

THE IMPACT OF SELF-INSTRUCTIONAL TECHNOLOGY ON LANGUAGE LEARNING: A VIEW OF NASILP

The National Association of Self-Instructional Language Programs (NASILP) is North America's oldest professional organization specifically devoted to fostering the study of less commonly taught languages (LCTLs) through self-instructional principles developed for an academic setting. NASILP provides channels through which member organizations share their areas of expertise. It promotes a modified form of self-accessed instruction to be assessed according to the "Prochievement" model, consisting of an oral achievement test in a proficiency modality given in the target language (Dunkel, 2000). A student's performance is evaluated according to the following criteria:

- Grammatical accuracy
- Vocabulary use and pronunciation
- Communicative competence: fluency, comprehension, and cultural appropriateness

Languages offered at various NASILP institutions vary from year to year depending upon demand. NASILP member institutions offer the following 49 languages:

American Sign Language	Hungarian	Romanian
Apache	Indonesian	Russian
Arabic	Irish (Gaelic)	Serbo-Croatian
Armenian	Italian	Siswati
Cambodian (Khmer)	Japanese	Slovak
Cantonese	Kazakh	Slovenian
Czech	Korean	Swahili
Danish	Lao	Swedish
Dutch	Latvian	Tagalog
Finnish	Lithuanian	Telegu
French	Mandarin (Chinese)	Thai
German	Norwegian	Turkish
Greek (Modern)	Persian	Ukrainian
Haitian-Creole	Polish	Urdu
Hebrew	Portuguese (Brazilian)	Vietnamese
Hindi	Quechua	Yoruba
Hmong		

NASILP has over 114 institutional members providing self-managed programs in the above languages to over 9,100 students. Most institutional members are universities (60%) and colleges (33%), although two-year colleges (3%) and

secondary schools (4%) are increasing in membership (all figures courtesy NASILP Secretariat). Institutional membership provides access to the Association's resources and services, especially in the area of curriculum design and instructional methodologies that incorporate a high degree of assessment (quality control) through a network of specialists from universities throughout the United States.

NASILP serves as the only direct national forum for the interchange of ideas and expertise for the development and support of self-instructional academic curricula for low enrollment languages. Any academic institution may apply for membership. Although the National Council of Less Commonly Taught Languages (NCOLCTL) is a growing link between 17 language and regional professional organizations, NASILP's guidelines affect over 114 programs directly via listserv, Web site, and annual conference.

NASILP provides member institutions with

Resources

- List of external examiners
- Recommended course materials
- Multimedia orientation and training materials for students, tutors, examiners, and coordinators
- CD-ROM language courseware

Consultation

NASILP offers consultations on the development of every aspect of self-accessed academic programs for the less commonly taught languages regarding the roles of the

- Student
- Tutor
- Tutorial session
- Examiner
- Coordination
- Guidelines for the standardization of testing procedures and curriculum design and operation

Annual conference and workshop

Members are encouraged to attend an annual 2-day conference and workshop. This conference is equally informative for new as well as long-standing members. It covers topics such as program design, budgeting, implementation of new language offerings, and the responsibilities of students, tutors, coordinators and examiners. It features presentations reflecting current research on issues pertinent to academically based self-accessed programs for LCTLs. The conference also provides access to

nationally recognized scholars in the fields of pedagogy, design, materials development, instructional technologies, and program administration, and establishes channels through which the special concerns and expertise of NASILP's institutional members are shared.

NASILP institutional structure

NASILP offers the following benefits to language programs seeking to offer LCTLs:

- It has a wide variety of language offerings, from the less commonly taught LCTLs such as Italian and Japanese to *the least* commonly taught LCTLs such as Apache, Kazakh, Lao, and Romanian.
- Its programs are cost-effective alternatives when it is financially unfeasible to hire full-time faculty for a very low enrollment language.
- Its methods have proven to be an academically sound, rigorous, and a viable alternative to traditional instructor-based language instruction.

NASILP was founded in 1973 to meet the needs of LCTL students at institutions where there were an insufficient number of traditional language classes. From the beginning it was oriented to meet the challenges presented by the distance between available faculty and interested students in institutions scattered throughout the US.

NASILP addresses the limited availability of LCTL faculty by providing member programs with contact information for language examiners throughout the country who agree to examine students according to NASILP guidelines. Accredited examinations provide students a standard by which to assess their language abilities. Honoraria, travel, and per diem are the only examiner-related program expenses. Audio-lingual practice is provided by tutorial sessions, in which a native speaker, engaged locally, meets with students two to three times a week to enhance student mastery of recorded materials studied daily on a student's own time.

NASILP offers a model that is thus much more cost-effective than standard language programs for the teaching of LCTLs. *However, it must be emphasized that NASILP's goal is to enhance and promote LCTL offerings, not to eliminate or replace existing departments and programs.*

New technology endeavors

Since NASILP's founding, technology has been at the center of its operation — the organization was created due to the development of the portable audiocassette tape recorder and the availability of text and tape materials from sources such as the Foreign Service Institute (FSI). The guidelines require that course materials offer practical, authentic language in the form of recorded materials. Cassette tapes have always been the most common media format, but are gradually being replaced by Computer Assisted Language Learning (CALL) materials in the form of CD-ROMs and Internet-delivered courseware. In 1999–2000, CD-ROMs accounted for 14% of

NASILP instructional materials, compared with 1% in 1998–1999 and 0% in 1997–1998. Textbooks with accompanying audiocassettes made up the remaining 86%; 11% of the materials included in the total incorporated both audio and video tapes (NASILP Secretariat).

In the past 4 years, with support from the National Security Education Program (NSEP), NASILP has developed the following four technology projects:

- The *Critical Languages Series*TM of six CD-ROM LCTL courseware sets.
- The *MaxAuthor*TM authoring system, dedicated to the production of language materials for dissemination on CD-ROM and the Internet.
- *LCTL FAQ pages* for Internet delivery, addressing language-specific questions frequently asked by both students and teachers, with special attention given to use of CALL materials.
- *NASILP guidelines* on the Internet for students, tutors, examiners, and coordinators (available to members at www.nasilp.org).

