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ABSTRACT

This paper discusses the use of technology in instruction. It begins by examining research on technology and indigenous languages, focusing on the use of technology to get community attention for an indigenous language, improve the quantity of quality language, document spoken language, create sociocultural learning contexts, improve study skills, and expand reading comprehension skills. It describes the state of the Hupa language, focusing on a Hupa language class for the community on the Hoopa Valley Indian Reservation and noting that acceptance of technology among fluent speakers of an indigenous language can influence how successfully technology is used. Because Hupa is still a spoken language, the language class maintains an oral focus, with technology being a tool rather than an end to instruction. The paper describes how to create language lessons in a community language class, explaining that linking language lessons to objectives identified in prior research in technology and state curriculum standards makes language lessons more likely to be accepted by public school educators. It offers a process for developing a language curriculum that teachers can adapt to their own classroom situations (create a context for language, present a language lesson in the classroom, and develop a series of lessons). (Contains 39 references.) (SM)

Saving a Language with Computers, Tape Recorders, and Radio

Ruth Bennett

Every language is a window on the human soul, and whenever one is closed forever, that narrows our outlook much more. (Editorial, 2001)

In California, efforts to save indigenous languages have a century long history. The use of technology in ever-new ways is a part of that history. The earliest technology to encounter an indigenous language was the wax cylinder. This instrument was used for recording the sounds of the languages from native speakers' voices. The newest technology involves new media uses, new recording equipment, and new multi-media software among other innovations. Teachers, students, and others communicate in their native languages through e-mail messages, faxes, and web pages. Web pages exist for the Hupa, Karuk, and Kumeyaay languages of California. A Yurok language teacher sends language audiotapes to her grandson in college in Oregon (Hinton, 2001a). In the Hoopa tribe's *Aht'ine Ch'o:yałts'it* Education Department, the Hupa Language, Culture, and Education program records language classes with a digital tape recorder and burns CD recordings.

Attitudes toward technology within indigenous language programs range from the belief that technological is significant in language survival to the view that technology is unnecessary. It is useful to look at research covering the entire range of attitudes since the success of technology in a language program depends upon who uses it. Advocates (see e.g., Arthurs, 2001; Reyhner, 1999) for the benefits of technology for the language classroom cover areas ranging from individual learning styles to strategies for teacher training and materials development. Most recently, educators have advocated the use of technology for community education in the form of newsletters, newspapers, radio, and television.

Studies, such as Adley-SantaMaria's (1997), discussing positions unfavorable to technology have generally concerned native people's attitudes and beliefs toward documenting their languages. These attitudes do not seem to be toward technology, *per se*, but rather toward any sort of recording. Some native speakers have objected to having their languages written down in the apparent belief that writing weakens a language meant for speaking. Others do not want their languages written because they do not want to provide access to non-indigenous peoples. Still others feel that there are things in this world best left uninvestigated, unsaid, and not revealed (Adley-SantaMaria,1997).

My own experience has shown that disadvantages of technology are unrelated to the potential of the technology as tools, but rather owing to the fact that having technology involves expenditures of funds, which can generate conflicts. Because of the value in pursuing instructional issues rather than political issues, I discuss technology from an instructional point of view. I first describe some of the studies involving the use of technology in Indigenous language preserva-

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tion. Second, I describe the state of the Hupa language as it affects the use of technology in the language program. Third, I present a technology-assisted process for creating language lessons.

Research on technology and Indigenous languages

Research on technology and indigenous languages includes a variety of modes of technology, including computers, recording equipment, and broadcast media. The following sections are concerned with the use of technology in relation to the following issues: getting community attention for an indigenous language, improving the quantity of quality language, documenting spoken language, creating sociocultural learning contexts, improving study skills, and expanding reading comprehension skills (see Bennett, 1999).

