Technology-Based Language and Culture Projects

at The University of Texas at Austin

Matthew Bailey, Hans Boas, Eric Eubank, Karen Kelton, Coco Kishi, Jane Lippmann, Esther Raizen, Suzanne Rhodes, Joe TenBarge, and Judythe Wilbur

The University of Texas at Austin

Matthew Bailey, Assoc. Professor, PhD
Spanish & Portuguese
1 University Station B3700, BAT 206
The University of Texas at Austin
Austin, TX 78712-0304 USA
E-mail: mbailey@mail.utexas.edu
Phone: (512) 232-4510
Fax: (512) 471-8073

Hans Boas, Asst. Professor, PhD
Department of Germanic Studies
1 University Station C 3300, EPS 3.102
The University of Texas at Austin
Austin, TX 78712-0304 USA
E-mail: hcb@mail.utexas.edu
Phone: (512) 471-4123
Fax: (512) 471-4025

Eric Eubank, Sr Systems Analyst, BS
Liberal Arts ITS
1 University Station B 3500, BAT 6
The University of Texas at Austin
Austin, TX 78712-0304 USA
E-mail: eric@mail.utexas.edu
Phone: (512) 471-0343
Fax: (512) 471-7718

Karen Kelton, Lecturer, MLS
French & Italian Dept
1 University Station B7600, HRH 2.106A
The University of Texas at Austin
Austin, TX 78712-0304 USA
E-mail: kkelton@mail.utexas.edu
Phone: (512) 471-5531
Fax: (512) 471-8492

Coco Kishi, Sr. Systems Analyst, MA
Center for Instructional Technologies
1 University Station B 8000, GSB 2.130
The University of Texas at Austin
Austin, TX 78712-1178 USA
E-mail: coco@uts.cc.utexas.edu
Phone: (512) 475-6050
Fax: (512) 475-6353

Jane Lippmann, Professor, PhD
French & Italian Dept
1 University Station B7600, HRH 3.110A
The University of Texas at Austin
Austin, TX 78712-0304 USA
E-mail: j.lippmann@mail.utexas.edu
Phone: (512) 471-5531
Fax: (512) 471-8492

Esther Raizen, Asst. Professor, PhD
Middle Eastern Lang. & Culture
1 University Station F1500, WMB 5.120
The University of Texas at Austin
Austin, TX 78712-0304 USA
E-mail: raizen@mail.utexas.edu
Phone: (512) 475-6654
Fax: (512) 471-7834

Suzanne Rhodes, Sr. Systems Analyst, MA
Center for Instructional Technologies
1 University Station B 8000, GSB 2.130
The University of Texas at Austin
Austin, TX 78712-1178 USA
E-mail: suzanne.rhodes@mail.utexas.edu
Phone: (512) 475-6370
Fax: (512) 475-6353

Joe TenBarge, Director, BA
Liberal Arts ITS
1 University Station B 3500, BAT 1
The University of Texas at Austin
Austin, TX 78712-0304 USA
E-mail: tenbarge@mail.utexas.edu
Phone: (512) 471-7095
Fax: (512) 471-7718

Judythe Wilbur, Sr. Systems Analyst, BA
Center for Instructional Technologies
1 University Station B 8000, GSB 2.130
The University of Texas at Austin
Austin, TX 78712-1178 USA
E-mail: wilbur@mail.utexas.edu
Phone: (512) 475-6116
Fax: (512) 475-6353

Abstract

Faculty needs for instructional technology continue to increase. Many institutions have been or are now implementing faculty multimedia project support. Establishing technology support programs for faculty that are efficient, productive, and easy to maintain requires intelligent growth. Through the integration of several programs, one University of Texas at Austin college working with a central support unit meets faculty needs with dynamically changing, more satisfying support services to increase engaged student learning through the use of instructional technologies in its courses.

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Instructional Technology Support Units and Programs

Liberal Arts Instructional Technology Support: Large development projects supported through Liberal Arts instructional technology grants

The College of Liberal Arts and its Liberal Arts Instructional Technology Services encourage the development of multimedia and computer-based course materials by providing funding and technical support to Liberal Arts departments and faculty. In addition to managing technology support for computer classrooms, language labs, and media purchasing, Liberal Arts ITS employs 20 professional staff, including programmers, graphic artists, audio/video specialists, and server administrators who have developed over 37 large-scale multimedia course materials and Web sites. Often these projects take from six months to years to develop, and impact thousands of students a year.

The development cycle begins with a call for proposals issued in the spring semester of each year. Funding decisions are made through a competitive proposal process in which a faculty committee reviews proposals. Funds for awarded projects become available at the start of the following fall semester when project development begins. Detailed information on the support system offer by Liberal Arts ITS can be found at: http://www.lamc.utexas.edu/its/

Center for Instructional Technologies: Project development and incentive program

Serving the university as a central support unit, the Center for Instructional Technologies employs 22 staff, including instructional technologists, programmers, database developers, graphic artists and audio/video specialists who collaborate in offering services that promote, support, and integrate emerging technologies in learning, teaching, and research. The CIT serves

as a training, teaching, and consulting center, as well as an incubator for projects using promising new technologies, and offers faculty support and incentive programs to enrich teaching and learning.