The following sections examine projects and their impact on student learning.

THE CRITICAL LANGUAGES SERIES

Lack of quality materials has been one of the major historic impediments facing language educators mainly because publishers have concentrated on the larger, more commonly taught language markets. The Critical Languages Series (CLS) of CD-ROM courseware for Brazilian Portuguese, Cantonese, Chinese, Kazakh, Korean, and Turkish was completed over a 3-year period. Each classroom-tested, MS-Windows double CD-ROM package contains 20 lessons for the beginning learner comprised of video dialogues and readings by native speakers, thousands of audio recordings, exercises, graphics and extensive cultural and grammatical notes. CLS was created with MaxAuthor, a freely available authoring system (see section below) that has been under development at the University of Arizona (UA) for the past 16 years. CLS was developed using NASILP guidelines, with additional refinements based on input from NASILP members and beta testing with NASILP students.

The CD-ROM format allows for the combination of multiple elements into a single unit — the equivalents of a conventional textbook, workbook, audio, and video. “*Beginning Cantonese* is...user-friendly, linguistically and pedagogically very sound, well conceived, and quite affordable” (Yang, 2001, p.623). The CD-ROM format (as opposed to Internet delivery) also reaches students who do not have access to an Internet connection, especially at home. Over 1000 copies of CLS titles have been sold and are being used by independent learners worldwide. Proceeds from the sales of the Critical Languages Series are funding new NASILP-oriented materials

projects, including “Continuing Kazakh” (Level II) and “Beginning Tohono O’odham.”



Figure 1. CLS CD-ROM cover

ACCOMMODATING LEARNER STYLES

CLS accommodates different learning styles in an innovative and integrative way. The authors have provided a suggested activity list for each lesson, meant as a guide to optimize student use of their materials. Students are encouraged to adjust the sequence of activities to reflect their own personal learning strategies. However, they are not required to access or adhere to this list, and may choose to pursue the materials independently. Studies have shown that many students respond more positively to learning through aural or visual elements, while others are more comfortable with textual materials (Lepke, 1977). Not only does this provide ample material for these different learning affinities, it integrates them together: text corresponds to audio and video. Text and audio are directly combined in exercises like *Pronunciation*, *Listening Dictation*, and *Audio Flashcards*. Learners are thus able to study according to their own preferences, but can also easily expand on these by regular use of all the elements of the courseware. This can also serve to keep student interest — a key element of self-instruction. “*Beginning Brazilian Portuguese...* content is rich, organized and up-to-date. It accommodates different learning styles, and allows students to explore Brazilian culture, vocabulary, and grammar in context” (Jouët-Pastré, 2000). CLS is currently being used in three settings: the traditional classroom; a modified self-instructional setting; and completely self-instructional, non-credit contexts.

VIDEO

The cornerstone of CLS lessons is provided by video dialogs. These convey a story line with well-developed characters. Research has supported the use of video in CALL materials:

The investigation has yielded the conclusion that a video clip is more effective in teaching unknown vocabulary words than a still picture. Among the suggested factors that explain such a result are that video better builds a mental image, better creates curiosity leading to increased concentration, and embodies an advantageous combination of modalities (vivid or dynamic image, sound, and printed text). (Al-Seghayer, 2001, p. 202)

The introduction of video also creates a contextual situation to help develop cultural awareness. For example, in *Beginning Brazilian Portuguese*, a video clip shows conventional hand gestures used by Brazilians to convey concepts that reflect Brazilian cultural mores. Both Cantonese and Chinese give multiple examples of poetry recitations: There are children's poems used in games, adult poems used to convey serious philosophical and literary concepts, and in one case, a Cantonese call-and-response poem done in a playful dramatic style.

The CD-ROM format provides rich multimedia interaction in which is difficult to duplicate on the Internet because of limited or unreliable bandwidth, although this should be possible in the near future.

CRITICAL LANGUAGES SERIES ASSESSMENT

Determining the effectiveness of language learning technology is well known to be a very difficult problem. One major reason for this is that the validity and reliability of instruments measuring student outcomes on language competency are questionable and highly variable (Noijons, 1993). This is especially troublesome for LCTL materials since there are so few students using language technology, resulting in very little quantitative data. We have made a great effort to have each one of the Critical Languages Series reviewed by the major academic journals in the field (Al-Seghayer, 2001; Son, 2000; Sandrelli, 2000; Wells, 2000; Zheng, 2001). These reviews as well as student surveys, comments from users, and emerging academic research on language acquisition, will help shape our future courseware.

Beginning Korean and Turkish language courses at UA used CLS CD-ROMs as primary "texts" for the 2000–2001 academic year. Students were given a full demonstration of the features of the CD-ROMs at the beginning of the academic year. They were instructed to use the CD-ROMs daily for at least an hour outside of class. In doing so, they were expected to familiarize themselves with the content of the lesson texts, to use the exercises and multimedia components to improve their knowledge of vocabulary and grammatical structure, and to sharpen their skills in pronunciation and listening comprehension. Twice a week, they met for an hour in small groups with native-speaking tutors in the target language. Utilizing printouts of the lesson texts from the CD-ROMs, tutors reviewed subject topics and linguistic features presented in each lesson by means of role-playing exercises and lesson dialogs.

The CLS courseware development team prepared a questionnaire to be answered anonymously by these students in order to elicit their opinions regarding use of integrated multimedia and hyper-textual materials as primary course "texts," and in

order to indicate patterns of use for these materials. The questionnaires were attached to a UA/ Critical Languages Program (CLP) course evaluation form given to each student as s/he emerged from the individually administered oral final examination at the conclusion of the 2001 spring semester. Twenty-four Turkish students and eight Korean students filled out the questionnaire, providing a sample of 32. Details of this survey are shown in Figures 2 through 8.

