute. Ute and her students conducted discussion in German during most situations, but sometimes Ute would speak English when the students grappled with a concept that they could not explain in the target language. Ute brought in a compact disc recording of the songs and played it on the audio-cassette recorder whenever the group came to song lyrics in the text. The recording Ute used consisted of an all-German cast, including the famous performer, Ute Lemper. During the January 25 class, the students were laughing as they heard the song *Eifersuchtsduett* (The Jealousy Duet), as two female characters battled each other with insults as they tried to win over the main character, Macheath.

The grammar exercises were done at the request of the students during the January 25 class. Ute prepared paper handouts of relative clause exercises that were contextualized for the Weimar Republic unit, specifically on Expressionist artists. All the students took turns in preparing the sentences. Ute explained some portions of the exercise in English when she saw that the students did not understand her explanations in German.

During the fourth week of data collection, when the students had finished reading the play, Ute introduced a new topic, German art. As an introduction to the unit, Ute showed the students a video on an art exhibit in 1937 in Nazi Germany

240

in which the Nazi regime displayed works of art that were judged "degenerate," i.e., not in conformity with Nazi ideology. Some artists whose works were in this exhibition included Max Beckmann, Paul Klee, Wassily Kandinsky and Emil Nolde, who had been a member of the Nazi Party since the 1920's, but whose works composed the largest number of "degenerate" works by a single artist in that exhibition. The video was in English, as the program was originally presented on public televsion in the United States. Ute said in class that she used the video because it contained useful cultural information, despite the fact that the video was not in German (Ute, personal communication, February 14, 2000).

During the next class, Ute brought in compact discs of jazz recordings that were popular during the time of the Weimar Republic and the Nazi regime, for Nazi ideology had excluded jazz as an acceptable form of musical expression. Specifically, Ute played recordings of jazz artists such as Django Reinhardt and Gene Krupa. During the same class, she showed the students pictures of Expressionist art, the same art that was labeled "degenerate" by the Nazis. She gave the students an assignment to create a presentation in class on any one of the artists who was labeled "degenerate." She encouraged the students to create the presentation using *Microsoft PowerPoint* or with transparencies on the ELMO presenter.

On the final day of observation, Ute and her students went to the language laboratory to view the movie *Swing Kids*, which was intended to give the students more information about the era of the 1920s and 1930s of Germany. Although the film was originally produced in the United States in English, this recording was dubbed into German and no subtitles were visible. Before class began, the researcher was present in the language lab to see Ute enlist the help of Herbert and another technical support person to set up the PC-VCR program on the language lab console, for they had more experience with the program and knew how to set it up.

On "German Cafe" day, Ute brought in cheesecake, coffee and tea to share with the German 4 students and the researcher. It was intended to simulate the German ritual of *Kaffee und Kuchen* (coffee and cake), which normally took place during the afternoon.

Table 4.10 shows the technologies and instructional materials used in the German 4 class. The data in this table are based solely on the researcher's observations.

Week	Tuesday	Friday
Week 1 (Jan 10, 11, 13, 14)	Class not attended	Paper handouts; books; audio-cassette recorder
Week 2 (Jan 17-Jan 21)	Paper handouts; books; audio-cassette recorder; German Grammar Flipper	National German Exam -- Class not in session
Week 3 (Jan 24-Jan 28)	Audio-cassette recorder; paper handouts	Audio-cassette recorder; books
Week 4 (Jan 31-Feb 4)	Audio-cassette recorder; books	Video-cassette recorder
Week 5 (Feb 7-Feb 11)	Paper handouts; audio-cassette recorder; compact discs	Winter recess -- class not in session
Week 6 (Feb 14-Feb 18)	Paper handouts; PC-VCR program in language lab	End of study

Table 4.10:   Technologies and instructional materials used in the German 4 class

As with the German 2 classes, Ute used similar technologies and instructional materials with her advanced students, namely paper handouts, the ELMO presenter and the audio-cassette recorder. Ute used the audio-cassette recorder

more often with the German 4 students because her lessons included music. She also took her students to the language laboratory to see the video *Swing Kids.*

The German Grammar Flipper was a paper-based instructional material that Herbert procured for all the advanced level students. The "flipper" was composed of more than 30 sections relating to German grammar. If students wanted to find information on personal pronouns or relative clauses, they could "flip" the pages to the appropriate section and find that information.

The researcher observed that the German 4 students had German dictionaries with them and that they looked up words during most class sessions, especially during the beginning of class when conversation took place. One of the standing jokes in the class was that one of the female students found words in her dictionary faster than anyone else. The students verbally joked with their classmate about her dictionary "talent."

Feedback from Ute's Interviews

Ute expressed her views about her students' communicative abilities in her interviews. During most class sessions, Ute and her German 4 students conversed about current events. Ute emphasized that talking about current events was important because this activity helped students engage in a "normal way of communicating (Ute, personal

244

communication, February 15, 2000)." According to Ute, the emphasis on communication at the research site set it apart from foreign language programs at other high schools (Ute, personal communication, February 15, 2000).

As in German 3, the German 4 students came to class only two days a week, Tuesday and Friday. Ute expressed disappointment about the German 4 students meeting only two days a week, mainly that the students were not able to practice their communicative skills enough.

> Researcher: Do you ever concern yourself with the fact that you're seeing the German 4 students only two days a week that they'll lose something?
>
> Ute: I think they do. And I think they lose a lot. I still think they're at the point where they still need almost daily practice. We had the idea that, perhaps they would have more work in between. Um, writing in their journals, they do that. They would talk to each other, they would do research, but it still isn't enough to help them with the language. I think, If you don't have the deadline there, you tend to procrastinate, so it just doesn't get done on a daily basis.

Ute's comments above show how communication was valued in the research setting, especially in that the written curriculum stated that communication was the "heart of foreign language study (Shultz, et al., 1998, p. 3)." It also shows that the interpersonal mode of communication was valued as important in German 4, for Ute wished that her students would practice using their German on a daily basis.

Synthesis: German 4, Technology and the *National Standards*

Like the first three levels of German at the research
site, the curriculum of the advanced level was also organized
according to the *National Standards.* In the researcher's
observations, classroom practices reflected the principles of
the *Standards.* A summary follows of the ways in which the
communication and culture standards were integrated into the
German 4 class.

Standard 1.1
Students engage in conversations, provide and obtain
information, express feelings and emotions, and exchange
opinions.

The interpersonal mode of communication played a major
role in the German 4 class. Students were observed
communicating in the target language in every class on
numerous topics, including current events, their feelings and
opinions, etc. The physical arrangement of the room was
intended to create an atmosphere of conversation with the
desks in a circle. Having reached the advanced level of
German, students had opportunities to communicate in the
target language, both in speaking and writing.

Standard 1.2
Students understand and interpret spoken and written language
on a variety of topics.

Students practiced German in the interpretive mode of
communication in various activities. Opportunities to
interpret German took place when the students watched *Swing
Kids,* read the text of *Die Dreigroschenoper,* and listened to

246

music and learned about the art of Weimar Republic days. The interpretation of the target language carried over into the interpersonal mode in that students were expected to discuss in German the language and cultural material they had learned.

Standard 1.3
Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.

Activities in German 4 that involved the presentational mode of communication were the *PowerPoint* presentations for the art unit and the presentation for the entire school community. The presentational mode of communicating played a lesser role than the interpersonal and interpretive modes. It seems that the emphasis on communication was focused primarily on the interpersonal mode, based on observations of the German 4 classes.

Standard 2.1
Students demonstrate an understanding of the relationship between the practices and perspectives of the cultures studied.

The learning of culture played a role in the German 4 class. The unit on the Weimar Republic provided students with an opportunity to learn and understand various cultural practices from this era, including art, music, literature and film. Unlike previous levels of German, where activities were focused on the students themselves, the topics covered in German 4 were centered on cultural practices and products of Germany. Students demonstrated their understanding by

247

discussing these topics in oral conversation, writing in their journals and creating presentations for class.

<u>Standard 2.2</u>
Students demonstrate an understanding of the relationship between the products and perspectives of the cultures studied.

The majority of cultural products in the German 4 class were instructional materials and objects Ute brought into class. These products included musical recordings on compact discs, reproductions of paintings by German artists, the text of Brecht's *Dreigroschenoper,* and the coffee and cake Ute brought in for German Café day. Students demonstrated their understanding of products according to the methods as described under *Standard* 2.1.

Ute used instructional materials and technologies in German 4 as she did in German 2. She was observed using the ELMO presenter and distributing paper handouts in almost every class. The audio-cassette recorder was used more often in German 4, not only because of the National German Exam, but also for listening to music. Two technologies used in German 4 that were not used in German 2 were the video-cassette recorder and the PC-VCR program.

The German 4 students were observed using technology as a tool of interpreting the target language and/or cultural perspectives rather in a presentational mode such as creating a Web page or filming a skit. However, software such as *PowerPoint* was used for the cabaret/film collage for the

248

school community, an example of an activity intended for communication in the presentational mode.

Conclusion

In this chapter, the qualitative methods employed were content analysis of the written curriculum, obtaining responses to the questionnaire content, observation of the German classes, interviewing the two German teachers and the curriculum/assessment coordinator, and document collection. The researcher discovered that the foreign language teachers wrote a curriculum with an emphasis on students communicating in the target language (in the interpersonal, interpretive, and presentational modes), understanding the concept of culture and using technology as an instructional tool for students to perfect their communication skills. The curriculum was modeled after the *Standards of Foreign Language Learning* and the Illinois foreign language guidelines. The curriculum was also cross-referenced to the school-wide learning standards.

Various references to technology were present in the written curriculum. Teachers were recommended to use specific technologies in their classrooms such as video assessment, using the World Wide Web as a research tool or watching videos to listen to native speakers talk in the target language. The curriculum was not written with content specific guidelines,

therefore teachers could use the curriculum as a baseline from which to design in-class activities, use specific technologies, and apply personal teaching methods.

The data presented in this chapter provide answers to the five research questions posed in Chapter 1. In Chapter 5, the findings from these data are presented, as well as implications of the research and recommendations for further research.

CHAPTER 5

FINDINGS, IMPLICATIONS, AND

RECOMMENDATIONS

In this chapter, the researcher answers the research
questions posed in Chapter 1, discusses the implications of
the research, and recommends further research related to
teachers, technology, and foreign/second language education.
Answers to the research questions are presented first, based
on the data from the content analysis of the curriculum, the
two German teachers' responses from the questionnaire,
observations of the German classes and comments excerpted from
Herbert and Ute's interviews. These answers constitute the
main findings of the study. The next section of the chapter is
focused on the implications of the findings, which are
discussed in relation to some of the broad professional issues
facing teachers' decisions about the use of technology in
foreign language learning and teaching in the future. No
generalizations were made, however, in the present study. The
next section of the chapter highlights the researcher's
framework for foreign/second language teachers' use of

technology in their teaching and recommendations for further
research. Limitations of this study are presented next.
Concluding remarks are presented at the end of the chapter.

Summary of Findings

The purpose of this descriptive study was to conduct a
baseline investigation into two high school German teachers'
use of technology as a regular component of their
instructional program in both their curriculum and their
classroom practice. An important document consulted for this
descriptive study was the *National Standards for Foreign
Language Learning,* the contemporary document in the
foreign/second language literature with content goals that
detail what learners should know and be able to do as a result
of studying a foreign language. The researcher investigated
how these two German teachers used the *Standards* to create
their own foreign language curriculum, as well as use the
content goals (i.e., the five C's) to guide their classroom
instructional practice.

Technology was listed in the *Standards* document as a
curricular element in language learning. Technologies such as
interactive video and the World Wide Web were suggested in the
Standards as tools to help students interact with their peers,
improve their linguistic skills and learn about contemporary
culture in the target countries where the target language is

spoken (*Standards,* 1999, p. 35). As part of the data collection, the researcher investigated how the two German teachers used technology in their German instruction, describing their decision-making and use of technology in their teaching. He especially wished to see if the above content goals of the *Standards* had informed the teachers' philosophies about foreign language instruction and how they applied their goals in their classroom practice.

The first research question dealt with the extent to which the German teachers integrated technology to their instruction. That is, based on the teachers' questionnaire responses, comments from the teachers' interviews, and direct observations of the German teachers, the researcher was able to see which technologies the teachers used in their instruction and how they routinely used technology.

The second research question focused on the teachers' interview and questionnaire responses. By observing the teachers in their own classes, the researcher was able to confirm the responses the teachers gave the researcher both orally and on the written questionnaire. The purpose of this question was to study how the two German teachers carried out in practice what they said orally and in writing.

Research Question 3 dealt with the foreign language curriculum at the research setting. The researcher studied the professional documents, including the *National Standards,* that the German teachers used as bases to develop the content goals

of their own German language curriculum. He was also interested in how the teachers wrote their content goals to show not only their philosophy about foreign language learning at the research site, but also which goals they defined for the deliberate use of technology in the German classroom.