One CIT faculty support strategy focuses on using students who are trained in technology courses and employed by the Center. Faculty And Student Teams for Technology *(~FAST* Tex) is a program in which students are recruited, assigned, and compensated to support faculty projects. Similar to the process at the College of Liberal Arts' ITS, faculty proposals are solicited, reviewed, and funded in an annual development cycle. Unlike Liberal Arts ITS however, *~FAST* Tex projects are smaller scale and shorter in duration, developed during the spring and summer semesters by students who are managed by the faculty member and guided by the *~FAST* Tex program manager. The *~FAST* Tex program has been very successful, with more than 201 projects developed and implemented over five years, impacting thousands of UT students. Overall, students enjoy the faculty-student collaboration, the compensation, and they gain experience to aid their entry into the job market. Faculty appreciate the work students have implemented; it allows them to focus more on teaching and research. Detailed information on the *~FAST* Tex program can be found at: http://www.utexas.edu/academic/cit/fasttex/

In support of the *~FAST* Tex program, CIT staff teach several semester-long for-credit courses, offered through various colleges and departments. These courses take on faculty projects to be developed by students learning multimedia production skills. Students enrolled in CIT courses have developed academic projects ranging from research, instructional, resource, and promotional CD-ROMs to Web sites for the campus community. Many faculty and campus clients have been able to use these prototypes to gain the funding they needed to carry their

projects further (through the ~*FAST* Tex program or Liberal Arts ITS support), or have gained the confidence to implement instructional technologies in their own teaching and research.

Finally, the CIT offers an incentive program in which faculty who develop and use instructional technologies for their courses are recognized and rewarded for their efforts. This program, called the Innovative use of Instructional Technology Awards Program (IITAP), is supported by UT's Office of the Provost and offers cash awards for teaching with technology and resource development. Detailed information on the IITAP incentive program can be found at: http://www.utexas.edu/academic/cit/services/incentive/iitap/

Successful Strategies

Managing a digital media project is one of the most important aspects of the development process. Faculty conceptualize and spend a great deal of time contributing to every project developed through the university's support systems. Faculty play the demanding and time-consuming roles of client, subject matter expert, content developer, and project manager. The effort faculty and the development team invest in defining responsibilities, organizing, and communication has an important effect on results. Some proven techniques for planning, scheduling, and completing a project include:

- Securing funding/equipment donations in advance
- Maintaining a good database
- Getting administrative help
- Carefully screening projects
- Carefully interviewing faculty and students
- Working closely and collaboratively with IT support personnel
- Actively recruiting students by teaching IT courses

- Aggressively managing both faculty and students

Support Outcomes: Language and Culture Projects at UT Austin

The following projects illustrate the details involved in collaborating to turn an idea into a successful, media-rich resource or an interactive teaching and learning tool:

Francais Interactif *and* Tex's French Grammar: *A video-based first year French program integrated with a comprehensive online grammar*

http://www.lamc.utexas.edu/fi/

http://www.lamc.utexas.edu/tex/

Figure 1. Web sites for *Tex's French Grammar* and *Français Interactif.*

Tex's French Grammar and *Français Interactif* are innovative exemplars of leveraging self-authored automation tools in the creation of large quantities of multimedia and Web material. Scripted automation allows projects to be produced in a timely manner, with producer intervention reduced to a minimum. Further, innovation in intelligent application of production techniques is pertinent in higher education—a context in which time and funding resources are at a premium.

Complying with the American Council on the Teaching of Foreign Language's National Standards for Foreign Language Learning, *Francais Interactif* is a unique first-year French program developed at UT Austin. The new curriculum incorporates the latest hypermedia technology—in particular, streaming video—and is designed to take full advantage of the university's "smart classrooms" (Internet-ready classrooms equipped with computer projectors and console). *Francais Interactif* helps a student explore the French language and culture by following the lives of real UT students who participated in the UT Summer Program in Lyon, France. The UT students introduce their French host families, their French university, and their lives in France. This comprehensive French program also includes recorded vocabulary, Internet activities, and online polls. Grammar is taught by links into *Tex's French Grammar: grammaire de l'absurde,* an online pedagogical grammar featuring French-speaking armadillos, set in a bizarre, engaging cartoon world of Texan culture at UT Austin. Each grammar point is explained in English, exemplified in a recorded dialogue, and finally tested in self-correcting fill-in-the-blank exercises automatically generated from a database. Over three hours of streamed audio allow students to prepare the grammar more effectively than with a traditional print-only textbook. Grammar points are also hyperlinked and easily accessed via indexes and a search engine. Other pedagogical tools include a verb conjugator, a verb tutor, and an online French dictionary. These two Web sites with a course packet of accompanying print materials (exercises and classroom activities) form a comprehensive set of first-year materials.