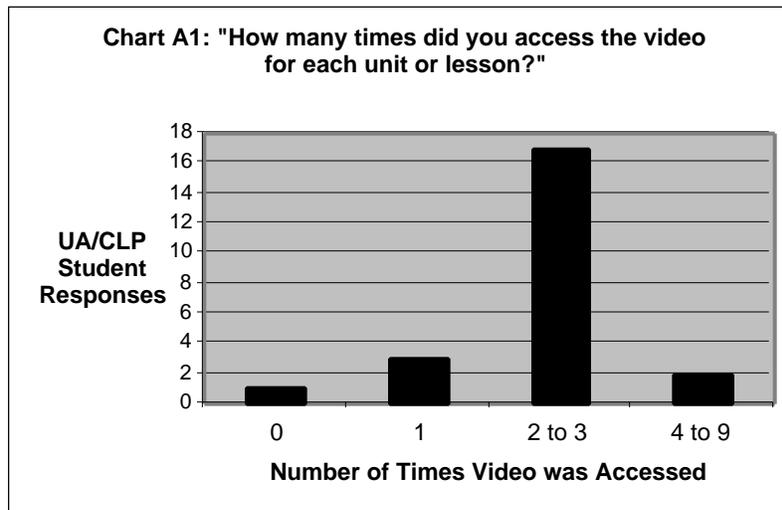


Figure 2. In response to the question "How many times did you access the video for each unit or lesson?"

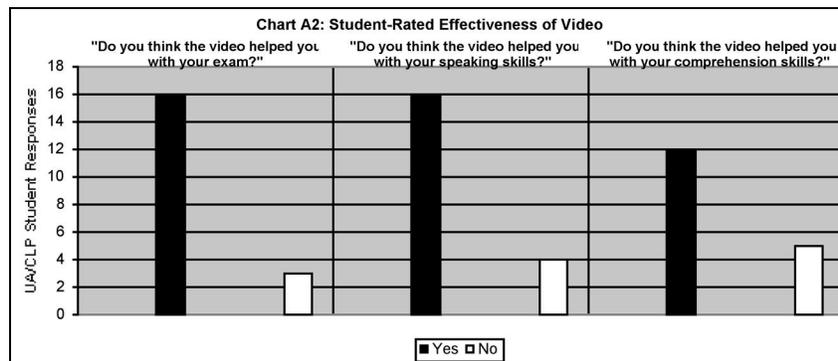


Figure 3. Student-rated effectiveness of video

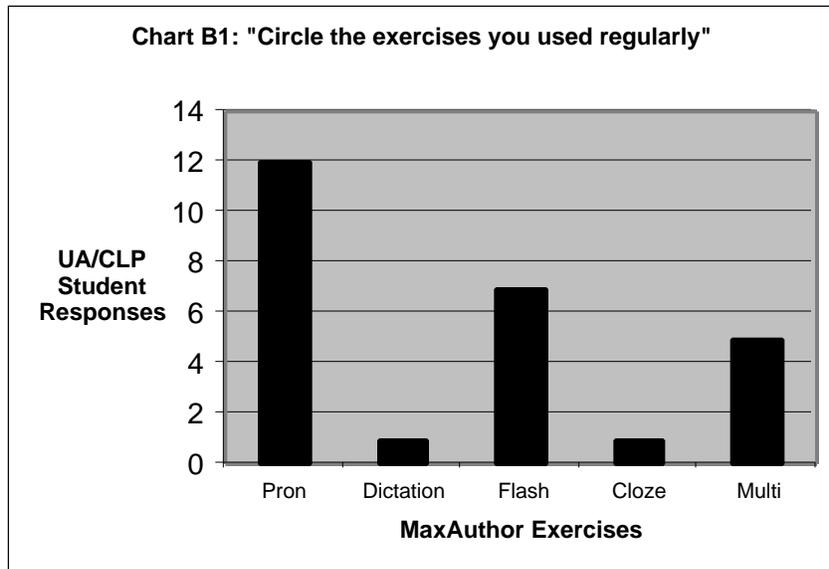


Figure 4. In response to the instruction "Circle the exercises you used regularly."
 Please see Appendix A: MaxAuthor Exercise Formats for descriptions of each exercise activity.

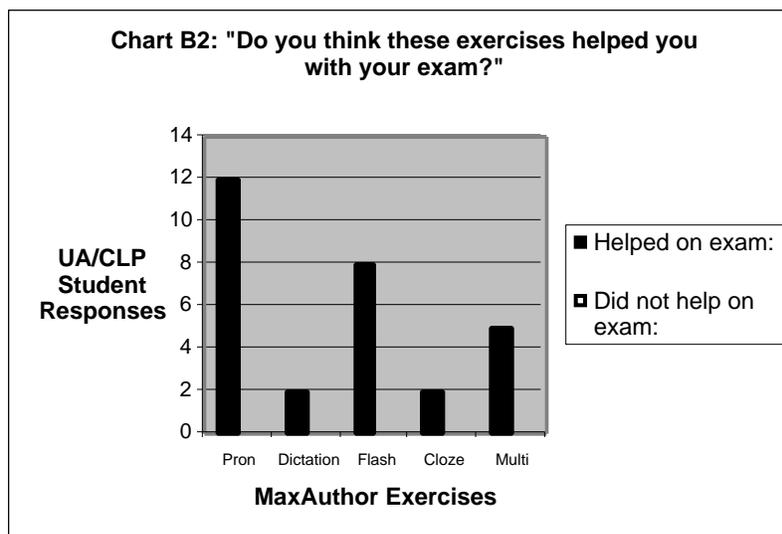


Figure 5. In response to the question "Do you think these exercises helped you with your exam?"

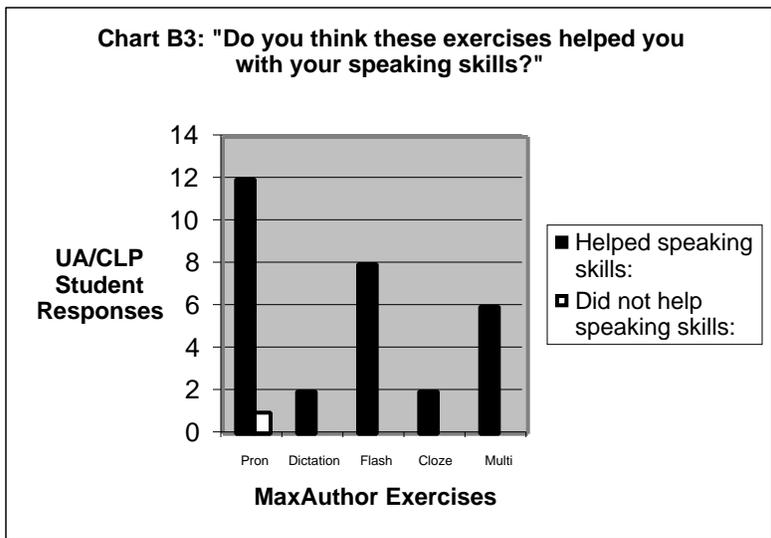


Figure 6. In response to the question "Do you think these exercises helped you with your speaking skills?"