The fourth research question dealt with the German teachers' beliefs about the perceived benefits of foreign language instruction via technology. In the 1999 pilot study, the researcher observed that the German teachers were using technology in their instruction. Because the teachers were systematic and deliberate in their use of technology for teaching, the researcher was interested in understanding the teachers' belief systems and motivations for using technology as an instructional tool.

The final question dealt with the implications of the study's findings. This question was designed to explore teachers' intentions and decisions about using technology for foreign language instruction, some possible implications for teacher education and foreign language decision-making. This descriptive study was intended as a starting point from which further research studies on technology and language teaching in other high school contexts could be developed. The answers to the fifth research question provide suggestions for further research.

Answers to Research Questions

Research Question 1: To what extent did the two foreign
language teachers use technology in their instruction?

    Both German teachers used technology in their classes on
a daily basis (See Tables 4.4, 4.6, 4.8, 4.10), and they
routinely assigned their students lessons in which technology
was used to accomplish German course language learning
objectives. The types of technology selected by the two
teachers differed, probably because of differences in
experience and knowledge between Herbert and Ute.

    Some types of technology were used by both teachers,
including the overhead projector, the audio-cassette recorder
and the video-cassette recorder, mainly in the German 1 and
German 2 classes. Differences between the teachers were also
observed, however. For example, Herbert had his German 1 and
German 3 students create their own Web pages, and he also
created Web pages of his own for use in his instruction. The
listening exercise in German 1 and the stamp project in German
3 are good examples. He assigned his German 3 students to use
the World Wide Web to research historic German people and
events, and he created his own Web page with hyperlinks to
help his students start their own research. Because Herbert
had knowledge and experience in Web page design, he was able
to create his own Web-based materials for instruction in his
German classes. Not only did Herbert teach using technology,
but he demonstrated a depth of knowledge about the use of

technology in German language instruction that revealed an ability to make good educational decisions for the learners.

Ute assigned her German 2 students to read stories in German using the *HyperStudio* program, use word-processing programs to write their German compositions, and use VHS camcorders to tape their skits about unusual pets. Although the German 4 students spent much of their class time interacting in German, they also used the PC-VCR program in the language laboratory to view the film *Swing Kids.* Both teachers received technical support from adult and student helpers who assisted them in developing their computer-assisted German lessons.

Herbert appeared to show characteristics of early adopters as defined by Rogers (see Chapter 2) (Rogers, 1995, p. 264). He was regarded by his colleagues as the technology expert of the department. Herbert's technology knowledge was developed at workshops outside of the research setting where he came into contact with other educators who regularly used technology in their teaching. He also showed a willingness to try out new ideas and take risks with technology. An example of Herbert's risk-taking includes the creation of his own Web pages, which included the use of JavaScript to create Web-based interactive exercises. Herbert was able to use technology in a systematic and deliberate manner in his instruction, and he assigned his students lessons in which technology was utilized as a tool to learn German.

Ute appeared to be in the early majority category
(Rogers, 1995, p. 264). She developed her technology expertise
at the research site but did not report ever attending a
workshop outside of the school. She seemed to know how to use
HyperStudio, conduct her own research on the World Wide Web,
and use email. She assigned her students language learning
tasks in which technology was used to accomplish her
instructional objectives, such as using video cameras to film
student written skits. Ute did not list having a knowledge of
Web page design on her questionnaire, and she was not observed
using her own Web-based materials in her instruction during
data collection. She was not observed assigning her students
to use Web page editors or use the World Wide Web as a
research tool. Ute was frequently observed using non-
electronic instructional materials in her classes, especially
paper handouts.

Both teachers used technology in teacher-centered and
student-centered lessons. An example of a teacher-centered
exercise with technology was the listening and speaking
exercise in German 1. Herbert created sentences in German on
his Web page for his students to give responses orally,
recording the responses on audio-cassette. Technology was also
used in student-centered lessons. For example, the German 2
students read a story using *HyperStudio* without Ute's direct
intervention. They worked to interpret the meaning of the
story themselves, although Ute was consulted by students for

257

specific clarifications of grammar and vocabulary. Students in German 3 were expected to find Websites on their German personalities and events, and attempt to understand the meaning of the language on the Websites themselves.

According to the data from the questionnaires and feedback from interviews, the German teachers said they used technology for a variety of teaching purposes in their classrooms. The activities the two teachers assigned were classroom-based applications of the German curriculum based on the five C's of the *National Standards.* By using technology in classroom activities, Herbert and Ute helped their students gain access to authentic sources of the German language that helped them build their knowledge, gain an understanding of culture, understand a language system different from their native tongue and help them gain exposure to the global community through language and culture. These principles, found in the *Standards,* were reiterated in the literature by Phillips (1998) and Gonglewski (1999). Both German teachers were aware of the communicative purposes of their curriculum, and the activities they assigned their students seemed to reflect this philosophy. Technology was a medium in which the communicative principles of the *Standards* were put into practice.

Examples from all four German classes showed how Herbert and Ute implemented their communicative philosophies complemented by technology. In German 1, students created Web

pages with *Netscape Composer* or *Microsoft Word* to communicate information in German about themselves, their families and their school to a global audience. The German 3 students used the same activity to communicate information about either their German personalities or events. These Web-based writing activities allowed students to communicate in both the interpersonal and presentational modes. The German 2 students used the *HyperStudio* program to interpret an authentic German text and collaborated with each other to develop an understanding of what they were reading.

Technology was also used in the teaching of culture, reflecting the principles of *Standards* 2.1 and 2.2. In German 3, the World Wide Web served as a source of cultural information, providing students access to the practices, products and perspectives of German-speaking cultures. Cultural information was presented with the use of the audio-cassette player and video-cassette player. German 1 students listened to *die Prinzen* sing and they saw an authentic German school on video. The German 4 students listened to an all-German cast sing songs from *die Dreigroschenoper* and they watched a video to learn about German art in the 1930s. The communication and culture standards of the foreign language curriculum were prevalent in both Herbert and Ute's routine classroom practice, with technology serving as an instructional tool to help students learn German.

The two German teachers also seemed to have another
purpose in mind when they used the technology resources in the
German classes. Not only did Herbert and Ute use the
technology to teach German language skills, but they also
seemed to capitalize on students' interest in technology to
maintain general interest in German class. For example,
Herbert assigned his German 3 students the task of designing
their own stamps, either by hand or using computer-based
illustration software. As Herbert reported, his original
purpose for the stamp project was to provide students cultural
information as well as to give students an opportunity to
practice their communication skills. In addition to these
goals, Herbert said he assigned this task to utilize the
creative skills of his students and help them appreciate the
task in the larger framework of the entire activity (i.e.,
project-based learning). Ute reported that she allowed
students to use technology because they liked using it, and
she was aware that students could use technology such as
PowerPoint or video cameras independently without her
supervision. In essence, technology was a routine part of
learning, not a novelty in these German classes. It seems,
therefore, that the two German teachers capitalized on
students' interest and experience with technology to maintain
students' interest in German class.

Both German teachers reported that they followed the
principles of the *National Standards*, the Illinois foreign

language guidelines, and the foreign language curriculum at the research site, all of which encouraged the use of technology to support language learning content goals. However, none of the documents prescribed a particular method of teaching with technology. Based on the data collected, the two German teachers seemed to have decided on their own which specific technologies they used and the manner in which the technology was used to accomplish their course objectives. For example, no explicit reference was found in the foreign language curriculum in which the teachers were required to use *HyperStudio* or create their own Web pages, yet both Ute and Herbert used technology in their instruction because such use provided authentic language practice for their German students.

Research Question 2: To what extent did observations of teachers' actual practice confirm their self-reports about their use of technology?

From the data presented, the observations conducted in all the German classes confirmed that views the German teachers had articulated in their self-reports were applied in their classroom practice; that is, when the teachers reported that they used a specific technology in their instruction, the researcher's observations confirmed that they indeed used that technology. For example, Ute wrote on her questionnaire that she used word-processing programs, as well as multimedia programs such as *HyperCard* and *HyperStudio* in her classroom instruction. During the week of January 31 to February 4, the

German 2 students used *HyperStudio* to read *Der Mann vom Bärengraben*. The German 2 students were observed on February 14 and 15 using a word processing program to compose compositions in German. On February 15, the PC-VCR program was used for the German 4 students to watch *Swing Kids.*

The technologies identified in Herbert's questionnaire and in his two interviews were also observed in use in his classes. For example, he stated in his questionnaire responses that he was knowledgeable about Web browsers and designing Web pages. Herbert also reported that he assigned his students to do work on their own individual Web pages or to create assignments that could be presented on the Web. Observations confirmed that the German 1 students went to the language laboratory on January 19, January 31, February 10 and February 15 to work on their Web pages. In the German 3 class, Herbert reported that he was creating his own Web page for the students to use for the German stamp project. On January 31 and February 1, the German 3 students were observed in the language laboratory using Herbert's Website to link to German Websites to gather information on famous people and events. Herbert was also observed using the Web pages he created for class instruction in observations, which confirmed his questionnaire and interview responses that he used his own Web-based materials for German instruction.

Both German teachers seemed to be aware of their knowledge and experience levels with respect to technology.

They used technology in their classes based on what they knew and how comfortable they were using specific types of technology. Because Herbert had knowledge of Web page design, Hypertext Markup Language, and JavaScript, he was able to create his own Web pages for class lessons, as well as instruct his students on how to create their own Web pages. Based on Herbert's questionnaire responses and Tables 4.4 (technology use in German 1) and 4.8 (technology use in German 3), Herbert's extensive knowledge and experience contributed to his use of technology in a systematic manner in his German instruction.

Ute primarily used paper-based instructional materials in her in-class instruction. She assigned lessons for her students using computer-based technology knowing that her students could use the computer and the VHS camcorder, often without her direct supervision. Ute stated that she used technology resources she felt comfortable with. When she did not feel comfortable using a certain technology resource, she still allowed her students to use technology because she knew most of them were comfortable using the extensive resources. Based on the researcher's observations, although Ute first gained knowledge and experience with technology by teaching at the research site, she was still able to implement technology into her German instruction because she knew her students had knowledge and experience using the school's technology resources.

<u>Research Question 3: Which instructional goals were defined
for technology in the foreign language curriculum?</u>

It appears that the instructional goals defined for
technology in the German curriculum were open-ended. With the
exception of video assessments in Level 1, explicit
instructional goals for technology were not defined. The two
German teachers decided on their own to utilize technology in
their classrooms according to their own knowledge and
competence. By following guidelines defined by their
standards-based curriculum, the two German teachers used
technology in a manner to fulfill the goal of communicating in
multiple modes (i.e., interpersonal, interpretive, and
presentational). Examples were listed in the school's written
curriculum document in which these communicative goals could
be fulfilled through the use of technology.

The *interpersonal mode* was defined as the negotiation of
meaning between individuals in oral or written form
(*Standards,* 1999, p. 36). In the German curriculum, an example
of technology use in the interpersonal mode was using e-mail
with native German students and discussing teenage issues with
them (Level 2). The *interpretive mode* was defined as the
appropriate cultural interpretation of meanings in oral or
written form where there is no recourse to the active
negotiation of meaning with the writer or speaker (*Standards,*
1999, p. 36). In the German curriculum, an example of
technology use in this mode was students using the World Wide
Web as an information source on their German

personalities/events in the stamp project (Level 3). The *presentational mode* referred to the creation of messages that facilitated interpretation by members of the other culture where no direct opportunity existed for the negotiation of meaning between the members of the two cultures (*Standards,* 1999, p. 37). The German 3 students created their own Web pages in German about their personalities/events. By producing these pages for a global audience, the students created messages in German that could facilitate interpretation from members of the other culture.

Specific technologies were mentioned in the written curriculum, but it appears that these technologies were suggestions, not requirements for teaching. A teacher could utilize a particular technology in the classroom, such as the World Wide Web or a multimedia program, but the guidelines did not prescribe an explicit method. Christa, the curriculum and assessment coordinator, said that technology was not mandated in the foreign language classroom at the research site (with the exception of video assessments in Level 1 courses, see Chapter 4), therefore the two German teachers could decide on their own which technologies to use in class and the manner in which technology could be used to accomplish language learning objectives.

Communication and understanding culture were two goals defined in the school's written curriculum. Classroom observations showed that Herbert and Ute instructed students

to communicate in the target language instead of focusing on grammar forms in isolation. An implicit goal of the curriculum was that technology was to be used as a tool that supported the implementation of the two German teachers' communicative pedagogy. Examples of specific technologies these teachers could use were suggested in the written curriculum, but no prescription for how to use the technology in instruction was listed. As classroom observations of Herbert and Ute showed, the technologies they used were based on decisions informed by the content goals of the school's written foreign language curriculum.

The flexibility of the curriculum that Christa described was manifested in the two German teachers' classroom practice. Since the curricular guidelines were not content specific, a teacher could read the curriculum and see a sentence listing a specific technology, such as using videos or the World Wide Web, but the teacher did not have to design individual language tasks based on a literal interpretation of the written curriculum. Only video assessments in Level 1 language classes were required by the written curriculum; that is, the German teachers were required to record samples of speech of their Level 1 students with a VHS camcorder four times a year to assess the students' improving proficiency. Otherwise, the use of all other technologies implemented in classroom practice was left to the discretion of the individual language teacher.