Français Interactif is organized into 13 chapters that deal with themes relevant to beginning French learners. Each chapter has the following online components:

- Introduction: presents, in a short video of a UT student, the thematic and grammatical material, with a preview of communicative tasks

- Vocabulary: provides a comprehensive list of vocabulary items arranged according to semantic fields
- Vocabulary video: captures native speakers who use the new vocabulary in context
- Phonétique: introduces systematically and accessibly essential aspects of French pronunciation, recycling vocabulary that was previously learned
- Grammar: presents individual items carefully explained in English, then exemplified in a dialogue, and finally tested in self-correcting, fill-in-the-blank exercises drawn from a database. To facilitate reference and learning, all grammar items are thoroughly cross-linked. Also included are several other pedagogical tools: a verb conjugator, a verb tutor, and an online French dictionary.

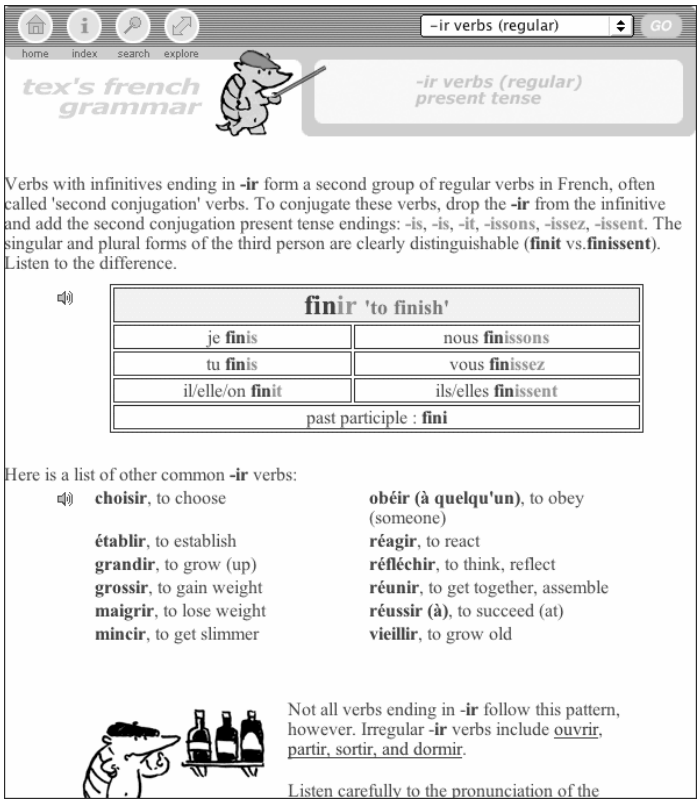

Figure 2. Screen shot of grammar page from *Tex's French Grammar,* for the verb *finir*.

- Interviews: employs the featured grammar and vocabulary in videos of thematic unscripted interviews of native and non-native speakers
- Culture link: provides opportunities for skills development through a variety of listening, conversation, reading, and writing activities to synthesize grammatical and lexical points
- Assessment: emphasizing communication, as do tests in first-year classes, *Français Interactif*'s videos play an important role in the testing program especially for listening comprehension purposes
- Student work—reading: provides a writing activity related to the chapter's cultural and linguistic content, based on a French Web site
- Student work—speaking: enables students to practice short oral interviews modeled on the video interviews, which become the basis for a five-minute oral exam

Methodology.

The most innovative feature of the technical work has been the production model. Collaboration among academics and media and Web production professionals involves considerable creativity, planning, hard work, and follow-through. The greatest challenge in producing *Tex's French Grammar,* from a technical standpoint, was in taking raw material produced by faculty authors and preparing it for delivery on the Internet. Content went through numerous revisions, both textual and technical. A team of programmers cleaned up material provided by academic authors. While this process went smoothly and was well organized, it demonstrated that such efforts should be subject to a higher degree of structure in order for content to be produced in a relatively presentation-free environment.

Software choices are detailed as follows:

- *Tex's French Grammar* Web server software: WebSTAR and WebSiphon, the latter a Mac OS PHP-like scripting language that was designed for dynamic Web content delivery. WebSiphon is a very fast, full-featured choice for Web site templating and management. The environment is still serving faithfully, although *Tex's French Grammar* will eventually be ported to PHP. All server-side scripting projects use Apache/PHP/MySQL.
- Web site production: most Web site production by the team was created by a combination of BBEdit and AppleScript, with automation and templating used as much as possible. If server-side scripting and automation was required, the team used the combination of Apache/PHP/MySQL.
- Digital audio: implemented prior to the MP3 era, the primary goal was to deliver high-quality audio delivery at multiple bandwidths; the team has historically used RealAudio to serve audio for both broadband and modem end-users. In the future, all such audio for the Web sites will be in MP3 and MP4 formats.
- Digital video: production based on Apple's QuickTime technology. QuickTime is at the heart of both the production software employed (iMovie and Final Cut Pro) and Web server delivery to students; chosen for fast-start and progressive download. Video is compressed via Sorenson 3 video codec in QuickTime and delivered via progressive download because it provides the best performance in a broadband environment.

Avenues of support.

Tex's French Grammar, completed in 1997, took two years, $250,000 and a huge team effort to build. It was supported by Liberal Arts ITS with summer grants for three faculty members, a professional artist and a content specialist (a French professor on leave in the US).