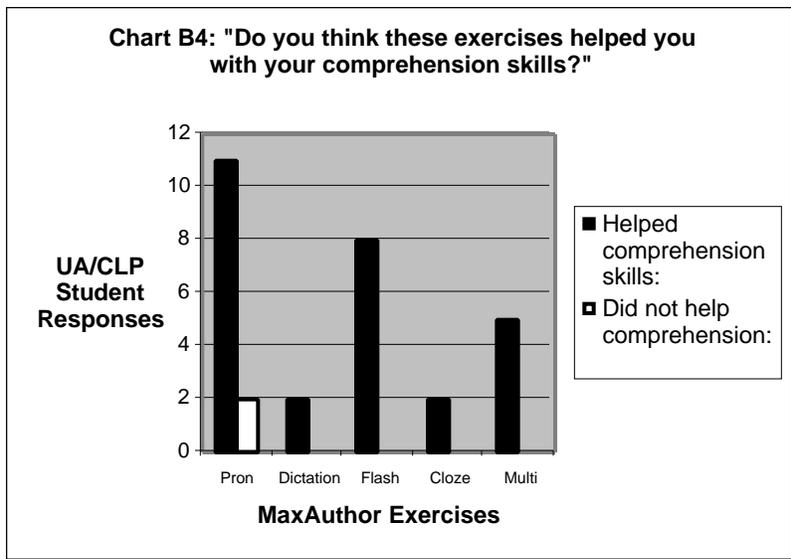


Figure 7. In response to the question "Do you think these exercises helped you with your comprehension skills?"

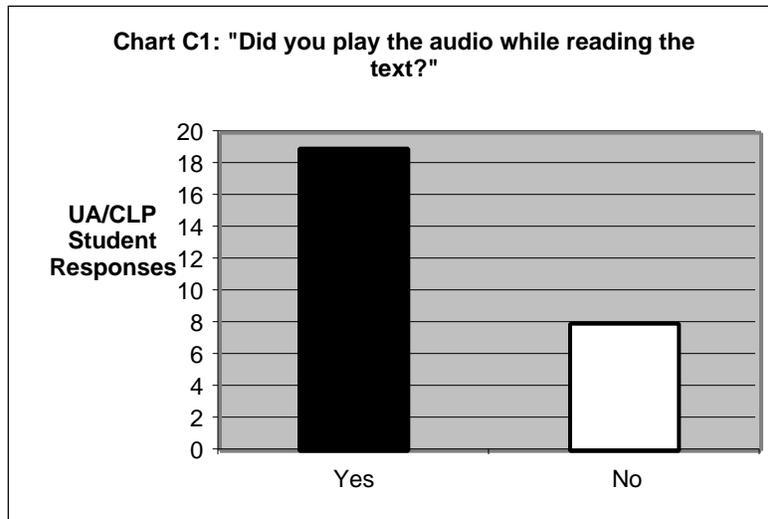


Figure 8. In response to the question "Did you play the audio while reading the text?"

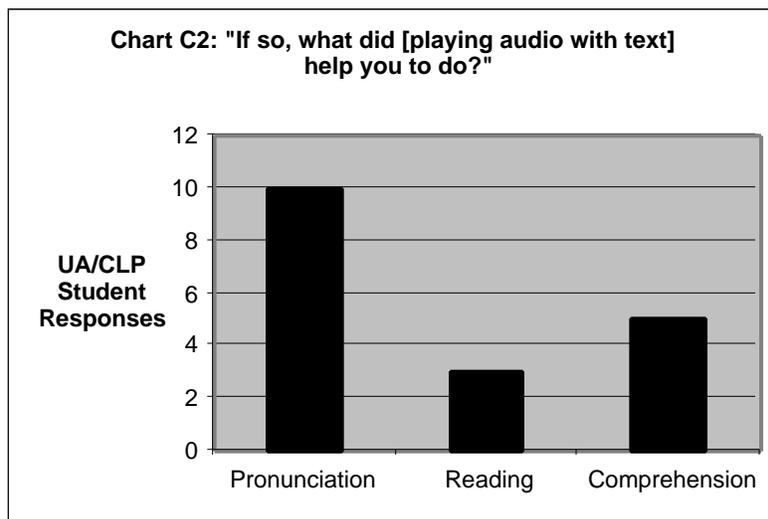


Figure 9. In response to the question "If so, what did [playing the audio with the text] help you to do?"

One of the more notable findings resulting from the questionnaire is that the students reported that the CD-ROMs' exercises, particularly *Pronunciation* and *Audio Flashcards*, helped them prepare for examinations, and improved their speaking and comprehension skills (Figure 5, 6, and 7). Video was also shown to be

helpful for these purposes (Figure 3). Students reported that they did not access the word and sentence audio recordings while reading the lesson texts proper as regularly as they did the video (Figures 2 and 8). However, the central role played by word and sentence audio recordings in *Pronunciation*, *Listening Dictation*, and *Audio Flashcards* exercises demonstrates their usefulness as applied to other contexts. Finally, the indications that *Listening Dictation* and *Vocabulary Completion* were not used as often as other courseware features identify these as subjects demanding further research — in assessment of our current products as well as toward future courseware development.

Although these are subjective assessments given at a single point in time, the context in which they were given is a critical and revealing one. Because they were volunteered by students immediately after completion of the final examination, before final grades had been given, they reflect each student's self-assessment of her or his own language capabilities, as *directly related* to their use of CLS CD-ROMs to gain these capabilities. Although this context does not ensure greater accuracy of assessment, it provides a valuable view of individual patterns of use and personal feedback given independent of institutional accreditation. The CLS courseware development team is currently preparing a formal, long-term research design to further assess its accomplishments.