The content of the foreign language curriculum not only
reflected the goals of the *National Standards,* but also
principles developed by Tschirner and the content-based
curriculum principles created by Brinton, Snow and Wesche.
Tschirner wrote that technology could be used as a tool for
foreign language instruction that reflected his four
principles of foreign/second language learning: *Situierung*,
Individualisierung, *Prozeßorientierung*, and *Transnationale
Kommunikationsfähigkeit*. According to Tschirner, using
technology in language learning was a way for learners to
practice communication, learn German according to their own
learning styles, and motivate themselves to learn the language
(Tschirner, 1997, p. 125). Brinton, Snow, and Wesche
emphasized that foreign/second language curriculum development
should be content-based, taking learners' needs into account,
building on learners' previous experiences, and exposing
learners to meaningful language use (Brinton, Snow and Wesche,
1989, p. vii). Based on the researcher's analysis of the
foreign language curriculum at the research site, he found
that foreign language instruction was centered on
communication, in which the learner's needs were taken into
account, and learners were expected to have learning
experiences with meaningful language use. Technology served as
a tool of instruction in which these goals could be achieved
in both teachers' classrooms.

<u>Research Question 4: What did the two teachers perceive to be</u>
<u>the benefits of technology in the foreign language classroom?</u>

The data showed that the two German teachers perceived multiple benefits from using technology in their instruction. One benefit of technology mentioned by the teachers was increased access to authentic language spoken and written by native German speakers. For example, the German 3 students were able to access the Website of the Deutsche Post AG (German post office) to read information about German stamps. After clicking on a hyperlink on Herbert's Web page, the students saw a Web page of a native German philatelist who had written extensively on stamp collecting in the target language. When German 1 students watched the video of the school in Germany, they were also able to see the interactions of the native Germans and hear the Germans speak in regular conversation. By reading *Der Mann vom Bärengraben* using the *HyperStudio* program, German 2 students were able to read a text not explicitly intended for use in the classroom written by a native author. Access to authentic language through the use of technology was discussed in the literature by Gonglewski (1999). She stated that using technologies like the World Wide Web helped learners experience "real-world" communicating in the target language with a wider audience than just their classmates (Gonglewski, 1999, p. 348). Thus, the two German teachers in this study reported use of technology that was consistent with the professional literature.

A second perceived benefit to using technology in the German teachers' instruction was that technology contributed to establishing a context for their students' learning. Teaching German in context was mentioned in the literature by Tschirner (1997), who wrote that language must be learned in authentic contexts in order to understand cognitive processes (i.e., *Prozeßorientierung*) of language learning (Tschirner, 1997, p. 123). Herbert said in his interview that the Internet provided an important meaningful context for language learning, thus he designed his Web-based lessons around the content found on the Internet. Ute also emphasized the importance of teaching content that was important in their lives. Subsequently, the students advanced to more complicated topics (e.g., speaking and writing about German personalities and events). Using the technology resources at the research site was a way for students to gain an understanding of contextualized topics as well as to develop general interest in learning German. This philosophy also reflected the results of Songer's study, in which technology was used for students to develop content knowledge and to influence student understandings (Songer, 1996, p. 324).

A third perceived benefit of using technology in the German classes was that the students seemed to like using technology in their learning. As Ute said, the students liked seeing colorful images on the computer screen and they also liked using computers in general. According to Ute's

interview, the use of *PowerPoint* programs in class was a way of motivating students to pay attention, although the students did not necessarily speak as much German. Using technology as a way to motivate students reflects Lafford and Lafford's philosophy, that using technology (e.g, on-line technology) provided students an engaging environment in which they could communicate in the target language (Lafford & Lafford, 1997, p. 259).

Feedback from Herbert also confirmed his belief that the use of technology in German class activities helped foster student interest in the subject matter, even if the lessons were not necessarily designed as language learning tasks. For example, Herbert's German 3 students designed stamps with computer drawing programs, an activity designed for students to use their creative skills, but not necessarily to express themselves in the target language. The purpose of the exercise was for students to understand the larger framework of the stamp project, according to Herbert; that is, students not only expressed themselves in German and attempted to understand the cultural nuances of German stamp collecting, they might also develop further interest in the language learning experience.

Research Question 5: Which implications can be drawn from the findings of the present descriptive study?

The findings presented in this descriptive study might be informative to foreign language programs other than at the

research site, although the research design does not permit generalization. Specific issues of possible interest to other foreign language educators might include the following: teachers gaining knowledge and skills about using technology in instruction; creating a learning environment in which technology use is present on a daily basis; utilizing a technical support staff; developing a language curriculum in which the curricular weave of the *Standards* is reflected in its wording; utilizing administrative support in obtaining proper technology equipment and encouraging technology use in the classroom; designing a class schedule in which teachers have time to develop their use of technology for instructional purposes, and utilizing the expertise of colleagues who willingly share their knowledge about the use of technology. Each of these issues is discussed below:

Developing skills in technology.

In order for technology to be implemented in foreign/second language classes, teachers need to have knowledge about technology and become comfortable using it. One way to accomplish this goal is for teachers to participate in technology training for equipment and software. Herbert, for example, who had been developing his skills since the 1980s, had become sufficiently comfortable with technology such as the World Wide Web such that he designed his own Web pages for use in his classroom instruction. Ute, who had

reported no experience with technology in instruction prior to teaching at the research site, also was able to increase her comfort level with technology based on teaching at the research site for nine years, and by participating in technology training workshops there. In addition, Herbert and Ute taught in an educational environment where the development of technology skills was encouraged, and this allowed them to apply the skills they had acquired in their German classroom instruction.

The role of technology in classroom instruction.

Another component of implementing technology into the foreign/second language classroom is creating a learning environment in which technology is a routine component of instruction. At the research site, the two German teachers and students routinely used technology. Technology was readily accessible at the research site and was therefore used in German instruction. Herbert and Ute both reported that using technology provided opportunities for them to present language lessons that allowed the students to develop their language skills with a broad range of materials. In summary, access to technology along with available support resources at the research site seemed to contribute to Herbert and Ute's use of technology in their German classes.

<u>Utilizing a technical support staff.</u>

Technology can be problematic when situations arise in which electronic equipment does not function. To support implementation of technology in instruction, foreign language teachers need to have a technical support staff available to help them with technical problems. At the research site, Herbert and Ute were able to rely on both adult support staff members provided by the school as well as student workers to help with technical problems. Student helpers also assisted with the development of foreign language teaching materials. It seems that in order for foreign language teachers to succeed in implementing technology in their instruction, teachers not only need to improve their own skills, but they need support from others who are experienced with the technical aspects of technology. A staff of trained technical support people as well as students can help accomplish these goals.

<u>Developing a language curriculum in which the weave of seven curricular elements is reflected in the document content.</u>

The two German teachers who participated in this study routinely implemented technology in their classroom practice, based on their interpretations of the foreign language curriculum. Technology in one of seven components that comprise the weave of curricular elements in the *Standards*. The remaining six curricular elements of the *Standards*, *language system, cultural knowledge, communication strategies,*

critical thinking skills, learning strategies, and other subject areas were reflected in the written foreign language curriculum document and the German teachers' classroom practice. Since technology was included as a curricular element in the foreign language curriculum, the two German teachers could decide to use technology based on his or her own knowledge and skills.

    <u>Administrative support.</u>

    Support from the school administration is always an important component in assuring the success of any foreign language program. At the research site, support was available from the school administration for the purchase of technology equipment, including video-cassettes for the German 1 and 2 students. The German teachers taught in a language laboratory with 50 computers and had their own desktop computers in their offices. Teachers were encouraged to develop both paper and electronic teaching materials and had no restrictions on copying. Both teachers reported that the administration placed no restrictions on their teaching methods and development of paper- or electronic-based instructional materials. In summary, support from administrators was helpful in implementing technology in the German classes of Herbert and Ute at the research site.

<u>Time to develop skills and teaching materials.</u>

One critical element to assure the success of a foreign language program is allowing teachers time to develop their technology skills and design teaching materials apart from their instructional time in class. According to the research data collected in this study, the two German teachers had preparation time at their disposal, thus they were able to utilize their skills in other ways besides teaching class. Herbert's schedule was designed so that he had time to supervise the language laboratory, create Web pages and other teaching materials, serve as the department Webmaster, and meet with other faculty members as the technology consultant in the foreign language department. Ute also had preparation time at her disposal. Although she taught more classes than Herbert, she had time available during the day to develop her own teaching materials and create handouts for her students to use in class. Herbert and Ute did not have to teach on Wednesdays, thus that day allowed them time for other professional activities. It appears that having preparation time made a difference for Herbert and Ute because they were allowed opportunities to develop their skills and apply these skills in their classroom practice.

<u>Pioneering colleagues.</u>

Compassionate pioneers are defined in the literature by Gilbert (2001) as individuals who "lead the way in developing

or trying new options," and also encourage their colleagues to try new options. According to Gilbert, *compassionate pioneers* frequently share their ideas and their work to people who work in an environment of sharing, and who build on each other's contributions.

It seems that Herbert could be classified as such a pioneer, given his propensity to try out new methods using technology in his teaching, and because his foreign language colleagues looked to him as the technology expert of the department. As the departmental expert of the foreign language department, Herbert played a leadership role in introducing technology to his teaching colleagues.

The points previously presented in this section can be organized into a framework that models how foreign language instruction can be supported with the implementation of technology. Figure 5.1 illustrates the connectedness of principles related to the fifth research question. Examples from the data that relate to the principles discussed are also included in the graphic.
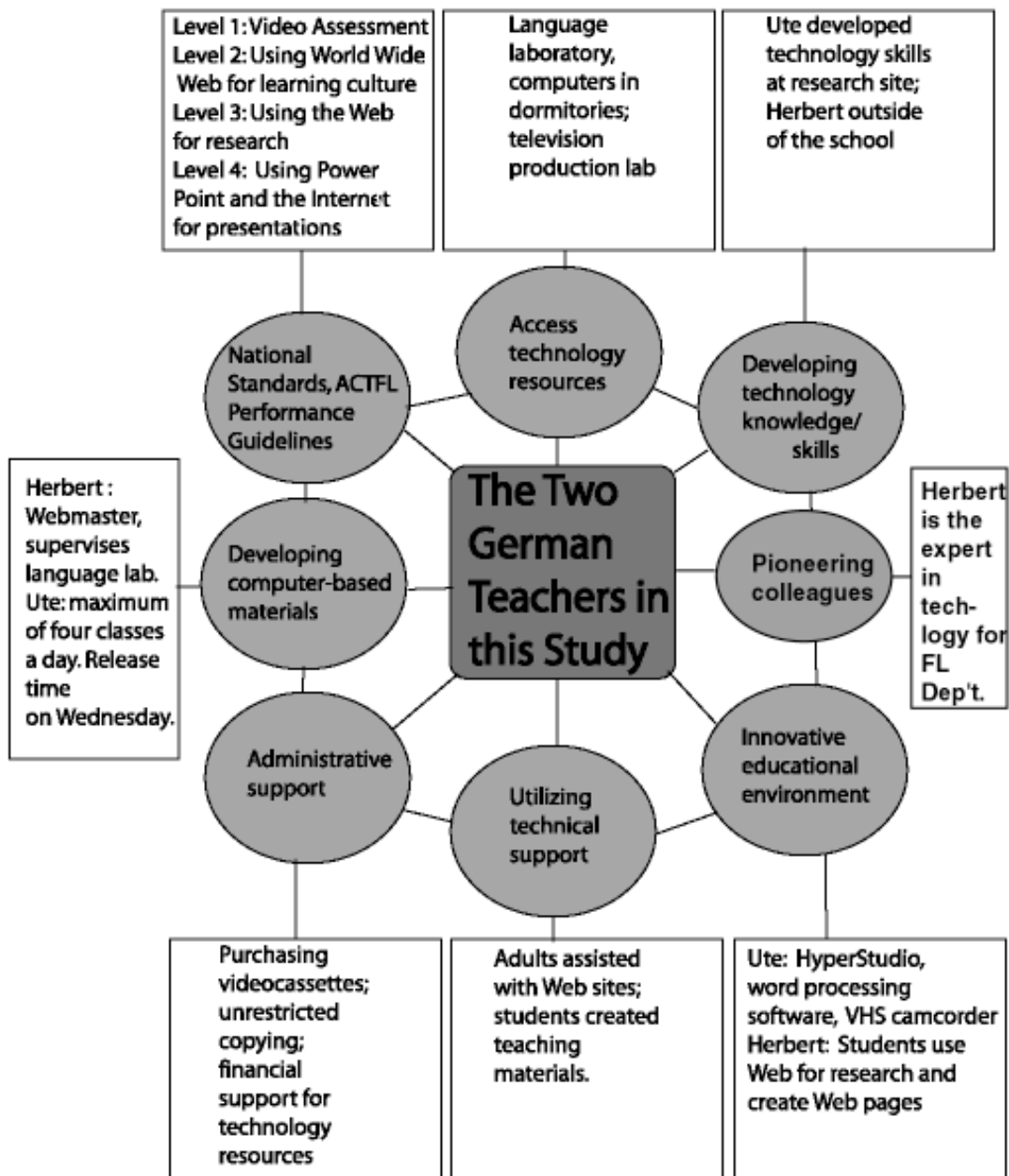
Figure 5.1 Framework for integrating technology in German
instruction in this study.