Getting Community Attention: Hawaiian language programs provide models of indigenous languages gaining community attention. When web pages and computer software are in both Hawaiian and English and students use and study the Hawaiian language, they become part of a movement that has brought the Hawaiian language to the "tip of the spear" (Wilson & Kamana, 2000, p. 32). Through the efforts of native people urging preservation of the Hawaiian language, Hawaiian has become an official language in Hawaii. According to Hawaiian language teachers Wilson and Kamana, the driving force is the desire for children to regain their Native language. With this impetus, adults as well as children are learning. Children, as well as young adults and elders in the community, participate in a computerized Hawaiian-medium school system extending from preschool through graduate school, stretching across the state of Hawaii. The Hawaiian language is on the Internet, e-mail messages are sent in Hawaiian, and language instruction utilizes Hawaiian language software. The significance of the Hawaiian program is to demonstrate how technology can help an indigenous language to become a statewide movement

In Northwest California, technology has been used to capture community attention among Karuk people. Beautiful full-color bilingual newsletters in Karuk and English with audiotapes were created for Karuk communities (Hinton, 2001b). These efforts help build pride in the Karuk language among community people and to promote continuous awareness of the importance of maintaining the language.

Increasing Quantity of Quality Language: The amount of authentic language available to language classes is an issue with endangered language programs. When there are a limited number of speakers and a limited amount of written language, teachers think about increasing the amount of language available to them. Quantity of language relates to having objectives that extend from vocabulary and grammar into communication. Teachers increase the amount of language their students are exposed to by designing projects that require students to reach for new words. Some interesting research in this area deals with radios in the classroom. Radio programs generate an increase in language and promote the use of quality language in propelling students to be aware of an audience of listeners.

Ninno (1999), in an article on radios in the classroom, emphasizes the importance of radio over other forms of technology in a language program. Drawing from research on many schools across the USA and around the world, He asserts that radio programs generate more language while providing practice with listening and speaking skills. Students use and practice language when preparing for radio shows. Real-time radio conversations allow students to practice listening and speaking in a context where they are motivated to do their best. Ninno points out how radio programs also provide another level of motivation. Students link with students in other schools, as well as with communities. The community aspect of radio programs expands the classroom audience into a community audience that involves parents and educators.

Hollenbeck (1997) studied the use of radio in middle school language classes in Andover, Massachusetts. Students started an amateur radio club, designed a radio program, and held radio classes for people in the community. The students learned how to use their interest in radio to build a "community-school partnership." The significance of this study is to show that in using broadcast media aiming to develop community language proficiency, students developed their own communication skills while directed toward those of their audience.

In other research (Consodine, 1995) on language learning and broadcast technology, teenagers enrolled in media classes and interviewed community members. The students learned to evaluate information they were receiving, develop communication skills, and improve critical thinking. They were exposed to and produced a greater amount of language owing to the demands of their interview tasks. The more questions the teenagers asked, the more information they listened to, the more information they then had to evaluate, with the consequence that they had more information to talk about. This study demonstrates that critical listening is a component of developing language proficiency and that conducting media interviews can increase language output.

Documenting Spoken Language: Documentation of spoken language has benefits for both teachers and students in indigenous language programs. Assuring that endangered language programs operate with an optimal measure of authentic language is often the province of the language teacher. Often, teachers require training in language documentation and related areas. In a discussion of a teacher-training model for indigenous languages, Littlebear maintains that recording elders not only advances a language, but that language documentation is essential to curriculum development:

> Those who are serious about preserving their languages must act now. They have to start tape-recording and video-taping their elders, to begin developing curriculum for language development. (Littlebear, 1996, p. 236)

Littlebear combines the issues of language fluency, technology, and teacher training in a discussion of four indigenous language teacher training models: Ketchikan and Galena in Alaska and Lame Deer and Busby in Montana. He relates the

importance of collecting language data to assuring that a body of language is available for teachers. He then presents a plan for providing teachers with the necessary classroom knowledge to use this body of knowledge effectively. This teacher-training model utilizes technology in areas such as writing lesson plans and materials development. Audio- and video-taping provide audio and visual data, while computers enable teachers to organize lessons for classroom instruction. Teachers benefit by knowing in advance what they are going to teach, and students benefit from the teachers' planning. Littlebear's discussion of teacher training models shows the importance of these programs, and technology can enhance them when used to build curriculum.