Technical support included a systems analyst, two programmers, and an audio specialist. Numerous graduate students also provided invaluable contributions to the Web site, writing exercises, creating and recording dialogues, testing the material in the classroom, proofing, and critiquing the final Web site. A partial list of the people who worked on *Tex's French Grammar* is available at http://www2.lamc.utexas.edu/frgr/credits.t

Français Interactif was also created with support from Liberal Arts ITS. Its development benefited from faculty appointments in the French Department's six-week summer program in Lyon in 2001 and 2002. Carl Blyth and Karen Kelton did extensive filming while directing the summer program and Nancy Guilloteau filmed her family on summer vacation in France. Other filming, in particular the interviews of native French speakers, was done in Austin.

Outcomes.

Français Interactif has been used in the first-year classes at UT (1200 students a year) since the fall semester of 2000. Student and instructor reaction to the program has been overwhelmingly positive.

Although designed for students at UT, students and the general public all over the world increasingly consult these two Web sites. The French Department fields numerous requests for the course packet and how to use these innovative materials effectively. Many universities are supplementing their grammar instruction with *Tex's French Grammar,* not only in Texas (Texas A&M, Southern Methodist University, UT San Antonio) and the US (Arkansas, Brown, Cornell, Columbia, Penn, Chicago) but also in the UK (Bristol, Leeds, Reading in New Zealand). It is even featured on Web sites in Quebec (Canadian Assn. of Second Language Teachers, Office québécois de la langue française) and France (C.N.R.S. in Poitiers, Université d'Amiens). *Tex's French Grammar* alone receives up to 50,000 visitor hits a day. This spring the University of

Arkansas has adopted *Français Interactif* for their first year classes. In addition, *Français Interactif* is showcased in an online exhibit in Apple Learning Interchange at http://ali.apple.com/ali_sites/ali/exhibits/1000090/

The development of practical methods for tackling large multimedia projects in higher education will provide groundwork for future projects in which such techniques can be reused and repurposed. In fact, because one of the advantages of an online curriculum has been the ability to update and revise the program as necessary and because the system employed for development is extremely scalable, the immediate goal is to expand public outreach by offering the complete integrated curriculum online. To accomplish this, the team plans:

- additional filming and editing
- redesign of the Web site
- a new vocabulary interface (clickable photos)
- an online textbook
- a comprehensive teacher's manual

Parlons Français *Web site: Using audio and a text-to-speech synthesizer to teach practical conversational French*

http://webspace.utexas.edu/~jnl

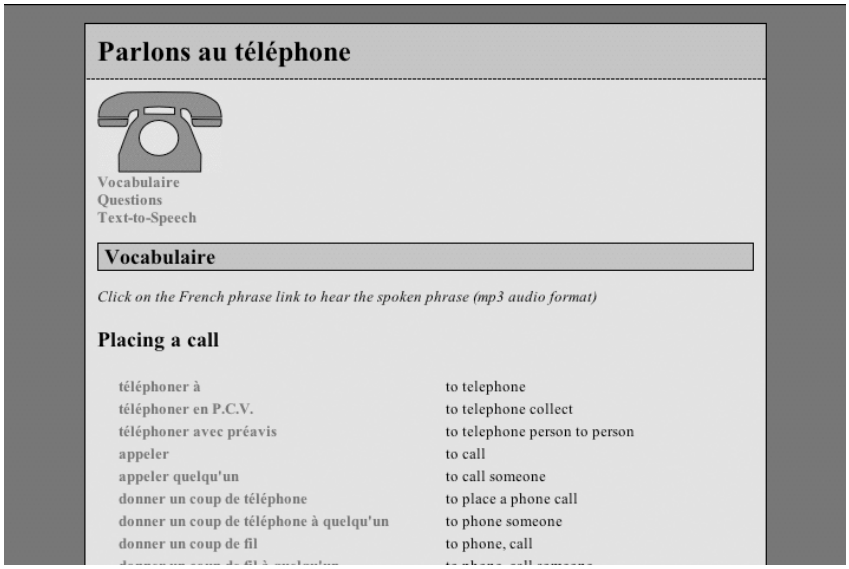

Figure 3. Example Web page from *Parlons Français.*

Parlons Français was created to help students improve their aural and oral skills in French. The primary audience is upper-division French students. Secondary audiences include other French language classes at UT and at other universities and colleges. The Web site is structured in modules to teach practical conversational French covering useful topics that students could use on a trip to France. Some of these modules will include using the telephone, getting a hotel room, and eating at a restaurant. The short written texts are converted into sound files so that when selected, an MP3 file plays the phrases. These files will contain formal and informal prose and poetry to help students learn to recognize and use different French sounds in context. There is a concerted effort to have all French sounds represented and to include activities of varying difficulty.

After listening to a sound file, students are asked to transcribe the sounds they have heard on a computer, using a text-to-speech synthesizer to simulate the speech patterns on the sound files to the degree that this is possible. Working individually or in small groups, students then listen to what they have written as it is spoken by one of the voices associated with the TTS

application. They can use different voices and compare the results, including comments on sounds that could not be reproduced or even approximated.

One module on using the telephone is complete, with work underway on three to five additional modules. Features of general interest, such as a dictionary and other links to useful sites for travelers and those wishing to improve their French will be added in the future.

Methodology.