Figure 5.1 graphically illustrates a composite

perspective for a foreign/second language teacher who wants to

integrate technology into her/his foreign/second language

teaching. Each of the seven principles described in Chapter 5 represents an important part of a foreign/second language teacher's knowledge and resource base that are a foundation upon which one may integrate technology into one's teaching. The outcomes of this study suggest that foreign/second language teachers who want to integrate technology into their teaching could develop a standards-based curriculum based on the *National Standards*, *ACTFL Performance Guidelines*, state foreign language standards, and other supporting curricular documents with principles that advocate technology use in foreign/second language instruction (such as a high school language curriculum). As seen in Figure 5.1, the two German teachers used technology at all levels of their instruction, including video assessments in Level 1, using the World Wide Web for the study of culture in Levels 2 and 3, and allowing Level 4 students to use *PowerPoint* and the Internet for presentations. Other factors that seem to contribute to technology implementation in foreign/second language instruction include: access to technology resources; professional development opportunities that allow teachers to acquire knowledge and skills with technology; the establishment of an innovative educational environment in which technology use in instruction is encouraged and is a routine component of instruction; financial and philosophical support from the administration to acquire technology resources and encourage the use of technology in instruction;

planning time (including using release time) to develop technology-based lessons; and pioneering colleagues who introduce innovative uses of technology in instruction to colleagues.

The data collected in this study illustrated concrete examples of how these seven principles were implemented in the two teachers' classrooms. For example, access to technology resources was made possible by the existence of the foreign language laboratory and the television production laboratory. Students had access to computer laboratories in their dormitories and were allowed to have personal computers in their dorm rooms. The principle of developing technology skills was implemented in the following manner: Ute developed her technology skills by attending workshops at the research site, while Herbert developed his technology skills outside the research setting with other foreign language teaching colleagues. Technical support was offered at the research site by both adults and students. The adult technicians assisted the German teachers by troubleshooting problems with the school's Web server. Student helpers used the scanner to produce pictures of the *HyperStudio* stories, as well as to display electronic copies of German stamps on Herbert's Web site.

Figure 5.1 is intended to imply a circular format that underscores the circularity of a technology implementation process, which means that all seven principles are

interdependent. These principles were all found in Herbert and Ute's integration of technology into their instructional practices. No one principle is considered by the researcher to be more important than the others. Figure 5.1 is conceptualized as a framework for connecting the principles that characterized the two teachers' integration of technology into their instruction.

Significant in the framework is that standards and examples of teaching practices with technology are included. The two teachers were informed by content goals of the *National Standards*, the performance standards of the *ACTFL Performance Guidelines*, and content and performance standards from state and local curricular frameworks. It was assumed that these documents contained language in which technology was acknowledged as an instructional tool in foreign language instruction. The examples included in this descriptive study reflect practical applications of foreign/second language instruction integrated with the use of technology. The data collected in this study suggest that in order for teachers to implement technology in the foreign/second language classroom, administrative support, access to resources, professional development of teacher technology skills, an innovative learning environment, time to develop teaching materials, and seeking help from pioneering individuals are encouraged.

In conclusion, the data presented in this descriptive study may have implications for other high school language

programs. In this setting, teachers and students had access to technology and routinely used it in their courses. Technology was a component in the written curriculum and its implementation in instruction was encouraged. Teachers had extra time to develop paper and computer-based instructional materials, as well as participate in professional development to further develop their technology skills. The implications of this research for technology and language learning seem to show promise for the future. In the next section, implications are discussed.

Implications of the Research

The data that emerged from the study not only offer informative baseline knowledge about two foreign language educators, but also demonstrate that high school foreign language educators can use technology as a regular component of their instruction. Specific implications discussed in this section include relating teacher education to technology, developing language curricula with technology as a curricular component (modeled after the *Standards*), and furthering the implementation of technology in the high school German classroom.

<u>Teacher Education with Technology</u>

As Herbert and Ute's experiences with technology show, developing knowledge and competency with technology is crucial if foreign language educators wish to introduce technology into their own classrooms. Herbert and Ute participated in training sessions, collaborated with colleagues and their own students, and developed the skills necessary to use technology as a teaching tool. It makes sense, therefore, if language educators are going to implement technology in their own classrooms, that they need to make a time investment to further their own knowledge and skills with technology. Procuring administrative support for this purpose is also necessary in order to achieve this goal. Without administrative support, teachers may find that implementing technology on their own might be an arduous task.

<u>Technology as a Curricular Component</u>

If language teachers wish to implement technology in their instruction and desire to develop credibility by using technology as an instructional tool, they should develop curricular guidelines that support technology as a component of their classroom instruction. In the research setting, the two German language teachers reported referring back to the school's written curricular guidelines to explain their implementation of technology in their German classes.

The research setting curriculum was based largely on the five C's of the *National Standards*, including the weave of curricular elements found in the *Standards*, which included technology. Examples of language lessons that could be implemented in foreign language classes were found in the written curriculum for German Levels 1 through 4. In addition, the curriculum was written in ways that would not limit teachers to a strict interpretation of the guidelines; that is, the curriculum guidelines were not content specific. Teachers were allowed to use technology according to their own knowledge, skills, experience, and course objectives, as long as the communicative goals of the curriculum were reached.

Technology as an Instructional Tool for Second Language Learning

Language educators who may have doubts about using technology in their teaching may be able to draw for their own purposes from the examples of the two German teachers who participated in this descriptive study. Although the findings from this study cannot be generalized, the researcher met Lincoln and Guba's criteria for verification to provide a thick description of data about this single German program and the two teachers who comprised the staff of this German program (Lincoln & Guba, 1985, p. 316). Individuals may make transferability judgments based on the thick description of data to their own contexts (Lincoln & Guba, 1985, p. 316).

Herbert and Ute both reported pedagogical uses for technology in achieving their teaching goals. The technology was used for language-teaching activities that allowed students to communicate interpersonally, interpret the target language, and create both oral and written presentations in the German language. These activities were modeled on the three modes of communication of *Standards 1.1, 1.2,* and *1.3.* The German teachers found that technology was a useful tool to help them teach culture. The World Wide Web was used as a technology tool for students to conduct research and share information, which was suggested by Green (1997). Both German teachers used videos to help their students understand cultural products and practices of native German speakers, principles found in *Standards 2.1* and *2.2.* As can be seen from these examples, the classroom practices of Herbert and Ute fulfilled the content goals of their curriculum modeled after the *National Standards*. In addition, technology was identified in the written foreign language curriculum of the school, and it was present in the German classroom practice.

The data collected from this study relate to principles Phillips (1998) suggested in Chapter 2. Technology present in the German courses such as the World Wide Web, compact discs, audio-cassettes and the video camera provided learners access to people and materials, helped learners attempt to understand native texts in order to achieve advanced competency with languages and cultures (Phillips, 1998). The World Wide Web

and the *HyperStudio* programs provided students learning experiences in the use of authentic materials written by native German speakers.

The data also have implications for project-based, collaborative, and constructivist learning. Some lessons the two German teachers taught were indeed teacher-centered, but other lessons were designed to allow students to develop knowledge on their own or by collaborating with each other. Activities such as reading the story on *HyperStudio*, finding information on the World Wide Web, creating Web pages and creating homemade coats-of-arms and stamps were examples of student-oriented learning. Activities such as these are similar to the findings reported in Songer's (1996) research. Such activities required students to take charge of their own learning and to use the Internet as a source for knowledge development. In effect, the teacher becomes a facilitator instead of the authoritative transmitter of knowledge. It seems that as technology is further implemented into the foreign language classroom, the possibilities for student-oriented learning increase.

Although this qualitative research study took place in a single educational setting, there are an infinite number of other educational environments just in the United States where language learning is taking place. The possibility exists that other foreign language teachers are integrating technology in their language classroom instruction. New studies need to be

conducted in order for the foreign/second language profession to gain further knowledge about foreign language teachers who use technology, not just in the single setting presented here. The next section is a review of suggested research that should be conducted on technology and foreign language instruction.

<center>Recommendations for Further Research</center>

This study was conducted using a qualitative research design. Additional qualitative research studies should be conducted in high school foreign language settings, not only in German classrooms, but also in other foreign languages such as Spanish, French, Japanese, Russian, and less commonly taught languages (LCTLs). Further research studies using a quantitative design are also needed. In this section, the researcher recommends specific studies that should be conducted in the future. Possible qualitative studies are discussed first, followed by suggested quantitative studies.

<u>Recommended Qualitative Studies</u>

A qualitative study should be conducted on student perspectives of teacher practices in a school (i.e., a K-5, 6-8, or 9-12 institution) where technology is a tool used in daily foreign language instruction. The school should be an institution in which standards-based instruction is prevalent in teachers' classroom practice. By documenting student

<center>286</center>

reactions to standards-based instruction and the use of technology as a learning tool, researchers may not only observe student use of technology in acquiring a second language, but also obtain an informative perspective about student needs in the foreign/second language classroom. Because students are often the primary users of technology in the foreign/second language classroom, it seems necessary to document student views about their teachers' instructional methods, as well as to understand students' perceived needs in using technology to achieve proficiency in their L2. Such research may be essential in procuring appropriate electronic equipment, and helping teachers reflect on their instructional practices.

A longitudinal qualitative study should be conducted to investigate the implementation of standards-based curricula in foreign/second language classrooms, especially how the curricular guidelines influence teacher practices over an extended period of time (e.g., one to two full academic years). Researchers should investigate teachers' integration of technology into their classroom practice over this extended time period, in order to document how technology implementation fulfills content and performance goals defined in the foreign language curriculum, including technology goals modeled on the National Educational Technology Standards (NETS) of the International Society for Technology in Education (ISTE). Researchers could investigate how teacher

goals and practices evolve over time, documenting possible changes in teacher philosophies and observed changes in classroom practices. A study such as this is needed to determine the future of standards adoption in American high school settings. Further studies of this type may show if the *National Standard*s are gaining or losing utility as contemporary foreign language standards.

A qualitative study is needed in high school foreign language classrooms where technology resources may not be as readily accessible as the school in this study. By collecting data in a school setting that lacks technology resources, researchers may be able to determine how the lack of resources influences foreign language curriculum development and teachers' classroom practice. It makes sense to conduct research in foreign language classrooms that are not technology-rich because it seems unlikely that the same data collected in the present study would emerge in schools in which technology resources are limited.

The pedagogical practices of various foreign language teachers need to be studied to further knowledge about language learning and technology. A qualitative study should be conducted in foreign/second language programs in which teacher and student populations reflect diverse backgrounds, not only individuals who are Causasian and male. Warschauer (1997) concluded from his research that most research studies on technology have been focused on Caucasian teachers and

students, most of them male. To better understand diverse perspectives, a study is needed for minority teachers, including heritage-language speakers such as Latinos who integrate technology into their instruction. (As the reader may recall, 51 percent of the students were male, 49 percent female. The ethnic background of the students was: 49 percent Caucasian, 27 percent Asian, 10 percent African-American, 6 percent Latino, 4 percent Bi-Racial/Multi-Ethnic, approximately 1 percent Native American, and 3 percent Other/Non-Reporting. See Chapter 1, *The Research Setting*.)

Recommended Quantitative Studies

Quantitative studies on technology and language learning should be conducted, especially studies of student achievement in foreign language classes where technology is implemented contrasted with programs where it is not. In this section, the researcher recommends specific quantitative studies that might be conducted in the future.

In the research setting, a quantitative study could be conducted in the German classes by investigating concurrent technology use on the impact of student achievement. Possible variables to study could include grade-point averages, test scores, and sample oral and written excerpts of language. The study could utilize a pre-post assessment model with students at various levels (e.g., German 1, 2, etc.) to determine if achievement results might differ for students who are

beginner, intermediate, or advanced language learners. The comparison school could be a setting in the same geographic area in which technology implementation is minimal, using the same assessment model at various levels. By comparing the two schools, researchers may find how access to technology resources may affect achievement results in German.

A quantitative study should be conducted on uses of the Internet in foreign language instruction, especially the effective use of Web-based activities for listening and speaking on students' second language acquisition. One possible area to investigate in such a study might include how the use of authentic foreign language newscasts improves students' listening comprehension. Researchers could also investigate how the use of current speech recognition technology helps students acquire skills in pronunciation and fluency when the students are exposed to Web-based listening activities that provide comprehensible language input. According to Green and Youngs (2001), the Web is presently utilized as a source for reading, writing, and cultural activities; however, it is expected that the amount of listening and speaking activities on the Web will increase. It seems necessary that the focus of foreign/second language research on Web-based activities should also include the use of speaking and listening exercises.