Weber and Tardiff (1991) found that video tapes provided an important methodological tool for language teachers in a French immersion kindergarten. They demonstrated that videotapes supplied "pertinent information on social context, shared meaning, and paralanguage dimensions of sense-making" (p. 95). In this study, the classroom teacher benefited from being a research participant, developing and refining her teaching methods based upon more complete observation and review.

Creating Social Learning Contexts: Another area of research on language documentation deals with language learning within social contexts. Research by Shirley Brice Heath and others (Heath & McLaughlin, 1998) indicates that when adolescent youth from disadvantaged communities in the United States were trained to audio-record the everyday language they were using in an interactive task, their language skills improved. The youth increased their use of language both within and outside the training environment through conducting interviews with local speakers and keeping daily logs and journals. This study cites social interaction as a factor that can enhance student learning in difficult tasks. In taking on responsible roles in rich language environments of challenge and practice, students improved their language skills while attempting to fulfill high expectations and accomplish new achievements.

In the Voice Through Diction Audio Project conducted by the Fresno Unified School District in California, Dennis Sayres (personal communication, April 29, 2001) reported a project emphasizing social learning contexts for bilingual language learning. In this observational study, bilingual Spanish-English elementary school students compiled a bilingual dictionary with the aid of computers. Students from 2nd grade through 8th grade defined words in text, added their own voices for spoken definitions, and designed illustrations for dictionary entries.

This Spanish-English dictionary project was a difficult task because it required defining and translation of definitions. It became possible for the younger students to succeed owing to their interaction with the older students. Preliminary results showed differences in language strategies between age groups, with younger children modeling behaviors of older children. Social interaction is cited as a significant factor in producing enthusiasm about a difficult, technologically challenging task. The project planed to expand participation to include parents in the social learning contexts.

In "Wheels for the Mind," a bilingual dictionary research project conducted with Yurok language students at Jack Norton Elementary School at Pecwan on the Yurok Indian Reservation in Northwestern California, students in grade 3 through grade 8 participated in a cooperative project writing a dictionary of plants on computers. In this community, the oral language tradition predominates, and when students wrote down the Yurok language definitions for plants, it was the first time that some of the Yurok words had been written.

The idea for the project evolved from elders in a Yurok language class, expressing a need to include computer activities in their program. This cooperative dictionary project combined cooperation with peers, as well as with elders and other community members. In completing their dictionaries, the children demonstrated that cooperative learning can get difficult tasks accomplished. The significance of the research is that new technology can be useful within culturally compatible learning contexts.

Improving Study Skills: Research in areas of computer-assisted instruction, as well as in the use audiotapes, videotapes, and film, shows that a crucial study skill is the ability to work alone. This ability involves acquiring language skills in academic contexts: moving along the continuum of what Cummins and Swain (1982, p. 34) define as Basic Interpersonal Communication Skills (BICS) to Cognitive Academic Language Proficiency (CALP). The relevant area in academic language proficiency improvement is for students to learn how language is used not only by classroom teachers, but in textbooks and workbooks as well.

In a study of second-grade students representative of many transitional Spanish-English bilingual classes throughout the USA, Díaz-Rico and Weed (1995) found that audiotapes used in learning centers improved the use of patterned language by students. The researchers related the need for patterned language to the students' need to acquire a deeper conceptual and linguistic proficiency required for independent study.

One type of patterned language presented to the second-grade students was in the form of instructions for performing language tasks. Audiotapes of patterned language assisted the students in learning to differentiate grammar distinctions. Gradually the students demonstrated the ability to conceptualize on their own, as demonstrated in their understanding of increasingly complex instructions. The significance of this study is that audiotapes can be useful for developing language proficiencies needed for independent study.

Research by Strichard, et al. (1998) on improving study skills dealt with the use of lessons presented on a computer word-processing program. In this study, conducted with upper grade public school students with learning disabilities in the United States, teachers made a diskette accompanying a lesson plan for students' independent study. Students carried out self-testing by typing in answers to questions at the end of the lesson plan. A post-lesson test showed that students who used the diskette independently improved their study skills more than students who did not use the diskette. This study shows that basic computer software can be useful in self-testing and that self-testing improves study skills.