Dr. Jane Lippmann selected and wrote texts, and with a ~*FAST* Tex student worker, developed an HTML template. With Liberal Arts ITS assistance, she recorded and digitized the sound files to MP3 files. Researching and selecting an appropriate TTS tool has been a challenging component of the project. It has been difficult to find one that is cost effective and produces high-quality French voices. More research on TTS applications will be conducted.

Currently 130 hours have been spent on Web site design and production as well as audio recording, editing, and compression. Approximately 80 hours were spent preparing content, and Dr. Lippmann anticipates 100 more development hours this spring.

Avenues of support.

This project received ~*FAST* Tex support for two seasons, and Liberal Arts ITS audio support. Dr. Lippmann and Dr. Esther Raizen have also received a Liberal Arts ITS grant for the summer of 2003 to work on accessibility issues and TTS technology in the foreign language classroom.

Outcomes.

The site has helped UT French students to sharpen their aural/oral skills in French, and to give them the confidence to use the language first in a small group setting, and then in a larger

group. Through the integration of the site in an upper-division French course, students can improve their listening and pronunciation as well as their oral fluency.

Students in an accelerated first-year French class evaluated the current module in the fall of 2002. Feedback from the students has been used to improve and revise the current and new 2003 modules. Dr. Lippmann hopes to compare students' progress with that of students in another section of the course not using this technology. She will alternate the experiment and control groups to give all students the benefit of the exercise. Students who worked with the telephone module were enthusiastic, believed they learned a great deal, and requested additional modules.

Foreign Language Teachers' Toolbox: *A teaching resource to increase engagement in any foreign language teacher's classroom*

http://www.lamc.utexas.edu/hebrew/personal/toolbox/toolbox.shtml

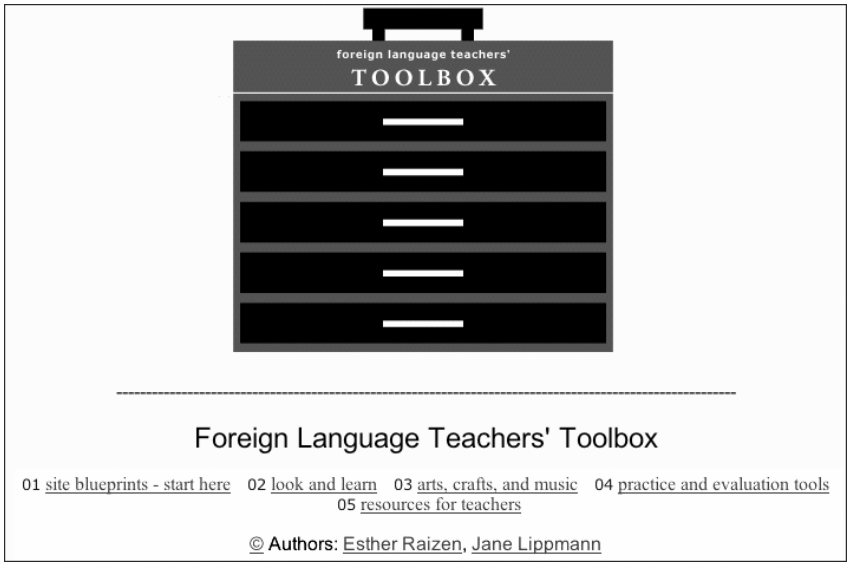

Figure 4. Web homepage for the *Foreign Language Teachers' Toolbox.*

Designed as a resource for foreign language teachers, this toolbox offers games, art and music projects, and evaluation tools that may be used in any foreign language classroom from

grade school through college. The activities offer hands-on experience and encourage assimilation and creativity in the target language while reinforcing vocabulary and grammatical structures and focusing on oral expression. Unlike most foreign language sites, the *Toolbox* is not language specific, and is intended primarily for teachers who seek to provide students with enrichment activities yet do not have the time or inclination to create them. The ideas are simple to understand and apply, and do not require a large investment of time or money. Much like a cake mix, the *Toolbox* furnishes all the essential ingredients for an activity, from pedagogical objectives to all details necessary for its successful execution. Users need only adapt those ingredients to their particular language and to the level of their students. The same approach guides the practice and the evaluation tools provided—teachers who are new to technology or have no time to invest in it may easily adapt the tools to their needs and use them to benefit their students.

Methodology.

Drs. Lippmann and Raizen identified essential tools and projects that could be used across languages and at various levels, and defined the pedagogical aspects for each project. They then researched what was available online and in printed form, studied various strategies for site design, and noted the best sites for future incorporation in the “Suggested links” sections and the “Resources for the teacher” page. In the summer of 2001 they prepared actual examples of the art projects, testing their pedagogical approach and instructions with students. Using Adobe Photoshop and Illustrator, a digital camera, a scanner, and Sibelius software, they created Web pages and tested the results across a variety of operating systems and browsers. They found that the average time for modifying a form (that is, creating a complete exercise and testing it) is 7 minutes for exercises using Latin characters, 10 minutes for exercises using unvocalized

Hebrew, and 45 minutes for exercises using vocalized Hebrew. They attended a workshop on Web accessibility and, following the workshop, identified sections of the project that could be made accessible and tested them with the Jaws screen reader, then revised relevant pages in accordance with Bobby approval guidelines. In 2003 they added an enrichment unit, "Languages of the World," a resource focusing on linguistics and providing a culturally diverse context to language teaching.