A quantitative study could be conducted in which researchers test defined performance outcomes in high school

foreign language curricula, outcomes that are based on the content goals of the *National Standards*, the performance goals of the *ACTFL Performance Guidelines*, and the technology outcomes defined in the ISTE Technology Standards. Experimental and control groups could be organized to complete specifically-defined technology activities such as researching authentic content on the World Wide Web versus print-based sources, developing writing skills by creating Web pages versus writing compositions, etc. As in the first study above, this study could include pre-post assessment models to determine achievement results among beginner, intermediate, or advanced language learners.

Both qualitative and quantitative methods are needed in future research studies on technology and language learning. However, regardless of the research design utilized, limitations often emerge based on the data collected. In the next section, the researcher presents the limitations.

Limitations

In this study, limitations emerged based on the researcher's data collection procedures and subsequent findings. The main limitations are presented below.

<u>Length of the study</u>: The researcher began the data collection phase on January 10, 2000 and ended the data collection on February 17, 2000. The findings presented in

this study are based on six weeks of classroom observations, document analysis, and interviews. The researcher had previously conducted a week-long pilot study at the research site from September 16, 1999 to September 22, 1999, in which he observed all foreign language classes, interacted with teachers and students, and wrote field notes. The purpose of the pilot study was to collect preliminary data, interact with teachers and students, and understand the context of the research site. During his stay, the researcher observed the technology resources and their use at the school.

It is possible that the length of stay might have affected the findings. If the researcher had spent additional weeks at the school setting, perhaps different data results might have been obtained. However, the researcher and dissertation project director analyzed samples of data after six weeks and determined that the length of stay was adequate for this baseline, exploratory study.

Teacher absences: Whenever a teacher was not able to conduct class due to illness, personal absence, etc., the class was cancelled. It was the policy at the research site that substitute teachers were not called in to teach classes when the regular teachers were absent. When a teacher was absent, the researcher was not able to observe classes or take fieldnotes. Herbert was absent from school for three days due to illness during January, therefore no fieldnotes could be taken during that time period in his classes.

Classes not in session on Wednesdays: Classes at the research setting were not in session on Wednesdays in order for students to conduct their inquiry or mentorship projects. The researcher did not observe on these days. Classes were in session on Wednesday, January 19, to make up the Martin Luther King, Jr. holiday.

School holidays: Classes were not in session on January 17, 2000 due to the Martin Luther King, Jr. holiday. Students were on break February 10-11, 2000 and the entire school campus was closed. The researcher returned to his home city during this time to meet with the dissertation project director and continue data analysis.

Qualitative research methodology is not designed for generalization. A qualitative research design restricts the use of the findings and conclusions to the particular research setting by the researcher. Although the researcher attempted to provide readers a thick description of data, the research design does not allow the subsequent findings to apply to other school contexts. However, readers of this research report may choose to apply the findings to their own school contexts.

<center>Conclusion</center>

The purpose of this descriptive study was to investigate the use of technology in one suburban high school German program located in a Midwestern setting in the United States. The researcher investigated the integration of technology in

<center>293</center>

all levels of the German program (Levels I, II, III and IV), and he utilized a qualitative research design in the collection of data. The methods employed included the distribution of a questionnaire, an analysis of curriculum documents, observations of all the German classes, and interviewing the two German teachers and the curriculum and assessment coordinator.

The findings of the study were:

- The written curriculum included a focus on technology in the German program based on the principles of the *National Standards for Foreign Language Learning*. Curricular elements in the foreign language curriculum were modeled on the weave of seven curricular elements of the *Standards*, including technology. Classroom activities that included the use of technology also reflected the framework of communicative modes (interpersonal, interpretive, and presentational) found in the *Standards* document

- Both German teachers regularly used technology in their classroom practice. The types of technology used in classroom activities depended on the knowledge and comfort level of each individual German teacher. Personality factors, namely the degree of innovative behavior, also influenced the types of technology used in German instruction

- Both German teachers reported benefits of using technology in learning the German language. These perceived benefits included greater access to authentic language, establishing a context for student learning, and the perception that students in the school liked using technology. Because access to technology at the research site was unrestricted, the German teachers were able to use the extensive resources in their instruction

- In summary, the researcher found that the German teachers and students used various technologies in deliberate and systematic ways identified in the school's written curriculum, and according to the teaching styles of the two German teachers.

Unfortunately, technology should not be regarded as a panacea for foreign/second language instruction. Although this research site had extensive resources, not all schools have rich technology resources. In addition, although technology may offer advantages in teaching foreign languages, careful evaluation is needed to determine how technology use benefits students (Omaggio Hadley, 2001, p. 139). Cubillos (1998) suggests that teachers, not administrators, should make decisions about which technology materials and equipment are best suited for students, and these decisions should be informed by research evidence about the effectiveness of

technology as well as appropriate training measures in technology use (p. 39).

In the immediate future, it seems that technology will remain a part of foreign/second language instruction. If technology is to remain a tool of instruction in foreign language, foreign language teachers need to examine their use of technology in their classrooms and explore methods of improving their own language teaching. Technology is likely to offer some important options to informed language teachers.

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APPENDICES

Appendix A -- Expanded version of the *Standards of Foreign Language Learning*

Appendix B -- Sample technology questionnaire distributed to German teachers

Appendix C -- Questions used for interviews with German teachers

Appendix D -- Consent form distributed to German teachers

Appendix E -- Sample field notes from a class observation

Appendix F -- Sample interview protocol

Appendix G -- Sample researcher log

Appendix H -- List of Coded Nodes

APPENDIX A

EXPANDED VERSION OF THE
STANDARDS FOR FOREIGN LANGUAGE LEARNING

<u>Communication</u> -- Communicate in Languages Other Than English.

<u>Standard 1.1</u> - Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions.

<u>Standard 1.2</u> - Students understand and interpret written and spoken language on a variety of topics.

<u>Standard 1.3</u> - Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.

<u>Cultures</u> -- Gain Knowledge and Understanding of Other Cultures

<u>Standard 2.1</u> - Students demonstrate an understanding of the relationship between the practices and perspectives of the culture studied.

<u>Standard 2.2</u> - Students demonstrate an understanding of the relationship between the products and perspectives of the culture studied.

<u>Connections</u> - Connect with Other Disciplines and Acquire Information

<u>Standard 3.1</u> - Students reinforce and further their knowledge of other disciplines through the foreign language.

<u>Standard 3.2</u> - Students acquire information and recognize the distinctive viewpoints that are only available through the foreign language and its cultures.

<u>Comparisons</u> - Develop Insight into the Nature of Language and Culture

<u>Standard 4.1</u> - Students demonstrate understanding of the nature of language through comparisons of the language studied and their own.

<u>Standard 4.2</u> - Students demonstrate understanding of the concept of culture through comparisons of the cultures studied and their own.

<u>Communities</u> - Participate in Multilingual Communities at Home and Around the World

<u>Standard 5.1</u> - Students use the language both within and beyond the school setting.

<u>Standard 5.2</u> - Students show evidence of becoming life-long learners by using the language for personal enjoyment and enrichment.

STANDARDS FOR GERMAN

<u>Communication</u> -- Communicate in German

<u>Standard 1.1</u>
Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions.

<u>Standard 1.2</u>
Students understand and interpret spoken and written language on a variety of topics.

<u>Standard 1.3</u>
Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.

<u>Cultures</u> - Gain Knowledge and Understanding of the German-Speaking World

Standard 2.1
Students demonstrate an understanding of the relationship
between the practices and perspectives of the cultures
studied.

Standard 2.2
Students demonstrate an understanding of the relationship
between the products and perspectives of the cultures studied.

Connections - Connect with Other Disciplines and Acquire
Information

Standard 3.1
Students reinforce and further their knowledge of other
disciplines through German.

Standard 3.2
Students acquire information and recognize the distinctive
viewpoints that are only available through German and the
German-speaking world.

Comparisons - Develop Insight Into the Nature of Language and
Culture

Standard 4.1
Students demonstrate understanding of the nature of language
through comparisons between German and their own language.

Standard 4.2
Students demonstrate understanding of the concept of culture
through comparisons between the cultures in German-speaking
countries and their own.

Communities - Participate in Multilingual Communities at Home
and Around the World

Standard 5.1
Students use German both within and beyond the school setting.

Standard 5.2
Students show evidence of becoming lifelong learners by using
German for personal enjoyment and enrichment.

APPENDIX B

QUESTIONNAIRE

1. What kind of computer experience do you have?
(i.e. What hardware and software programs you have worked
with? Please check all that apply)

Hardware
_____ IBM computers / PC compatibles
_____ Macintosh computers
_____ Other (please list)

_____

Software
_____ Word processing (Microsoft Word, Corel WordPerfect,
ClarisWorks, etc.)
_____ Spreadsheet software (Microsoft Excel, Lotus 1-2-3,
etc.)
_____ Presentation software (Microsoft PowerPoint, Corel
Presentations, etc.)
_____ Email (Eudora, Microsoft Outlook, etc.)
_____ Web Browsers (Netscape, Internet Explorer)
_____ Photograph software (Adobe Photoshop, Corel PhotoHouse,
etc.)
_____ Desktop publishing (Adobe PageMaker, etc.)
_____ Web page editors (Adobe PageMill, Microsoft FrontPage,
Hot Dog, etc.)
        _____ Can you design Web pages (Answer Yes or No)
        _____ Do you understand Hypertext Markup Language?
(Answer Yes or No)
_____ Programming languages (BASIC, Pascal, C, C++, Java,
etc.)
_____ Other (please list)

_____
_____
_____

2. How have you developed your computer experience? (Check all that apply)

_____ Professional development workshops sponsored by research setting

_____ Professional development workshops sponsored by outside organizations

_____ Experience developed on the job

_____ Developed experience voluntarily

3. What software programs have you used in your classroom teaching? (Check all that apply)

_____ Word processing

_____ Review grammar programs

_____ World Wide Web

_____ Email

_____ Sound and video

_____ Multimedia (i.e. HyperStudio)

_____ Other (please list)

_____

_____

Which levels have you used computers and software for ? (Check all that apply)

_____ First-year   _____ Second-year

_____ Third-year

_____ Advanced levels

For what purposes have you used computers and software? (Check all that apply)

_____ Reading comprehension   _____Speaking practice

_____ Writing practice

_____ Listening comprehension   _____Designing Web pages

_____ Review of grammar

_____ Other (please list)

_____

_____

4   What other technologies have you used in your teaching? (Check all that apply)

_____Overhead   _____ Video camera

_____TV production lab

_____Video cassette players   _____ Laser disc players

_____CD-ROMS

_____Other (please list)

_____

_____

5. What are some reasons that you do not use technology in your teaching? (Check all that apply)

_____ Equipment breaks down   _____ Programs too difficult to use

_____ Prefer teaching without it _____ Programs become obsolete quickly

_____ Materials not available for language

_____ Students use it better

_____ Other (please list)

_____

_____

6. What are some reasons you do use technology? (Check all that apply)

_____ Job requires it   _____Personal enjoyment

_____ Have attended workshops   _____Have an easy time using it

_____ Abundance of resources   _____Students have taught me to use it

_____ Other (please list)

_____

_____

APPENDIX C

TEACHER INTERVIEW QUESTIONS

A. Questions for Herbert (First Interview). Friday, January
14, 2000.

When did you first become interested in technology as a
teaching tool? How have your knowledge and skills increased
over time?

How long have you been teaching German? When did you first
begin teaching here at the research setting?

What foreign language teaching techniques did you learn in
preparation for a teaching career? How have they changed (if
at all) over time?

How would you describe your technology knowledge and skills
before you came to the research setting? How would you say it
has progressed since you started teaching here?

In what ways have you been able to share your knowledge of
technology with Ute and the other Foreign Language Department
members?

You talk at length in your "Thoughts and Ruminations" about
technology being a tool. My impression is that you have taken
this tool and found considerable uses for it. How have you
been able to do this?

What did you find appealing about the *National Standards* that
allowed you to work with the technology? Do you find
the*Standards* as a way of legitimizing your work?

What benefits can technology provide you as a German teacher?
What are some negative effects that technology produces for
you?

Do you have any favorite tasks or activities you like to do with the students? Explain.

What software programs and other technologies would you like to develop more skills for?

What was significant about the experience of writing technology standards for the state Standards? What will this mean for other teachers?

Cuban (1986) made a prediction that although technology was constantly being improved, teachers were going to leave it alone. What future do you see for technology?

What suggestions would you have for teachers and students who want to integrate technology into their curriculum and practice?

How do you think the students have responded to technology-based lessons here at the research setting?

How would you adjust your teaching style and planning if you did not have all these technology resources here?

How does the school administration encourage you to develop technology lessons?

B. Questions for Ute (First Interview). Friday, January 14, 2000

How long have you been teaching German? When did you first begin teaching here at the research setting?

What foreign language teaching techniques did you learn in preparation for a teaching career? How have they changed (if at all) over time?

How would you describe your technology knowledge and skills before you came to the research setting? How would you say it has progressed since you started teaching here?

What are some of the professional development workshops you have attended?

What benefits can technology provide you as a German teacher? What are some negative effects that technology produces for you?