Expanding Comprehension: Research on classroom use of computer technology for expanding reading comprehension includes a wide range of ages, socioeconomic classes, and geographic locations. A study by Lessow-Hurley (1996) on the "language experience" method for second language learners discusses the use of students' own stories as the basis for reading texts. The language experience method has its origins in the experiences of teachers of non-English speaking second language children in the United States where "students who score well on a language assessment test are not capable of using the language in real life situations" (p. 55). She reports that making audiotapes of everyday discourse and taking live dictation were shown to improve students abilities to developing real life communication skills.

In writing about elementary school children in the United States who wrote down their own life stories, Kelly (1993) discusses the use of technology for another group of second language learners. Her study also used the "language experience" method, but involved students who could speak English, but could not read it. These students overcame limitations in reading by learning to read the language that they themselves use in speech. The researchers attribute improvements in reading to an increase in attention to how words are segmented and sequenced. The significance of this research is that technology can contribute to expanding speaking as well as reading skills for second language learners.

In a "Children Teaching Children" project, students of a Hupa language high school teacher recorded the stories they told, and then developed CD's based on their story texts. The students used audiotapes to record their stories and computers to write them. They developed reading as well as writing skills because a component of the project involves reading the stories to other children. This project shows how to incorporate technology in combining instruction in reading, speaking, and writing skills.

Other multiple purpose language research (Wakshul, 2001) concerns the use of multimedia curricula. At least two indigenous language programs, in Cherokee and Sencoten (Brand, Elliott & Foster, 2002) are aiming at improving reading comprehension through multimedia projects. In the Cherokee language, *Little Linguist* introduces a 2nd language to kids, from 1 through 6, those critical years when children most easily learn languages. Designer Don Thornton has put the Cherokee language on a reading toy and has combined colorful figures and "smart-chip" technology to create an interactive, multisensory learning experience that adjusts itself to the level of the child and offers visual, auditory and tactile stimulation (*Little Linguist*, 2000; Wakshul, 2001). Although Thornton acknowledges the inherent danger of students spending more time with computers than with native speakers, he believes that the benefits of the brightly colored computerized toys outweigh the disadvantages. This study shows how computers can have an attention-grabbing capacity that can filter down to even the youngest audience.

In using newly developed multimedia software for the Sencoten language program, students and community-based staff at Lau Welnew Tribal School on Vancouver Island, Canada, create multimedia presentations in the Sencoten lan-

guage incorporating text, sound, a word list with translations, video, pictures and hyperlinks (Brand, et al., 2002). Like the Cherokee language toys, their multimedia presentations are developed with the premise multimedia reading created with computers entices students into reading and that this improves reading comprehension. The significance of the project is in developing new reading tools with technology using collaborative community efforts.

Research on the effectiveness of multimedia presentations has looked at how reading improves with the addition of color and sound. Anderson-Inman and Horney (1998) report a number of studies where electronic versions of traditional text materials promote improved comprehension in children with learning disabilities, in students with limited English proficiency, and in students from environmentally or economically disadvantaged backgrounds. They demonstrate the importance of "supported text," electronically altered text made to support increased reading comprehension for second language learners. In reading supported text, readers proceed until coming across a word or phrase that they want to see in translation. In one format, a reader can access both literal translations and free translations, choosing between a meaning with a grammatical component and a meaning that continues fluency.

With the addition of sound and graphics, supported text can become a multi media presentation. Among these are alternative text displays that include cueing textual information by flashing, providing immediate alterations of the text such as highlighting and layering, the additions of animated graphical displays, (Reinking, 1987), visual images, sounds, and hypertext (Willis, Stephens & Matthew, 1996). This research demonstrates some of the technical considerations in designing multimedia presentations that affect reading comprehension

Other research has been concerned with how computer-created texts improve students' language processing skills. Reinking (1987) describes how interactive computer programs build reading strategies such as learning to make predictions while reading and developing strategies for managing comprehension. He describes a program for young readers in English that encourages readers to make predictions by controlling the presentation of text so that a question that the students must respond to is not answered immediately in the text, but rather through a series of segments. Each segment provides new information that allows the reader to confirm or disregard predictions made earlier. The significance of Reinking's research is that computers can model reading processes associated with experienced readers for younger readers, thereby helping them to mature as readers.