Avenues of support.

The CIT provided technical assistance and initial site design and development support through ~*FAST* Tex. Liberal Arts ITS provided project photos as well as grant funding.

Outcomes.

Some of the tools have been used in UT Hebrew and French classes; arts and crafts and music projects have all captured student attention and resulted in smooth and joyful interactions. Faculty members observed that students' retention of vocabulary increased, as well as their understanding of idioms. "Musical patterns" facilitated a discussion of intonation and natural rhythm in language, and provided numerous opportunities for diction practice. These preliminary results became the basis for a quantified study carried out in the fall of 2002. Recent access statistics indicates that out of some 900 monthly unique visitors to the Hebrew site, which hosts the *Toolbox*, 9 out of the first 10 top entry pages and 8 out of the first 10 top exit pages were *Toolbox* pages, accounting for 43% of the total visits to the site.

Pilot use of online forms as a method of evaluation and practice pointed to a need to revise the submission method, allowing independence of browsers and mail programs. Drs. Lippman and Raizen are considering a method based on PHP scripts that maintains the simplicity of the form design. Students who were able to use the exercises reported a high degree of

satisfaction. Hebrew students required to complete self-graded exercises in the fall of 2002 reported 100% success in accessing the exercises and an average of 2.13 attempts before the exercises were successfully completed.

Since February 2002, when the site was released the site to the public, the *Toolbox* has been featured on the CIT and Liberal Arts ITS sites and Drs. Lippmann and Raizen have taken steps to bring it to the attention of instructors on UT campus and beyond. The *Toolbox* has also received a 2002 IITAP award. In March of 2003 the *Toolbox,* and in particular its new "Languages of the World" unit, was visited by 37 teachers seeking professional development credit at the Explore UT event.

The Texas German Dialect Project *(TGDP): A tool for teaching and research in linguistics, anthropology, geography, and history*

http://www.tgdp.org

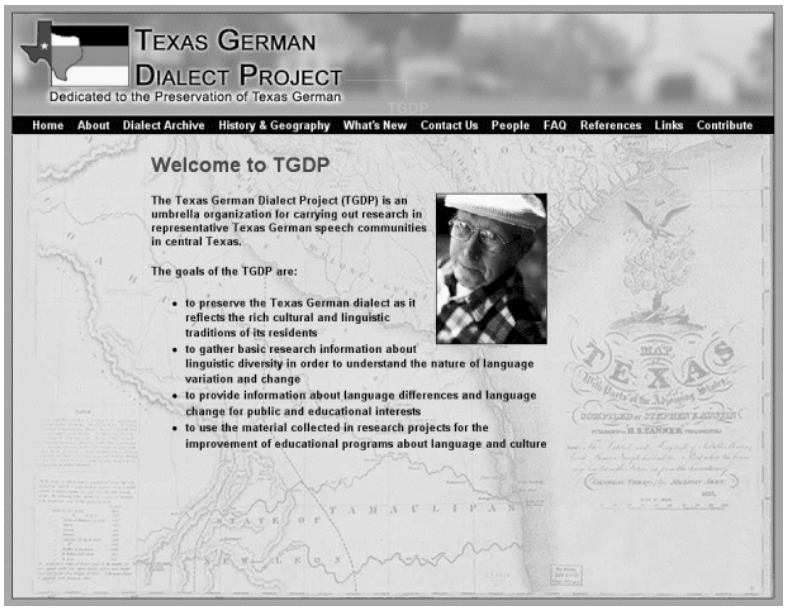

Figure 5. Web entry page for the *Texas German Dialect Project.*

The *Texas German Dialect Project (TGDP)* produces for classroom instruction a Web-based multimedia archive of Texas German, a native dialect of Texas that is expected to become extinct within the next 25 years. The *TGDP* is used to teach students how to conduct independent linguistic research online. By delivering online audio, video, and print data simultaneously for each recording of interviews with some of the remaining native speakers of Texas German, students are able to interact with primary data repeatedly in order to describe and analyze the relevant linguistic features of a corpus of spoken-word interviews. Combined delivery of linguistic data over the Web enables students to conduct research not only as a part of structured exercises in the classroom, but also outside of the classroom (e.g., for homework or term paper assignments).

The primary innovative aspect of the *TGDP* is the presentation and accessibility of linguistic data. The Web-based archive contains digitized maps from the *Linguistic Atlas of Texas German.*[1] The maps of different regions of central Texas list the locations where varieties of Texas German are spoken (including their linguistic features). By clicking on a specific location, e.g., Fredericksburg, students see a pop-up window containing a list of linked filenames giving the length of each available file for that location. Each file contains portions of recordings of linguistic interviews with native speakers of Texas German. By clicking on a filename, a QuickTime window opens and plays the file with combined audio, video, and text data. Students are able to play either the entire file or only parts of it in order to conduct a linguistic analysis of the dialectal features of different speakers of Texas German. While the file is playing, the pop-up window contains a transcript of the interview and a translation. This feature enables students to understand the recordings more easily, thereby facilitating linguistic analysis of dialectal features of different varieties of Texas German.