MAXAUTHOR: A FREE MULTIMEDIA AUTHORING SYSTEM FOR LANGUAGE INSTRUCTION

The University of Arizona's Computer Aided Language Instruction Group (CALI) has made its MS-Windows and Internet-based multimedia CALL authoring system freely available for non-commercial use (<http://cali.arizona.edu/docs/wmaxa>). MaxAuthor has been under development for 16 years and was used by authors nationwide to create the Critical Languages Series of language instructional CD-ROMs. After a two-hour tutorial, MaxAuthor enables teachers with only word-processing computer skills to create interactive exercises and multimedia instructional materials for 22 languages, including Cantonese, Chinese (with optional Pinyin), Dutch, English, French, German, Italian, Japanese, Kazakh, Korean, Lummi, Mojave, Navajo, O'odham, Pinyin Romanization (Mandarin), Portuguese, Russian, Southern Paiute, Spanish, Swedish, Turkish, and Yaqui. Additional languages are under development. Completed courseware can utilize audio, video, footnotes, and graphics. Student activities include MaxBrowser, Listening Dictation, Pronunciation, Multiple Choice, Vocabulary Completion, and Audio Flashcards. Lessons can be delivered via Internet or MS-Windows. Improvements are continually being made to the software.

The author records separate audio for both sentences and words and has the option of recording audio in the training language only, but can also record translations or paraphrases in up to five other languages or dialects. The author can either manually define the word and sentence boundaries or let MaxAuthor choose the boundaries automatically.

MaxAuthor works just like a text editor with tools that add audio and exercise material; there is no programming or scripting necessary. The author selects one of the five authoring views: Word, Sentence, Multiple Choice, Footnote, or Cloze (Vocabulary Completion). The tools within MaxAuthor let you play, record, or edit recordings. When the *Record All* menu choice is selected, MaxAuthor sequentially records each word or sentence. When a lesson text is comprised of multiple occurrences of the same word, there is an option of using the same recording for each occurrence to avoid re-recording the same word.

Once audio has been recorded for the lesson, the student can immediately use *MaxBrowser*, *Listening Dictation*, *Pronunciation*, *Multiple Choice*, *Vocabulary Completion*, and *Audio Flashcards* without further customization. By adding more information to the lesson such as multiple choice questions, multimedia footnotes, and custom Vocabulary Completion blanks, the richness of the student's interaction with the lesson can be further enhanced. It is the instructor's choice to decide how much time to invest in the lessons.¹ There are approximately 150 registered users of MaxAuthor worldwide.

To this end, language instructors designed MaxAuthor from its inception for ease of use. As Dr. Dana Bourgerie, Head of the Chinese Section, Brigham Young University states

Anyone with moderate, general computing skills should be able to author lessons in a short time. Indeed, after giving an hour introduction to my research assistant, she was able to create basic MAX lessons. I began authoring lessons after a short orientation session. I find the hyper linking feature easy to use and convenient in providing graphics and notes. I have found the program to be very stable. (D. S. Bourgerie , personal communication, March 28, 2000)

CHALLENGES OF DELIVERING LCTL MATERIALS ON THE INTERNET

Even though the Web is worldwide, most Internet browsers have difficulty displaying many of the world's most common languages. Fortunately, this situation is improving. MaxAuthor can deliver online language lessons in all of the 23 languages supported; see <http://cali.arizona.edu/maxnet> for examples. For Cantonese, Kazakh, Navajo, and O'odham, custom embedded fonts are used due to the lack of browser support.

NASILP GUIDELINES ON THE INTERNET

Since November 2000, NASILP has been using the Internet to disseminate guidelines for students, tutors, examiners, and coordinators. RealServer™ is being used using to stream (transmit) materials that were previously only available on

¹ MaxAuthor workshops have been presented at the following conferences: CALICO 2000, 2001, NECTFL 2001, and IALL 2001. There are approximately 150 registered users of MaxAuthor worldwide.

videotape mailed by a central distribution point. Digital delivery of these guidelines provides an added benefit: The transcripts of the guidelines can be searched by keyword so that topics of interest can be accessed without “rewinding” or “fast forwarding” an entire videotape. These materials were designed with the parallel intent to encourage users (especially new NASILP members) to become familiar and comfortable with multimedia-based learning methods and the concept of learner-directed instruction.

A freely accessible Web page, <http://clp.arizona.edu/nasilp/sample.htm>, enables students to see and hear NASILP’s Distinguished Director, Eleanor Jordan, and Executive Director Emeritus, John Means, answer questions about NASILP and help students understand their role in a modified self-instructional language program. It also shows prospective member institutions the kind of materials available if they join NASILP. This and other interactive informational resources are available to current members in the password-protected “Members Only” region of the NASILP Web site.

LCTL FAQ PAGES ON THE INTERNET

NASILP is facilitating pedagogical support for LCTLs through the Internet. It is expanding its Web site to include detailed, hyperlinked reference pages addressing language-specific questions frequently asked by both students and teachers, with special attention given to use of CALL materials. Currently, reference pages have been completed for seven LCTLs, including Brazilian Portuguese, Chinese, Czech, Japanese, Korean, Polish, and Ukrainian. Twelve additional languages including Arabic, Cantonese, Hindi/Urdu, Hungarian, Kazakh, Persian, Rumanian, Russian, Serbo-Croatian, Thai, Turkish, and Vietnamese are in the planning stage. Each LCTL will be represented by a unique set of resources, developed by a designated expert for each language.

The infrastructure of NASILP will continue to grow and be strengthened through a comprehensive professional development and recruitment effort that involves greater use of Web pages and links to assess and remedy needs in the LCTL teaching and learning community. The growing electronic network linking several institutions and programs will further strengthen other institutional networks and linkages nationwide, a primary NSEP goal.

DISCUSSION: CURRENT INSTRUCTIONAL TECHNOLOGIES

The following is in response to questions posed by NSEP for the present study.