What software programs and other technologies would you like to develop more skills for?

(Question 3 on questionnaire) Describe some of the tasks you have designed with technology.

You mention that you have less time to develop your own materials and lack the time to adequately learn more. How does your work with Herbert help you stay current with technology and keep your teaching skills sharp?

How helpful has it been to you as a teacher that the students have technology knowledge and skills? How have the students responded to foreign language learning with all these resources?

Do you have a particular teaching philosophy? What goals do you strive for in class?

What might other teachers, parents, students, be able to learn from you and the way foreign language is taught here at the research setting?

C. Questions for Christa. Wednesday, January 26, 2000

When was the idea of creating standards for the foreign language curriculum first discussed?

Why did you choose the *National Standards* as a framework for your own standards?

What performance standards served as a model for your own standards?

What's your definition of an immersion-based classroom?

In what ways do the teachers here in the Foreign Language Department apply the theory of the curriculum into classroom practice?

In what ways are the SSL's applicable to the department's goals?

How would you define the roles of technology in your
curricular guidelines and in practice?

What are the benefits (and limitations) of using technology in
the classroom?

How was the idea of video assessment conceived? How were you
able to take this idea and make it reality?

In what ways does your own curriculum conform to the state
Learning Standards?

How would you design your curricular framework if you lacked
the technology resources you have now?

The academic program (at the research setting) is "inquiry-
based, problem-centered, and competency-driven."   How does
that apply to foreign language learning?

How can the curricular guidelines you have created be a model
for other educators?

D. Questions for Herbert (Second Interview). Tuesday, February
8, 2000

How did you conceive the stamp project and the *Rotkäppchen*
project? What language skills did you wish to develop and
assess?

How much time has it taken you to develop these Web pages?
What programs did you use to put it together? What role did
students play in helping you develop pages like this?

In what ways are the student Web pages not only helping
students learn, but also helping students to produce the
language in written and oral form?

There have been a number of class sessions in which you have
not used a technology that could be classified as high-tech,
like the computer, JavaScript, World Wide Web, etc. rather
you've used the overhead, materials in the classroom, and
relied on your own interaction with the kids. Why was it
appropriate for you to take a more low-tech approach?

I wonder if we could talk about a German 3 lesson (stamp project). The German 3 students went to the Web and got their material, yet a number of them were having difficulty producing good German. It appears that they had used the World Wide Web wisely in collecting information, but why were they still having trouble producing the language?

How are you able to tell that the technology is helping the students acquire the language and when it's not?

From my observations, grammar lessons have been integrated sporadically within the class as you communicate, not so much in a 20 minute formal lesson where you isolate it. How does this approach help get the grammar in students' minds while at the same time helping students communicate?

From my observations, the German 1 class appears to be rather structured. The class requires more of your presence and guidance, where you may be able to let the kids do a little more in German 3. How do you determine when the kids need more structure and when they can be let loose and learn things on their own?

It is very rare that I have seen a student in any of your classes open up a textbook, rather everything has been organized around a particular theme like school or the stamp project, etc. And maybe it's safe to assume that this approach works for you. Why do you think it works?

Where did you learn the handshake routine at the start of all your classes?

There have been moments when you have broken into English. When it is appropriate for you to stop the German and speak English instead?

A key point you highlighted in your first interview was finding a balance in using the technology in the learning process. In light of these past few weeks, how have you been able to achieve that balance?

From my observations, you appear to have used a balance between low-tech and high-tech equipment. How have you been able to maintain that balance in your teaching?

You have also spent a great deal of your time speaking German and not speaking English unless you're translating something or you speak it because you definitely want to make a point clear. How do you determine when it is appropriate to speak English? How well do you think the kids respond when you're in German?

Grammar seems to have been presented in bits and pieces, not in isolation. How does this approach assure you that the kids are understanding it while at the same time improving their communication?

Tell me a little about the *HyperStudio* stories. Why did you decide to use it with the software program instead of just presenting it in a packet of papers?

Much of what you have done has been organized into themes, like the animals unit, or the coats-of-arms, and so forth. How do you feel that this organization helps you teach?

How is it teaching the same German 2 lesson to three different classes?

What has been rewarding to you about the German 4 class?

I have never seen a textbook opened in class. Why is a textbook not necessary to use in class?

Both you and Herbert have more than 50 combined years of experience in teaching. How has this experience helped you in teaching?

You have been able to integrate a number of high-tech activities in your class despite the fact that Herbert has more computer knowledge and skills. How have you been able to do this?

APPENDIX D

TEACHER CONSENT FORM

Dear Herbert:

I am planning to conduct a research project at (research setting), specifically in your department, and I am giving you this letter to ask you to be a participant in my study.

The purpose of my research is to conduct a descriptive study of the German program here at (research setting). Since (research setting) is an institution with abundant resources of computers, computer software, and other technological tools, and since you use these resources as part of your instruction, I have determined that your program would be ideal in helping me conduct my research.

In this research, I will conduct a content analysis of the foreign language curriculum (first-year, second-year, third-year, and fourth-year), and I will conduct observations of individual classes to see how the theoretical constructs of the curriculum are put into actual classroom practice. As part of the research, I would like to conduct interviews with you to hear your insights on the development of the curriculum, how you put the theory of the curriculum into action in your classrooms, and to engage your opinions about the use of technology in your own classrooms. I would like you to complete a questionnaire for me as a way of helping me become familiar with your experience with computers and technology, which will help guide my observations and help me develop subsequent interview questions.

I will begin my research on January 10, 2000. I anticipate conducting interviews twice with you, once at the start of the data collection, then conducting observations, then conducting a second interview at the end of my observations. If the situation warrants it, or if I believe that important

information is missing from the data, I would like to reserve the opportunity to interview you a third time.

It is important to ask you to participate because your ideas and your beliefs about foreign language teaching and technology are the core data I am looking for in carrying out this study. Observing your classrooms is important in seeing how your beliefs in theory are carried out in actual practice. Interviewing you is important in hearing your voice about teaching foreign language, plus hearing what you have to say about technology playing a role in that teaching. The questionnaire helps me see how your technology experience plays a role in your classroom planning.

Please be aware that this research is not intended to determine if you are a good or bad teacher. I am more interested in your own ideas and beliefs about foreign language teaching, specifically as it relates to using technology in the classroom. For example, I would like to know what technologies you believe help you enhance your teaching and what technologies you feel are not useful to you. In other words, this project is not about you personally. It focuses on your beliefs about good foreign language teaching and how technology plays a role in achieving that goal.

Conducting this research with you has considerable benefit. You teach in a unique educational environment with abundant resources and numerous opportunities to teach foreign language in unique ways that most teachers do not. In seeing how you teach foreign language, plus in seeing how technology is used in foreign language classroom, you are providing foreign language educators with a model that they can use to help inform their own teaching theories and classroom practices.

If you wish to participate in this study, you should be aware of the following details:

Your participation in this research project is voluntary. By showing you this form, I am making you aware of what I plan to do before you decide to participate. I consider you as a participant once you sign this form, not before signing.

If you choose to participate, you have the right to end your participation at any time during the research process, and there is no penalty to you should you decline to sign this form. Any information I collect from you during this study will not be shared with any authority who has the power to

determine your employment status. You also have the right to
ask me to show you in writing any answer you gave on a
questionnaire or during an interview. You shall have your
name changed when the final document is printed and published.

During all interviews, you may refuse to answer certain
questions at any time, and there is no penalty to you should
you choose not to volunteer this information. Although my
questions are not intended in any way to put you at any risk,
you may decline to answer a question if you choose to do so.

If you would like to be a participant in this project, please
read the statement of consent and sign your name in the
appropriate blank. By signing your name, it is understood
that you have read this letter, understanding the purpose of
this research, the procedures involved in it, and
understanding your rights by participating. A copy of the
signed letter will be given to you for your reference.

I am very grateful to you in considering being a participant
for this important research study. Thank you again for your
time in reading this letter and I hope you have an enriching
experience being a participant in this study.

Sincerely,
Researcher's name

I have read this letter from (researcher) in its entirety. By
signing below, I attest that I understand the entire content
of this letter and give my consent to be a participant in
(researchers) study.

_____   _____
(Participant's Signature)   (Signature of Investigator)
_____
(Date signed)

_____

APPENDIX E

SAMPLE FIELDNOTES FROM A CLASS OBSERVATION

Deutsch 3, 8:15 A.M., Herbert, January 28, 2000

Everyone seems a bit on the slow side this morning. only two girls have
shown up, and Herbert is slowly beginning his trek this way. Amber finally
walks in. Totally exhausted and tired.

Herbert begins the handshake ritual. Ich sage Guten Tag. Two more straggle
in. Who's next?
Nicht so weit.
Isaiah, du hast kalte Hande. Isaiah talks, he's rather quiet.
Ich habe gehort du warst krank. Hast hast du gehabt. HS walks in. Here,
everyone sits together. Ich dachte, es war Schokolade. Nein. sagen die
anderen. One is on the floor. Es ist Geschmacksache. Auf englisch, it's a matter of taste. Hanna, Guten Tag. Warst du trauig wenn ich nicht hier war.
Wir fangen mit etwas Neues an.
Schrieb auf ein Papier was ihr denkt. Das ist ein Gemalde. Ein Wort, das
ihr einfallt.
 Ganz schnell. Hier comes AD on the overhead, in color, if not DeLuxe.
OK, ich mochte wissen, warum ihr das aufgeschrieben habt.
Was sagt man coin? says girl on the floor.

Ganz am Ende. Eine Munze ist auch a mint, and auch Geld.
Zwei Gruppen bilden. Hier eine zweite Gruppe. Erzahlt warum wir das
gemacht haben. A little different from yesterday, since the group is
smaller and has arranged itself together.
Isaiah, was hast du geschrieben? Kunst, es war ein Maler, und wann er
gemacht hat. He did it well.
Hanna wrote hasslich. She is also quiet. To Amber. Can't hear her. Talks
about the Kleidung. Habe.
1400 ist. Aber ich weiss nicht.
Ann (on floor) Munze mit das Bild habe. Patrick was denkst du?
Seerauber, seepirat. He explains.
Das habe ich nie gehort.
Jesus
Das ist sehr interessant.
Rote Kleidung tragen. Das er reich ist, und so weiter. Ein Jager.
Weil Kleidung ist.. Another Kleidung description.
Der Kragen ist ein Pelz. Ein Jager war.
Amber du hast gesagt 1400. Amber explains further.
Shakespeare ahnlich. in die Kleidung.
Es gibt Zeitbezeichnungen. Griechenland, Rom, das Mittelalter.
Die Renaissance, die Reformation. Barockzeit, und dann haben wir das
Moderne. Von 1750 bis heute.
Antike, Ren, Bar, Mode
The nature of the conversation is different today.
Das ist nicht modern. One explains and quite well too.
Herbert bends over desk as he listens. Nicht new.
She still tries to talk.
Du hast an Jesus Christus gedacht, Lance. Warum?
Er hat das Gesicht. Wann Jesus ein Thema in der Kunst war?
Meint man andere Sachen. Religiose Themen sind , glaube ich.
Nicht genau wie Jesus.
Hanna went to Munich and saw the painting there, She describes her
experience with the tour guide.
Ich habe den Namen vergessen.
Herbert passes out the copies of the painting in plastic to all of them.
Es ist ein Selbstportrat.
Der Monogramm von diesem Kunstler. War ein Zeichen.
AD, says Lance.

Hanna AD, etwas. Albrecht Durer. Isaiah Holzkraft,
Holzschnitte. Ja. das
hat er gemacht.
Aquarellen, Landschaften, detaillierte Sachen, Tiere, Insekte,
Landschaften.
Auch Gemalde gemacht. Portrats, Ein Selbstportrat.
Kupferstiche.
AS yesterday. But Herbert did not write his name down.
Schau mal das Bild an. Wann hat er das gemacht?
Amber hat gesagt, um 1500.
Wurde er kritsiert fur dieses Bild. Was meint er? Warum? Wir
haben diese
Idee angetastet.

APPENDIX F

SAMPLE INTERVIEW PROTOCOL

Second interview with Ute. Tuesday, February 15, 2000.
****
*Researcher: Somebody has been around a few classrooms.

Ute: Oh, I've been around a few classrooms in my life.

*Researcher: I can tell. Okay, this is Teil 2 of the interview
with Ute and this is going to focus a little more on classroom
practice, with a little theory thrown in there. OK. Let me
start off here. From my observations, I've kind of noticed
that you've used sort of a balance of high-tech and low-tech
technology equipment. You've used the overhead machine,
obviously, quite a bit.

Ute: That's my favorite.

*Researcher: Yeah. (Laughs). You also used a considerable
amount of paper handouts. But on the high-tech end, you've
also used obviously, Mann vom Barengraben was on HyperStudio.
One could consider, whether that's high tech or not, that
remains open...

Ute: If you're talking a lot with other schools, yes, it is.

*Researcher:; And of course, yesterday, we saw the Swing Kids
with the PC-Remote on the PC computers, so you can watch it.
HOw have you been able to maintain that balance in your
teaching?