Conducting original linguistic analysis that gets students excited about the data and their underlying linguistic patterns is usually a very difficult task, because linguistic data is typically exclusively in print or exclusively audio in format. By combining audio, video, and text (transcriptions and translations) data and delivering them over the Web, the effect is more immediate: students can feel as if they are sitting directly across from the Texas German informants as they talk. The *TGDA* is an effective tool for classroom instruction as well as independent research activities because of its design features fostering teaching. It allows students to have:

1. Repeated interaction with linguistic data. Like a physicist conducting the same experiment a number of times in order to collect a solid pool of data, a linguist listens to the same data over and over again in order to conduct linguistic analysis. Using the *TGDA*, students are able to listen to, see, and review the entire interview, or only certain segments of an interview as a professional would.

2. Accessibility and understanding of linguistic data. Students are assigned linguistic data analysis problems that teach them how to describe and analyze dialectal features. In order to complete the assignments, students have to have constant access to the linguistic data as to learn to work with raw data, with the help of transcripts.

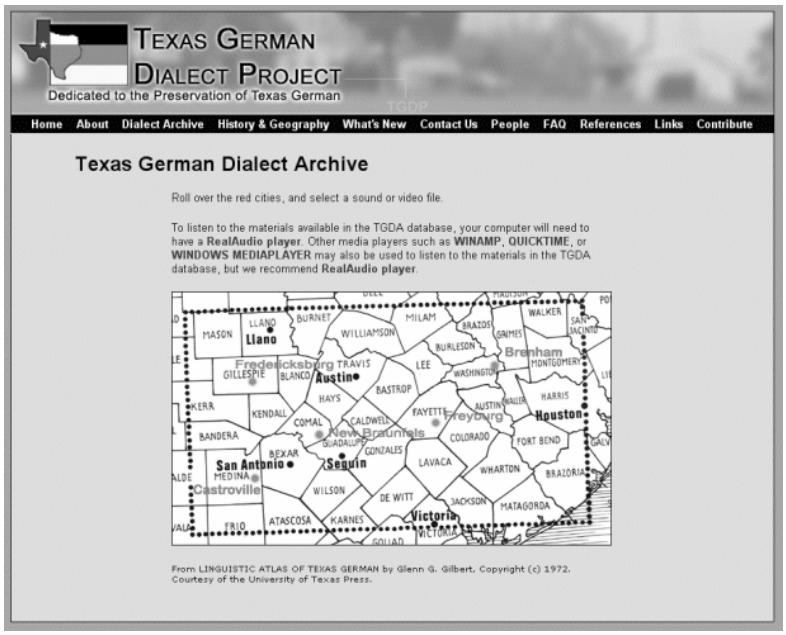

Figure 6. Map of Central Texas as a Graphic User Interface.

3. Combination of audio and visual information. There are at least three major varieties of Texas German spoken in west-central Texas (Fredericksburg, New Braunfels, Schulenburg). Each of the varieties has sub-varieties that differ from town to town. In order to be able to arrive at an understanding of the mechanisms underlying dialect contact, dialect change, and dialect death, students need to be able to learn about the geographical locations of the individual dialects and their sub-varieties. Visualizing the geographic proximity of the different varieties of Texas German, students understand how speakers of different dialects influence each other, highlighting key issues in research on the structure of dialects, dialect contact, dialect change, and dialect death.

Methodology.

Based on a collection of sociolinguistic interviews with some of the remaining native speakers of Texas German, the activities of the project include: (a) the transcription and translation of linguistic interviews of Texas German, (b) the alignment of the transcriptions and

translations with the audio and video data of the interviews,[2] (c) the development of a database of Texas German recordings, (d) the creation of an effective teaching and research tool that allows for repeated Web-based multimedia interaction with primary linguistic field data in the most accessible way possible.[3]

Avenues of support.

The project is currently supported by the CIT ~*FAST* Tex program and Liberal Arts ITS.

Outcomes.

Still under development, the *TGDP* will eventually include an interactive exercise list that will ask students to search for and identify specific linguistic features that are unique to Texas German. These linguistic features then will be compared with their counterparts in Standard German as well as other dialects of German as described on paper and audio-only archives. Here again, the exercises will be used in classes, but also will be available as tutorials accessible outside the classroom. Since the digitized interviews contain stories about different aspects of Texas German culture, language, and history, the *TGDP* may be used not only for teaching and research in linguistics, but also for teaching and research in anthropology, history, and geography.

The Cantar de mio Cid *Web site: Applying multiple, interactive presentation modes for multi-modal learning*

http://www.lamc.utexas.edu/Cid/

Figure 7. Opening screen for *Cantar de mio Cid* Web site.

The *Cid* Web site includes an original, oral rendition of the 3,735-verse Spanish epic poem in twelfth-century Castilian, digitized images of the *Cid*'s unique manuscript, paleographic and normative transcriptions, and an English translation. The *Cid* Web site provides an interactive educational tool that allows students to experience the poem orally, in its traditional medium.