Having illustrated the organization of NASILP and discussed the recent technology projects undertaken, specific research questions can now be addressed by summarizing the integration of its existing infrastructure with its technological projects.

USERS

NASILP utilizes technologically based self-instructional materials, including Computer Assisted Language Learning (CALL) course materials. CD-ROM CALL technology has been enthusiastically accepted by users and program administrators, and is expected to replace cassette and videotapes as high-quality courseware becomes more readily available. NASILP directors have also expressed interest in the delivery of CALL materials on the Internet.

NASILP has found that the use of CD-ROMs can significantly reduce student costs provided that they have been designed as a complete course, as is the case with the Critical Languages Series (see above). This, combined with NASILP's established method of sharing institutional resources, addresses issues of both equity and diversity by bringing more languages, even those least commonly taught, within the reach of a broader range of students and institutions. The CD-ROM format is self-contained, which allows students to study on their own time.

The Critical Languages Program at the University of Arizona (CLP) provides an example of how institutional guidelines may be combined with emerging technologies to improve availability, quality, and sustainability of LCTL instruction. CLP courses are established according to student demand, and consist of four to seven students. Media-enhanced course materials allow students daily exposure to spoken language at any time. Audio-lingual practice of these materials is provided by tutorial sessions.

The following factors contribute to low attrition rates at UA: (a) courses are established according to student demand; (b) they are supported by a supplementary fee paid by each student; and (c) all students are instructed on self-motivated learning policy regarding student responsibilities, and are required to sign a memorandum of acceptance before beginning a course.

USES

Our guidelines require that course materials offer practical, authentic language in the form of recorded materials. Materials should be structured in order of increasing linguistic complexity. Content should be presented in order of decreasing commonality of everyday use. Attention should be given to the behavioral culture of societies that use a given language. If both written and spoken elements are to be covered in a course, spoken language should be introduced before written language, and stylistic differences between the two should be stressed. All materials presented in the text for a given course should be addressed in its accompanying recorded media. Recordings should be of native speakers, and should represent conversational language in authentic context.

The Critical Languages Series (CLS) was created with MaxAuthor by a consortium of linguists and computer programmers. MaxAuthor allows authors a format in which non-language technologies, such as hypertext, digital audio and video, and

database technology, can be directly applied within lesson texts to language-based technologies such as syntactic categorization, vocabulary extraction, parsing, and text generation.

RESOURCES

Because examiners in LCTLs are not commonly available, NASILP provides contacts with language instructors from the entire United States who agree to give examinations for a given program according to NASILP's "prochievement" model. Honoraria, travel, and per diem are the only examiner-related program expenses. It is not uncommon for one examiner to be affiliated with more than one program.

Student audio-lingual practice is provided two to three times a week in tutorial sessions with a native speaker, engaged locally by a program. Because the native speakers are tutors and not teachers — and thus do not choose materials, set pacing, explain grammar, or give exams or grades — they are not as costly as full-time instructors but are active collaborators in consulting with the examiner to create realizable guidelines.

Our own experience on the UA campus provides a positive example of a self-instructional program as an asset to its host institution despite low enrollments. The CLP works as an instructionally self-sustaining program, in which language sections of four to seven students are established according to student demand, and supported by a supplementary fee paid by each student. This fee covers support services, and native-speaking tutor wages and examiner honoraria. Students are required to purchase their own course materials. Course establishment by student demand reduces attrition rates (7% in 2000–2001), as does the supplementary fee. Small sections allow greater opportunity for applied specialization in content. The Turkish courses are so overwhelmingly attended by engineering students that much of the course's content is now related to engineering. CLP also has its own facilities for courseware production, which have been assisted by NSEP funding, and sustained through returns from commercially published courseware. Thus, at little cost to the university, it generates competency in 14 LCTLs, hosts visiting scholars and professional delegations, and produces critically acclaimed, state-of-the-art language courseware that is now used at institutions throughout the country and abroad.

MaxAuthor enables teachers with only word-processing computer skills to create interactive exercises and multimedia instructional materials for 18 LCTLs, plus English, French, Spanish, and German. After a two-hour self-instructional tutorial, teachers are able to produce materials that can be tailored to their specific instructional needs and contexts — from supplementary exercises at the introductory level to specific sustainment training tasks at Level II and above.

BENCHMARKS

NASILP achievements are summarized below according to the following benchmarks, defined by the Institute for Higher Education Policy (2000):

- *Institutional support: infrastructure issues, technology plan.* NASILP's status as a national organization with nearly 30 years experience, and its membership of over 114 institutions, provides an important infrastructure network for LCTL teachers. It was founded on and is dedicated to the principle of technologically based course materials utilizing a prochievement examination modality. NASILP is also active in maintaining professional ties with other national organizations such as the National Conference on Less Commonly Taught Languages (NCOLCTL).
- *Course development: design, delivery, technology used.* The limited availability of LCTL teachers makes the self-instructional format imperative for the dissemination of LCTL learning. CALL's hyperlinked multimedia/text approach allows author-directed and student-directed learning patterns to converge and collaborate.
- *Teaching/learning: pedagogy, student interaction with faculty, feedback to students.* Current research is highlighting the pedagogical strength of CALL in engaging students and providing them with unlimited access to new vocabulary, native pronunciation, and typical speech patterns. NASILP's learner-directed approach provides feedback for students through the tutorial sessions with native speakers, who allow regular speech practice and thus greater familiarity with the spoken language. This improves pronunciation, comprehension, and speech generation ("thinking through the language"). The presence of accredited examinations provides incentive for students to keep up with the course, and gives them a standard by which to assess their language abilities.
- *Course structure: course objectives, library resources, student expectations.* UA/CLP provides an example of how NASILP programs can be self-instructionally sustaining. Courses are established according to student demand and are supported by a supplementary fee paid by each student. This fee covers support services, tutor wages, and examiner fees. Students are required to purchase their own course materials. Course establishment by student demand reduces attrition rates, as does the supplementary fee. Small sections allow for greater opportunity for applied specialization in content.
- *Student support: admissions, financial aid.* Expenses related to the use of multimedia materials have been significantly reduced at UA/CLP through use of CALL materials. CD-ROM-based materials such as the Critical Languages Series allow multiple elements — the equivalents of a conventional textbook, workbook, audio, and video — to be combined into a single unit, the cost of which is typically less than the sum total cost of conventional components. The impending development of Web-based materials will significantly reduce the duplication and distribution costs demanded by CD-ROM production.