Ute: How have I been able to maintain the balance? I really
don't know how to answer that. If it fits in the lesson, I use
it. If it doesn't fit, I don't. Um, you know, I just make it
work in. I don't really know how to answer the question.

*Researcher: OK. Why don't I ask it in another way? You just said to me you make it fit in the lesson. How did you decide that paper handouts fit? How did you decide that HyperStudio fit? Mann vom Barengraben?

Ute: Well, my first reaction, I really like the possibility of having of having practically a book in front of every student with the colored pages   and them able to flip the pages if they want. And it's much more attractive and realistic than a black-and-white copy of a color, beautifully illustrated book. So that, it's just that, it's the nicest, best way to do it. It keeps the interest level up, and you can't do the same thing in the same way all the time either. But since the technology is there, along with really all the support, I wouldn't have had time to put in on there myself, or make all the corrections I needed to by myself. You know, the text didn't scan as the pictures did, so making and maintaining it is something where I need support with. So as long as that's available, that's my best option.

*Researcher:: OK. How was that Hyperstudiogeschichte put together? Who helped you with the work on that?

Ute: Well, that was done a couple of years ago. And that person isn't here anymore, but we've had another instructional program assistant, that's the name of the position, whose job it is to help us create some of the materials we want. And we use this all the time along with work service students. So that combination will produce all sorts of things that we need like flash cards or maps, multiples of maps done in different formats or laminating pictures, or in this case, scanning something into a computer program of some sort. I mean, it would have been outside of my range of abilities as well as outside of the time I could have allotted to it if I had to do it on my own.

*Researcher: Sounds to me like it was very helpful that you had that support.

Ute: I don't think it would have been possible, otherwise. Not with the load of students in classes.

*Researcher: Sticking with the HyperStudio thing here, you had the book with you., obviously. One of the options you probably had was that you could have taken that and made, and made paper copies.

Ute: And years before the HyperStudio capability was available to us, that's the way I would have had to do it. It's just works so much nicer, this other way.

*Researcher: After the whole experience now, how do you think the kids responded?

Ute: I've had some pretty positive feedback. This is the second book that we've done and we're going to do a third just like this, uh, in this program, in the same program. I think the kids like it because, for one, they like the colored pictures. They always like computers, for some reason, even it they're sitting there, even if they're doing nothing really special, they like the idea of sitting there at the computer doing something, rather than in the classroom all the time. And um, they can work at their own pace, which is really nice too. And then I can just circulate.

APPENDIX G

SAMPLE RESEARCHER LOG

Researcher log--January 27, 2000

     Herbert has finally come back to work, but his sickness
is still with him. His voice is raspy, sounds a little like a
combination between Lotte Lenya and Ute Lemper. As usual,
however, he maintains his ever positive, upbeat attitude, as
if nothing ever happened at all.

     The day so far has been all of Ute's classes. I
definitely feel like I've reached the theoretical saturation
point in her German 2 classes. It's very clear how she
teaches, doesn't really change her style and way she does
things for any of the classes, although she will do things
differently depending on the competency level of the class.
7:30 is obviously the strongest one, 10;30 the weakest, and
12:10 somewhere in the middle. I would like to see more of
German 4. As far as I can tell, I have only seen three
classes.

     I finally got some of the Christa transcription done, but
as usual, it's slow. I hope the Herbert tape will be back to
normal by tomorrow, then I can assess the damage done to the
tape and determine if I must interview Herbert again, which I
don't want to do. I find it rather strange that the lab
director doesn't know where things are in his own lab.

     I rested some this morning although that time could have
been used for transcribing. I think that in order to get most
of my work done. I need to stay away from the foreign language
lab, because they are all connected to the Web and therefore
provide a distraction. Not good. I need to keep on task now,
especially because I can't code now with the bad monitor, and
the interviews will indeed take a long time to transcribe.
Stay tuned. Herbert's afternoon classes are up next.

APPENDIX H

LIST OF CODED NODES

Q.S.R. NUD*IST Power version, revision 4.0.
Licensee: Peter A. Schultz.

```
(1)                      /Class Composition
(1 1)                    /Class Composition/German 1
(1 2)                     /Class Composition/German 2
(1 2 1)                  /Class Composition/German 2/730
(1 2 2)                  /Class Composition/German 2/1030
(1 2 3)                  /Class Composition/German 2/1210
(1 3)                     /Class Composition/German 3
(1 3 1)                  /Class Composition/German 3/815
(1 3 2)                  /Class Composition/German 3/215
(1 4)                     /Class Composition/German 4
(1 4 1)                  /Class Composition/German 4/Deutsches
Cafe
(2)                       /Teacher Characteristics
(2 1)                    /Teacher Characteristics/Herbert
 (2 1 1)                  /Teacher Characteristics/Herbert/Humor
(2 1 2)                  /Teacher
Characteristics/Herbert/Teaching Philosophy
(2 1 2 1)               /Teacher
Characteristics/Herbert/Teaching Philosophy/Beliefs on
assessment
(2 1 2 2)                /Teacher
Characteristics/Herbert/Teaching Philosophy/Beliefs on
feedback
(2 1 2 3)                /Teacher
Characteristics/Herbert/Teaching Philosophy/Clearing up
confusion
(2 1 3)                  /Teacher
Characteristics/Herbert/Materials use
(2 1 3 1)               /Teacher
Characteristics/Herbert/Materials use/Realia
(2 1 3 2)               /Teacher
Characteristics/Herbert/Materials use/Server down
```

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(2 1 3 3)                 /Teacher
Characteristics/Herbert/Materials use/Textbook stuff
(2 1 4)                   /Teacher
Characteristics/Herbert/Technology beliefs
(2 1 4 1)                 /Teacher
Characteristics/Herbert/Technology beliefs/Own Web pages
(2 1 4 2)                 /Teacher
Characteristics/Herbert/Technology beliefs/Developing
materials
(2 1 4 3)                 /Teacher
Characteristics/Herbert/Technology beliefs/Colleagues
(2 1 4 4)                 /Teacher
Characteristics/Herbert/Technology beliefs/Interactivity
(2 1 4 5)                 /Teacher
Characteristics/Herbert/Technology beliefs/Negative
experiences
(2 1 4 6)                 /Teacher
Characteristics/Herbert/Technology beliefs/Low-tech
preferences
(2 1 5)                   /Teacher Characteristics/Herbert/Prep
time
(2 1 6)                   /Teacher Characteristics/Herbert/Use
of German
(2 1 6 1)                 /Teacher Characteristics/Herbert/Use
of German/English spoken
(2 1 7)                   /Teacher
Characteristics/Herbert/Personal history
(2 1 8)                   /Teacher
Characteristics/Herbert/Professional Development
(2 1 8 1)                 /Teacher
Characteristics/Herbert/Professional Development/Workshop
Leader
(2 1 8 2)                 /Teacher
Characteristics/Herbert/Professional Development/OPI
Interviewer
(2 1 8 3)                 /Teacher
Characteristics/Herbert/Professional Development/Activities at
IMSA
(2 1 8 4)                 /Teacher
Characteristics/Herbert/Professional Development/Published
work
(2 1 8 5)                 /Teacher
Characteristics/Herbert/Professional Development/Webmaster
(2 1 8 6)                 /Teacher
Characteristics/Herbert/Professional Development/Committee
member
```

(2 1 9)   /Teacher
Characteristics/Herbert/Personal style
(2 1 9 1)   /Teacher
Characteristics/Herbert/Personal style/Rambling on
(2 1 10)   /Teacher
Characteristics/Herbert/Monitoring and helping
(2 1 11)   /Teacher Characteristics/Herbert/Using
pictures
(2 1 12)   /Teacher
Characteristics/Herbert/Familiarity with students
(2 1 13)   /Teacher
Characteristics/Herbert/Reaction to lessons
(2 2)   /Teacher Characteristics/Ute
(2 2 1)   /Teacher Characteristics/Ute/Humor
(2 2 2)   /Teacher Characteristics/Ute/Teaching
Philosophy
(2 2 2 1)   /Teacher Characteristics/Ute/Teaching
Philosophy/Beliefs on Feedback
(2 2 3)   /Teacher
Characteristics/Ute/Materials use
(2 2 4)   /Teacher Characteristics/Ute/Prep
time
(2 2 4 1)   /Teacher Characteristics/Ute/Prep
time/3 German 2 classes
(2 2 5)   /Teacher
Characteristics/Ute/Technology beliefs
(2 2 5 1)   /Teacher
Characteristics/Ute/Technology beliefs/Professional
development
(2 2 5 2)   /Teacher
Characteristics/Ute/Technology beliefs/Students Doing Work
(2 2 6)   /Teacher Characteristics/Ute/Use of
German
(2 2 6 1)   /Teacher Characteristics/Ute/Use of
German/English spoken
(2 2 7)   /Teacher Characteristics/Ute/Using
pictures
(2 2 8)   /Teacher Characteristics/Ute/Personal
history
(2 2 8 1)   /Teacher Characteristics/Ute/Personal
history/Teaching experience
(2 2 9)   /Teacher
Characteristics/Ute/Monitoring and helping
(2 2 10)   /Teacher Characteristics/Ute/Personal
style
(2 3)   /Teacher Characteristics/Christa