State of the Hupa language

A Hupa language class for the community met every week on Wednesday evenings on the Hoopa Valley Indian Reservation. It has been the longest running class in the tribe's Center for Hupa Language, Education, and Culture.[1] This community class focused on question-and-answer with an emphasis on proper speaking and correct writing of everyday Hupa. Students gained language experience by asking questions of elders and had the opportunity to present

language lessons. Students and younger teachers used computers for the preparation and presentation of lessons and used taperecorders for documentation.

Because Hupa is still a spoken language, the Hupa language class maintained an oral focus, with technology being a tool rather than an end to instruction. In addition, classroom tools include pre-technological era aids such as marker boards, dry markers, paper, pencils, and puppets. The goals of the classes were documentation and to produce younger speakers through a continuing process of interaction with elders. Tapes with transcriptions and a Hupa language data base provided an ongoing record of language introduced by fluent speakers.

The Hupa language found its way to a weekly program on KIDE, the Hoopa Valley Tribe's radio station. The program offered weekly bingo games, cultural information about the history of the Hoopa, and reviews and previews of vocabulary in the community language class. It drew on community interest in the language, the incentive of winning Bingo prizes, and the support of a local high school Hupa language class.

Language Meaning: In order to better understand how technology has been used in the Hupa Language Program, it is important to understand both how meaning is communicated in the languages and the circumstances under which language loss has occurred. This part of the story of the Hupa language is illustrative of other indigenous language as well.

Hupa belongs to one of three groups of Athabaskan languages spoken in California, Oregon, Washington, Western Canada, Alaska, Arizona, and New Mexico. California Athabaskan languages, spoken by tribes either presently or formerly in the Mendocino and Humboldt counties, fall into three broad groups of closely related dialects: Hupa-Chilula, Mattole-Bear River, and Eel River [including Cahto and the "Kuneste" (from koneest'ee', person) dialects: "Lassik," Nongatl, Sinkyone, Wailaki]. Another California Athabaskan language, Tolowa of Del Norte County, is closely associated with Oregon Athabaskan languages .

The Hupa language is one of the many visually descriptive languages with its unique way of description. The descriptive features of the language reveal aspects of the Hupa worldview. We find these visual descriptions in the literal meanings of words where literal meanings evoke visual images. For example, the Hupa expression, meaning "pour some for me," is *wha: na:k'idiłwuł* (for me-you throw it back). The literal meaning of this expression is closest to the English meaning of "spill it out for me," in English, we would say, "Pour me some." The literal description carries a metaphorical meaning associated with asking someone to serve food in such overly casual way as to be sloppy. This meaning carries with it a humorous intent.

Many other words in the language also illustrate how visual description functions. For example, the Hupa word for pear is *me'ist nehwa:n na:ng'e:tł'* (pounding rock-like-it hangs there). The literal meaning is a visual description depicting a hanging acorn-pounding rock. An acorn-pounding rock is used in pounding acorns for making acorn soup, an important activity for any traditional Hupa feast. In evoking an acorn pounding rock when mentioning a pear illustrates how a speaker can communicate cultural meanings through literal visual description.

The descriptive nature of the language has influenced the way that the language was presented. User-friendly computer programs have made it possible to write the language so as to explain the descriptive levels of the language. The use of computers in the Hupa language community program focuses on language documentation and preparation of lessons, including lesson plans, teaching aids, and evaluation activities.

Language Loss: An accelerating loss of languages came about with the deluge of gold miners and settlers in the mid-19th century. Their conquest of the region resulted in the virtual extermination of many of the California languages, along with the people who spoke them. Only the Yurok, Karuk, Tolowa, Hupa, and Wiyot survived in sufficient numbers to preserve their speech and traditions. Some speakers of dialects related to these languages became absorbed into the larger group. But ensuing generations have felt social, economic and political pressures to replace their native tongues with English in order to assimilate and earn a living. These efforts were institutionalized in Indian boarding schools where children were punished when they spoke their own languages. English gained ascendancy, and the old speech became stigmatized.