- *Faculty support: assist in transition from classroom teaching to online instruction.* After a 2-hour tutorial, MaxAuthor enables teachers with only word-processing computer skills to create interactive exercises and multimedia instructional materials for 18 LCTLs (others are under development) that can be tailored to their specific instructional needs and contexts — from supplementary exercises at the introductory level to specific sustainment training tasks at Level II and above. Instructor access to multimedia equipment — from a simple scanner to a video camera — allows for a variety of authentic linguistic and visual materials to serve as the basis for instructional activities and exercises.

CONCLUSION

Since 1973, NASILP has served as the largest and oldest national forum for the interchange of ideas and expertise toward the development and support of self-instructional academic curricula for LCTLs. NASILP's 114+ member institutions communicate via listserv, Web site, and an annual conference. These member institutions (universities, colleges, and high schools) help over 9,100 students learn nearly fifty LCTLs nationwide. With NSEP funding, NASILP has collaborated with the University of Arizona's Critical Languages Program (CLP) and Computer Aided Language Instruction (CALI) group to a) improve the delivery of information facilitating the administration of member LCTL programs; b) create critically needed, original multimedia language instruction materials based on NASILP guidelines; and c) provide a freely available authoring tool that instructors can use to create their own multimedia language materials.

NASILP's institutional network facilitates assessment of its achievements in CALL. Use of these CD-ROMs has reduced student costs (all courseware components, including text, exercises and media, are contained in one package) and allowed students to use courseware components in an interactive, integrated format on their own schedule. Student surveys show that the CLS CD-ROMs were particularly helpful in preparing for examinations and for improving speaking and comprehension skills.

The support of a national organization such as NASILP has had impact on decisions made by institutions throughout the United States to provide instruction in LCTLs. The successful technology projects discussed here will continue to greatly enhance NASILP's guidance and assessment of LCTL instruction in the years to come, and therefore increase learners' opportunities to study and master these sometimes neglected but strategically important languages.

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APPENDIX: THE MAX FAMILY OF STUDENT APPLICATIONS

MAXBROWSER: A HYPERTEXT MULTIMEDIA BROWSER FOR LANGUAGE INSTRUCTION



MaxBrowser lets you

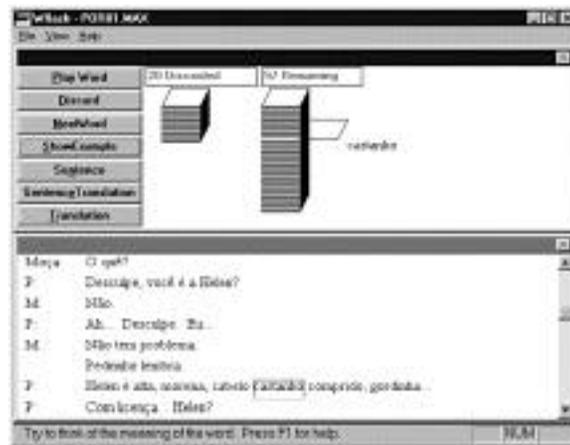
- Browse through text with grammatical or cultural footnotes attached. Some footnotes may lead to other lessons, graphics, video.
- Listen to native pronunciations of words and sentences.
- Record your own voice and compare to the native pronunciation.
- Gain further insight into the material by the completion of exercises.

The menu buttons *Word* and *Sent* select either the words or the sentences of the lesson to play. MAX treats lesson text as a collection of words and sentences. There are separate audio recordings for both sentences and words to let you hear the contextual differences between words spoken in isolation and words spoken in sentential context. You can press *W* or *S* to quickly switch between *Word* and *Sent*.

- 1 Like the *Back* button in an Internet browser, it allows return to previous page.

- ② Three views of text: *Word*, *Sentence*, and *Footnote* (here *Word* view is selected). When underlined word or phrase is clicked, hear the native speaker.
- ③ Click to *Play All* segments (word or sentence) starting from current position.
- ④ *Record* your own voice. Recording continues until *Stop* button is clicked.
- ⑤ After recording your voice in word or sentence, click to play back; then compare your voice with native speaker's.
- ⑥ *Stop* any audio, such as *Play All* or *Record*.
- ⑦ Try one of five available exercises to test and improve your knowledge of the lesson:
 - Cloze*: (fill-in-the-blank) click on blank and type in your answer
 - Multiple*: multiple choice
 - Dictate*: play sentences from lesson; type what you hear
 - Flash*: audio-based flashcard
 - Pron*: helps with pronunciation by playing each word or sentence, then recording your voice to compare with the native speaker's
 When you are finished with an exercise, you are returned to MAX.
- ⑧ *Help* explains button or menu function.
- ⑨ *Footnote* window. Drag separator bar up or down to resize footnote window.
- ⑩ A *Word* or *Sentence* that you can click on to hear spoken. Click left mouse button to hear the native language and right mouse button to hear English translation (where available).
- ⑪ *Video Footnote Indicator*. The icon indicates attached video *Footnote*. Green underlines or icons indicate attached footnote. Either click on icon or switch to
- ⑫ *Footnote* window for easier access. Footnotes may be textual, graphic, audio, or video, or may access another lesson (a hyperlink).