The site employs new methods of digital archiving and applies interactive study tools to medieval texts in its four views. One purpose of these distinct views is to provide choice among multiple, interactive presentation modes. The interactive view juxtaposes digitized manuscript images, two transcriptions and English translation, with clickable, line-by-line access to every verse of the poem. The subtitled view, which presents illustrations from period manuscripts and recreates the poem's cultural milieu, allows users to choose paleographic, normative, or English texts. The remaining views offer enhanced study of the unique manuscript at two resolutions. A final option is to access the entire poem (5.5 hours) to listen to continuous, oral presentation while viewing moving subtitles from the normative transcription. All views highlight the oral rendition, but choices allow the user to opt for modes of presentation most appropriate to his/her individual study methods.

The primary innovative aspect of the project is the presentation of the various manifestations of the *Cid* in digital form, in one site. While first-rate textual versions of the poem exist, here in combination of the original, authentic oral rendition of an epic poem with textual and graphic materials in an interactive multimedia format is unique. The integration of these elements in an interactive format allows even non-Spanish speakers to appreciate the sounds and the cadences of the poem.

Methodology.

The materials were designed to enhance the understanding of the *Cid* as an orally performed epic narrative. The most important component of these materials is the oral rendition of the poem. Credible criteria were determined for the graphic representation and pronunciation of the poem's late twelfth-century Castilian, as well as the pace and style of delivery of the oral rendition. The paleographic transcription follows conventional scholarly criteria, while the normative transcription avoids nearly any editorial intervention. This approach makes more apparent the dependence of the textual materials on the manuscript as the written version of an oral performance.

Multimedia Web presentation methods were chosen with regard to technical capabilities and user accessibility: dynamic HTML with JavaScript and CSS, QuickTime, and Flash. A range of presentation possibilities was implemented with the aim of providing maximum choice, interactivity, and reinforcement for the end user.

The project was designed with the aim of automating as much production as possible with AppleScript and inter-application communications. Tools included LiveStage Professional, QuickTime Pro, Flash, HyperCard, Frontier, ProTools, Cleaner, and Adobe ImageReady. The

glue that held these applications together was scripting—20 AppleScripts and four authoring tools were created to aid in production.

In regard to production, the *Cid* is an innovative exemplar of leveraging self-authoring tools in the creation of large quantities of multimedia material. Outputting diverse multimedia treatments for an epic poem of 3700+ verses is no small task; scripted automation allowed the poem to be produced in a timely manner, with producer intervention reduced to a minimum. Innovation in intelligent application of production techniques is pertinent in higher education—a context in which time and funding resources are at a premium.

Avenues of support.

Liberal Arts ITS provided graphic design and production; Web site, multimedia, and application scripting, and authoring; server-side programming; and audio recording, editing, and compression.

Outcomes.

Faculty no longer need to spend class time teaching the language and students may learn free from the time constraints of the traditional classroom. The oral rendition has taken precedence over the written text. Professors no longer need to explain that the text is an imperfect representation of the original oral narrative and students can appreciate the poem in its richest dimension.

From a development perspective, a major multimedia Web site has been produced with an eye to serving w3.org standards-compliant browsers. The decision to organize and present Web site content in a manner that adheres to DOM2 and CSS1 standards lays the groundwork for future projects that can leverage the concept of “write once, deploy anywhere.” Heretofore, meeting such a goal has been practically impossible for Web content producers, and the lack of a

predictable product has been frustrating for end users. Production techniques related to integration of large quantities of multimedia source materials have been tested and proven useful. These methods and tools can be reused and repurposed.

The *Cid* Web site also received a 2002 IITAP award.

Footnotes

[1] Gilbert, G. (1972). *Linguistic Atlas of Texas German.* Austin, TX: University of Texas Press.

[2] For the transcription and translation of linguistic data, ELAN (EUDICO linguistic annotator) is used. It is a freely available tool developed by the Max-Planck Institute for Psycholinguistics in Nijmegen, Holland. See http://www.mpi.nl/tools for more details.

[3] For a more detailed description of the *Texas German Dialect Project (TGDP)* and its workflow, see (a) Boas, H. C. (2002). The Texas German Dialect Archive as a Tool for Analyzing Sound Change. In P. Austin, H. A. Dry, and P. Wittenburg (Eds.), *Proceedings of the International Workshop on Resources and Tools in Field Linguistics held in conjunction with the Third International Conference on Language Resources and Evaluation* (pp. 28.1–28.4) and (b) Boas, H. C. (2003). Tracing Dialect Death: The Texas German Dialect Project. In J. Larson and M. Paster, (Eds.), *Proceedings of the 28th Annual Meeting of the Berkeley Linguistics Society* (pp. 387–398).

Figure Captions

Figure 1. Web sites for *Tex's French Grammar* and *Français Interactif.*

Figure 2. Screen shot of grammar page from *Tex's French Grammar,* for the verb *finir.*

Figure 3. Example Web page from *Parlons Français.*

Figure 4. Web homepage for the *Foreign Language Teachers' Toolbox.*

Figure 5. Web entry page for the Texas German Dialect Project.

Figure 6. Map of Central Texas as a Graphic User Interface.

Figure 7. Opening screen for *Cantar de mio Cid* Web site.