```
(2 3 1)                    /Teacher
Characteristics/Christa/Teaching Philosophy
(2 3 2)                    /Teacher Characteristics/Christa/Prep
time
(3)                          /Class Activities
(3 1)                       /Class Activities/Small Talk
(3 1 1)                    /Class Activities/Small Talk/Current
events
(3 2)                       /Class Activities/Culture
(3 2 1)                    /Class Activities/Culture/History of
D, A, CH
(3 2 2)                    /Class Activities/Culture/Degenerate
art
(3 2 3)                    /Class Activities/Culture/Noted German
(3 3)                       /Class Activities/Vocabulary
(3 3 1)                    /Class Activities/Vocabulary/Setting
Reference
(3 3 2)                    /Class Activities/Vocabulary/Questions
about
(3 4)                       /Class Activities/Partners and Groups
(3 5)                       /Class Activities/Grammar
(3 5 1)                    /Class Activities/Grammar/Sing-a-longs
(3 5 2)                    /Class Activities/Grammar/Grammar vs.
comm.
(3 5 3)                    /Class Activities/Grammar/Questions
about
(3 6)                       /Class Activities/Speaking practice
(3 6 1)                    /Class Activities/Speaking
practice/Presentations
(3 6 2)                    /Class Activities/Speaking
practice/Role plays
(3 6 3)                    /Class Activities/Speaking
practice/Structured sentences
(3 6 4)                    /Class Activities/Speaking
practice/Questions and answers
(3 6 5)                    /Class Activities/Speaking
practice/Corrections
(3 6 6)                    /Class Activities/Speaking
practice/Tongue Twisters
(3 6 7)                    /Class Activities/Speaking
practice/Interactivity
(3 6 8)                    /Class Activities/Speaking
practice/German chat room
(3 7)                       /Class Activities/Writing practice
(3 7 1)                    /Class Activities/Writing
practice/Journals
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(3 7 2)                /Class Activities/Writing
practice/Dictations
(3 7 3)                /Class Activities/Writing
practice/Interviews
(3 7 4)                /Class Activities/Writing
practice/Electronic books
(3 7 5)                /Class Activities/Writing
practice/Peer editing
(3 7 6)                /Class Activities/Writing
practice/Diacritics
(3 7 7)                /Class Activities/Writing
practice/Script for video
(3 8)                  /Class Activities/Listening practice
(3 8 1)                /Class Activities/Listening
practice/Hearing native speakers
(3 9)                  /Class Activities/Reading practice
(3 9 1)                /Class Activities/Reading
practice/Comprehension
(3 9 2)                /Class Activities/Reading
practice/Learning strategy
(3 9 3)                /Class Activities/Reading
practice/Poetry
(3 9 4)                /Class Activities/Reading
practice/Asterix comics
(3 10)                 /Class Activities/Constructivist
(3 11)                 /Class Activities/Exam preparation
(3 11 1)               /Class Activities/Exam
preparation/Student reaction to test
(3 12)                 /Class Activities/Literature
discussion
(3 13)                 /Class Activities/Researching
(3 14)                 /Class Activities/Applying logic
(3 15)                 /Class Activities/Teacher centered
(3 15 1)               /Class Activities/Teacher
centered/Student-oriented
(3 16)                 /Class Activities/PAS participates
(3 17)                 /Class Activities/Drawing
(3 18)                 /Class Activities/Stamp project
(3 18 1)               /Class Activities/Stamp project/Famous
people
(3 19)                 /Class Activities/Games
(3 20)                 /Class Activities/Self-reflection
(3 21)                 /Class Activities/Geography
(3 22)                 /Class Activities/Music
(3 23)                 /Class Activities/Use of textbooks
(3 24)                 /Class Activities/Racism project
(4)                    /Technology
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(4 1)                     /Technology/Creating Web pages
(4 1 1)                   /Technology/Creating Web pages/Web
page editors
(4 1 2)                   /Technology/Creating Web pages/HTML
(4 1 3)                   /Technology/Creating Web
pages/JavaScript
(4 1 4)                   /Technology/Creating Web
pages/Publishing on WWW
(4 2)                     /Technology/Videos
(4 2 1)                   /Technology/Videos/Watching
(4 2 1 1)                 /Technology/Videos/Watching/Soap opera
(4 2 2)                   /Technology/Videos/Making their own
(4 2 3)                   /Technology/Videos/Video assessment
(4 3)                     /Technology/Overhead machine
(4 3 1)                   /Technology/Overhead machine/Textbook
transparencies
(4 4)                     /Technology/Paper handouts
(4 5)                     /Technology/Word processing
(4 5 1)                   /Technology/Word processing/ROBOTEL
(4 5 2)                   /Technology/Word processing/Systeme D
(4 5 3)                   /Technology/Word processing/Proofing
tools
(4 5 4)                   /Technology/Word processing/AltaVista
translator
(4 6)                     /Technology/Speaking on cassette
(4 7)                     /Technology/Language lab console
(4 8)                     /Technology/German Grammar Flipper
(4 9)                     /Technology/Cd Cassette player
(4 10)                    /Technology/Email
(4 10 1)                  /Technology/Email/Education
(4 10 2)                  /Technology/Email/Business
(4 11)                    /Technology/Computers
(4 11 1)                  /Technology/Computers/Hardware
(4 11 2)                  /Technology/Computers/Software
(4 11 2 1)
/Technology/Computers/Software/PowerPoint
(4 11 2 2)
/Technology/Computers/Software/HyperCard
(4 11 2 3)
/Technology/Computers/Software/Microsoft Word
(4 11 2 4)
/Technology/Computers/Software/PhotoShop
(4 11 2 5)                /Technology/Computers/Software/CD-ROM
(4 11 3)                  /Technology/Computers/Teaching
materials
(4 11 4)                  /Technology/Computers/PC-VCR Video
(4 12)                    /Technology/Printers
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(4 13)                          /Technology/Televisions
(4 14)                          /Technology/DVD
(4 15)                          /Technology/Other
(4 16)                          /Technology/Access issues
(4 17)                          /Technology/Research on WWW
(4 17 1)                        /Technology/Research on
WWW/Instruction materials
(4 18)                          /Technology/HyperStudio
(4 19)                          /Technology/Scanning
(4 20)                          /Technology/Illustrations
(4 21)                          /Technology/Materials in room
(4 22)                          /Technology/Opaque projector
(4 23)                          /Technology/Laserdiscs
(4 23 1)                        /Technology/Laserdiscs/LERNEXPRESS
(4 24)                          /Technology/High tech vs. low tech
(4 25)                          /Technology/Real objects
(4 26)                          /Technology/Helps learn language
(4 27)                          /Technology/Movie projector
(4 28)                          /Technology/Cable television
(5)                             /Curriculum
(5 1)                           /Curriculum/Class references
(5 2)                           /Curriculum/Level Two
(5 3)                           /Curriculum/Immersion approach
(5 4)                           /Curriculum/Context
(5 5)                           /Curriculum/Video assessment
(5 5 1)                         /Curriculum/Video assessment/Reaction
from other schools
(5 6)                           /Curriculum/Level One
(5 7)                           /Curriculum/Structured lessons
(5 8)                           /Curriculum/Technology references
(5 9)                           /Curriculum/Standards
(5 9 1)                         /Curriculum/Standards/National
Standards
(5 9 2)                         /Curriculum/Standards/Illinois
Standards
(5 9 3)                         /Curriculum/Standards/McKrell
(5 9 4)                         /Curriculum/Standards/Content vs.
Performance
(5 9 5)                         /Curriculum/Standards/Assessment
(5 9 6)                         /Curriculum/Standards/Visual
representation
(5 10)                          /Curriculum/Unit organization
(5 10 1)                        /Curriculum/Unit
organization/Continuity of lessons
(5 10 2)                        /Curriculum/Unit organization/Took too
long
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(5 10 3)                    /Curriculum/Unit organization/Went
about right
(5 10 4)                    /Curriculum/Unit organization/Students
select topics
(5 11)                      /Curriculum/Self-assessment
(5 12)                      /Curriculum/Level Three
(5 13)                      /Curriculum/Level Four
(5 14)                      /Curriculum/Technology components
(5 15)                      /Curriculum/School pedagogy
(5 15 1)                    /Curriculum/School pedagogy/Standards
of Significant Learning
(5 16)                      /Curriculum/Negative aspects
(5 17)                      /Curriculum/Building on knowledge
(6)                         /Student reactions
(6 1)                       /Student reactions/Grades
(6 1 1)                     /Student reactions/Grades/Next Course
(6 2)                       /Student reactions/Beliefs about
German
(6 2 1)                     /Student reactions/Beliefs about
German/Immersion approach
(6 2 1 1)                   /Student reactions/Beliefs about
German/Immersion approach/Feels picked on
(6 2 2)                     /Student reactions/Beliefs about
German/Grammar
(6 2 2 1)                   /Student reactions/Beliefs about
German/Grammar/Grammar vs. communicating
(6 2 2 1 1)                 /Student reactions/Beliefs about
German/Grammar/Grammar vs. communicating/Speak well can't
write
(6 2 2 1 2)                 /Student reactions/Beliefs about
German/Grammar/Grammar vs. communicating/Know meaning, not
usage
(6 2 3)                     /Student reactions/Beliefs about
German/Learning vocabulary
(6 2 4)                     /Student reactions/Beliefs about
German/Assessment
(6 2 5)                     /Student reactions/Beliefs about
German/Want to speak well
(6 2 6)                     /Student reactions/Beliefs about
German/Skills transfer
(6 2 7)                     /Student reactions/Beliefs about
German/Understanding native speakers
(6 2 8)                     /Student reactions/Beliefs about
German/Overwhelmed with topic
(6 2 9)                     /Student reactions/Beliefs about
German/Authentic material
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(6 2 10)                    /Student reactions/Beliefs about
German/Writing in German
(6 2 11)                    /Student reactions/Beliefs about
German/Spelling
(6 3)                       /Student reactions/Questions
(6 4)                       /Student reactions/Technical support
(6 5)                       /Student reactions/Computer
preferences
(6 6)                       /Student reactions/Dictionary use
(6 7)                       /Student reactions/Miscellaneous
(6 8)                       /Student reactions/Obtaining materials
(6 9)                       /Student reactions/School activities
(6 10)                      /Student reactions/Been in D, A, or CH
(6 10 1)                    /Student reactions/Been in D, A, or
CH/Another country
(6 11)                      /Student reactions/Effort to speak
(6 11 1)                    /Student reactions/Effort to
speak/Teacher prompts
(6 11 2)                    /Student reactions/Effort to
speak/Beyond present competence
(6 11 3)                    /Student reactions/Effort to
speak/Want to be understood
(6 12)                      /Student reactions/Background
knowledge
(6 13)                      /Student reactions/Work mentality
(6 13 1)                    /Student reactions/Work
mentality/Working at own pace
(6 14)                      /Student reactions/Displaying work
(6 15)                      /Student reactions/Making errors
(6 16)                      /Student reactions/Interaction with
teachers
(6 17)                      /Student reactions/Reactions to Tech
(6 17 1)                    /Student reactions/Reactions to
Tech/How often used?
(6 17 2)                    /Student reactions/Reactions to
Tech/Outside of class
(6 17 3)                    /Student reactions/Reactions to
Tech/Multiple uses
(6 17 4)                    /Student reactions/Reactions to
Tech/Tech as substitute
(6 17 5)                    /Student reactions/Reactions to
Tech/Use of visuals
(6 17 6)                    /Student reactions/Reactions to
Tech/More German vs. more tech
(6 18)                      /Student reactions/Computer knowledge
and skills
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(6 18 1)                    /Student reactions/Computer knowledge
and skills/Can program
(6 18 2)                    /Student reactions/Computer knowledge
and skills/Word processing
(6 18 3)                    /Student reactions/Computer knowledge
and skills/Web page design
(6 18 3 1)                  /Student reactions/Computer knowledge
and skills/Web page design/HTML
(6 18 3 2)                  /Student reactions/Computer knowledge
and skills/Web page design/Java
(6 18 4)                    /Student reactions/Computer knowledge
and skills/Use WWW
(6 18 5)                    /Student reactions/Computer knowledge
and skills/Basic computer operation
(6 18 6)                    /Student reactions/Computer knowledge
and skills/Use video
(6 18 7)                    /Student reactions/Computer knowledge
and skills/Use audio
(6 18 8)                    /Student reactions/Computer knowledge
and skills/Assembling hardware
(6 18 9)                    /Student reactions/Computer knowledge
and skills/Computer in dorm room
(6 18 10)                   /Student reactions/Computer knowledge
and skills/Fear of technology
(6 19)                      /Student reactions/Free Time
(6 20)                      /Student reactions/Feedback from
Teachers
(6 21)                      /Student reactions/Staying ontask
(6 22)                      /Student reactions/Bundestag exchange
(6 23)                      /Student reactions/Letters from
Germans
(6 24)                      /Student reactions/Why take German?
(6 24 1)                    /Student reactions/Why take
German?/Didn't want others
(6 24 2)                    /Student reactions/Why take
German?/Career goals
(6 24 3)                    /Student reactions/Why take
German?/Teacher recommendation
(6 24 4)                    /Student reactions/Why take
German?/Second choice
(6 24 5)                    /Student reactions/Why take
German?/Dissatisfied with others
(6 24 6)                    /Student reactions/Why take
German?/Good in other subjects
(6 24 7)                    /Student reactions/Why take
German?/Luxury
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(6 24 8)                    /Student reactions/Why take
German?/Family
(6 24 9)                    /Student reactions/Why take
German?/Like communicating with natives
(6 24 9 1)                  /Student reactions/Why take
German?/Like communicating with natives/Expand cultural
horizons
(6 24 10)                   /Student reactions/Why take
German?/Study abroad
(6 24 11)                   /Student reactions/Why take
German?/Read literature
(6 25)                      /Student reactions/Family is German
(6 26)                      /Student reactions/German is easy
(6 26 1)                    /Student reactions/German is
easy/Superior knowledge
(6 27)                      /Student reactions/Good memorizer
(6 28)                      /Student reactions/Been to immersion
camp
(6 29)                      /Student reactions/Reactions to
teachers
(6 30)                      /Student reactions/Choosing own tasks
(6 31)                      /Student reactions/Improvements for
class
(6 32)                      /Student reactions/Study time for
German
(6 32 1)                    /Student reactions/Study time for
German/Lost interest
(6 32 2)                    /Student reactions/Study time for
German/Study in class
(6 33)                      /Student reactions/Study in future?
(6 34)                      /Student reactions/Had previous
language
(6 35)                      /Student reactions/Staying up late
(7)                         /Contextual stuff
(7 1)                       /Contextual stuff/Other classes
(7 2)                       /Contextual stuff/Architecture
(7 3)                       /Contextual stuff/Erfurt Reise
(7 3 1)                     /Contextual stuff/Erfurt Reise/Visit
from Erfurt kids
(7 4)                       /Contextual stuff/Time duration
(7 5)                       /Contextual stuff/Posters and signs
(7 6)                       /Contextual stuff/Health and weather
(7 7)                       /Contextual stuff/Class sizes
(7 8)                       /Contextual stuff/Aurora area
(7 9)                       /Contextual stuff/Concordia LL
(7 10)                      /Contextual stuff/Tech support staff
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(7 10 1)                    /Contextual stuff/Tech support
staff/Video production lab
(7 10 2)                    /Contextual stuff/Tech support
staff/Instructional program assistant
(7 11)                      /Contextual stuff/Administrative
support
(7 12)                      /Contextual stuff/Problem-solving
approach
(7 13)                      /Contextual stuff/IMSA vs. other
schools
(7 14)                      /Contextual stuff/Opportunities to
learn
(7 15)                      /Contextual stuff/Language Lab
(7 16)                      /Contextual stuff/2 vs. 4 days a week
(7 17)                      /Contextual stuff/Customized software
(7 18)                      /Contextual stuff/Language requirement
(7 18 1)                    /Contextual stuff/Language
requirement/Placement test
(8)                         /Application to other contexts
(8 1)                       /Application to other contexts/Alverno
College
(8 2)                       /Application to other contexts/FL
Leaders
(8 3)                       /Application to other contexts/Other
school districts
(8 3 1)                     /Application to other contexts/Other
school districts/Experience at old school
(8 4)                       /Application to other
contexts/Colleges and universities
(8 5)                       /Application to other contexts/Outside
perceptions of IMSA
(D)                         //Document Annotations
(F)                         //Free Nodes
(T)                         //Text Searches
(T 1)                       //Text Searches/Vocabulary instances
(T 2)                       //Text Searches/Technology
(I)                         //Index Searches
(I 1)                       //Index Searches/Small Talk G4
Matrix Node.
(I 2)                       //Index Searches/Video assessment
(I 3)                       //Index Searches/Writing and videos
Matrix Node.
(C)                         //Node Clipboard - 'Index Search'
Matrix Node.
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