AUDIO FLASHCARD EXERCISE

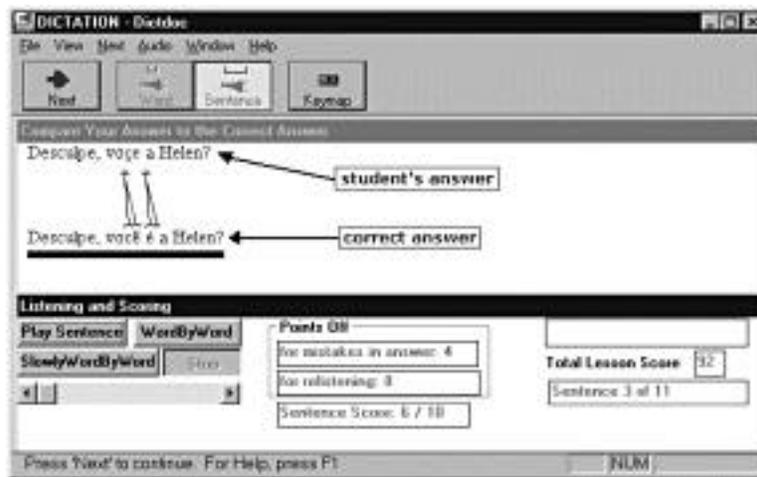


For each lesson, this self-evaluative exercise helps you improve your vocabulary by displaying a deck of visual/aural flash cards. These words are taken directly from the lesson text you have been studying. As each word from the lesson is shown and played, your task is to try to remember of the meaning of the word. When you feel you know the word well enough, the flashcard can be “discarded” so the word will not appear again. The *Remaining* and *Discarded* decks are shown graphically, giving you a feel for your progress.

When a word appears for which you do not know the meaning, you can use some of the clues provided to jog your memory:

- *ShowExample*: shows you an example of the word used in context
- *Sentence*: plays the sentence that the word is a part of
- *Sentence Translation*: plays the translation of the sentence of which the word is part
- *Translation*: when you give up, plays the translation of the current word

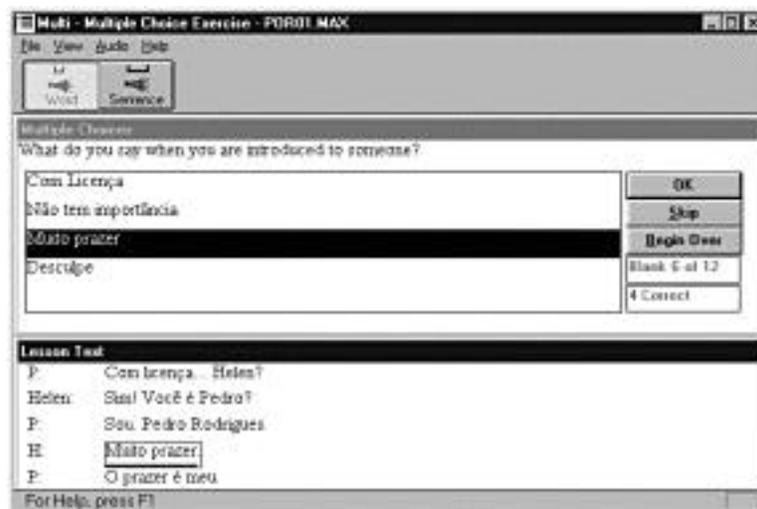
LISTENING DICTATION EXERCISE



For each lesson, the instructor designates sentences for you to listen to and then type in what you hear. A score is kept to let you know how well you are doing, and you are given immediate feedback on the correctness of your answer with marks that show where mistakes were made. While trying to complete the sentence, you can re-listen to it or listen to it “word by word” or “slowly word by word.”

You can also print out a transcription of your answers which can be given to your instructor to show your progress.

MULTIPLE CHOICE EXERCISE



For each lesson, the multiple choice exercise asks questions about a target word or phrase in the lesson text you have been studying. A score is kept to let you know how well you are doing. Simply double click on a choice, and you are given immediate feedback on the correctness of your answer.

Once you have completed all of the multiple choice questions, you are given an opportunity to try again to correctly answer the questions you missed. This process continues until you get them all correct. You can always click on a word or sentence to hear it spoken.

When you have answered the last multiple choice question correctly, you can repeat the exercise by clicking on *Begin Over*, or quit the exercise. You can also print out a transcription of your answers which can be given to your instructor to show your progress.

VOCABULARY COMPLETION (CLOZE) EXERCISE

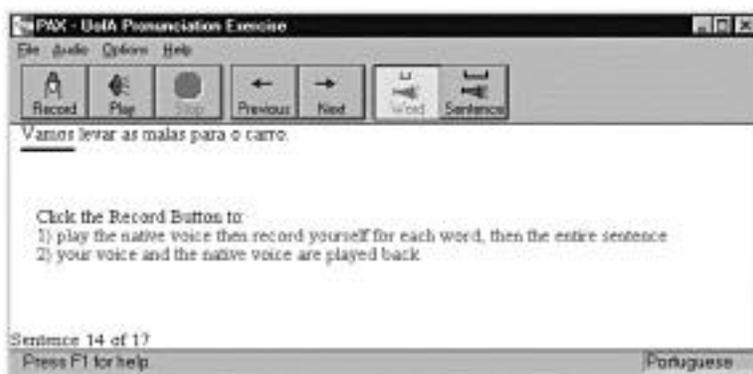


For each lesson, the vocabulary completion (also called Cloze) exercise asks you to fill in the blanks. The blanks may be words or simply a few characters. For some blanks, the student types in an answer and for others, the student selects from a list of choices. When you are finished filling in the blanks, you are shown the correct answers along with your score.

Cloze test performance has proven to be a reliable measure of language ability, which has led to its acceptance in language proficiency certification. The value of the Cloze exercise is that the student must use the context of the entire passage to make the correct selections. The text that you are working with is exactly the same

lesson text you've seen before in MaxBrowser, Multiple Choice, Dictation, Pronunciation, and Flashcards. Your previous experience with the text provides additional clues in filling in the blanks. You can print out a transcription of your answers which can be given to your instructor to show your progress.

PRONUNCIATION EXERCISE



The pronunciation exercise is designed to help students improve pronunciation of words and sentences. This exercise mimics one of the techniques instructors commonly use to improve a student's pronunciation. It first plays the native speaker's voice, and then prompts you to say the same thing (while the appropriate text is being highlighted). You record each word sequentially, and then the whole sentence. After the recordings are completed, the native speaker's voice and the student's voice are played "back-to-back" so the student can compare them. You do not have to press any keys during this process, as the length of the native speaker's recording automatically determines the length of recording for each word.

The text that you are working with is exactly the same lesson text you've seen before in MaxBrowser, Multiple Choice, Dictation, Vocabulary Completion, and Flashcards.