Many of the remaining Hupa speakers were taken to boarding schools, which resulted in a loss of fluency and the need to introduce linguistic structure to the language classes. Presently, there are only a few remaining Hupa speakers who learned Hupa as a first language. One of them is James Jackson, born in 1908. He reports that from the time he was nine years old, he was not allowed to speak the Hupa language except at home.

> I was away at school where they were teaching us English. They didn't want us to speak the Indian language because they said the Indian language was wrong. And they scared us off. Everybody was afraid to say something in their language. If they had just kept out of it and let us speak the language in school, everybody would know it today. **They** took it from us. Now **we** have to try to get it back. (James Jackson, personal interview, January 3, 2001)

Because of the traumatic nature of loss of the language, the presence of technology has evolved in ways that are consensual for the participants, especially the elders. The first technology in Hupa language classes involved cooperative learning projects where elementary school Hupa language students jointly used a Macintosh computer to do language practice activities. Two or three students used one computer, with those who were not at the keyboard giving advice to the one who was, while elders were present as advisers (Bennett,1987).

Creating Language Lessons in a Community Language Class

Language teachers in California will ask, "Do you have any curriculum for my class?" Since each indigenous language is different and there are various levels of teacher and student language proficiency, I will offer a process for developing a language curriculum that teachers can adapt to their own classroom situation.

The language lesson is the heart of this curriculum. Creating lessons involves organizing language texts with the aim of defining curriculum objectives in the areas of reading, speaking, writing, and listening. Technological tools include audio recorders (or other recording devices) and computers. Using experience with the Hupa language class as a guide, the steps involved in preparing a language lesson are:

Create a Context for Language:
- Establish a Setting
- Tape Record Relevant Information

Present a Language Lesson in the Classroom:
- Make Literal Translations
- Explain the Translation Process
- Document Translations
- Move on from One Task to the Next
- Introduce Practice Activities
- Bring in Rewards

Develop a Series of Lessons:
- Decide on Topics or Stories for Future Lessons
- Design Instructional Objectives
- Keep Thinking of New Ideas

Over six years, class members developed more than one hundred topic-centered or story lessons based on Hupa expressions and vocabulary having cultural relevance, including topics as diverse as "light," "work and school," and "birthing" having significance for Hupa people, each approved by elders. The stories are Hupa narratives from an era when animals could communicate with one another and creation was evolving in preparation for the coming of the current indigenous people. In addition, more than 10,500 Hupa-English words and phrases have been entered into a dictionary database.

In discussing the lesson-building process, examples are given in the Hupa language. Readers are encouraged to substitute examples suitable to their particular language.

Create a Context for Language

Establish a Setting: A setting for tape-recording is any place where language use will occur. For Hupa, the weekly community class has provided an ongoing setting. A community class can begin by announcing a topic for the evening. Turn on the audio tape recorder, announce the topic, and write the topic on the chalkboard. When you prepared the topic, you will have also prepared a list of words and expressions relevant to this topic. Write the topic along with these words and expressions on the chalkboard. If the list is complete, hand out a computer-generated list of these words and expressions. Then, introduce each of the words and expressions in English and ask elders and other class members how to say them.

In the Hoopa community class format, elders decided how to say things in Hupa.. Often the elders found more than one way to say a given expression. A topic for a given lesson varies. Topics ranged from highly specific such as , "The Hupa Jump Dance," to general such as "Talking to Young Children." Topics could also be linguistically oriented, such as "Commands At Mealtime."[2]

Tape Record Relevant Information: Record with a tape recorder and write down the words. If more than one way is proposed write at least one of the ways. You will have a recording of all of the ways that you can listen to later. In a follow-up session, you can bring this list and present the range of expressions and use this as the basis for discussion.

Present explanations based upon features of the language to the students, which will differ depending on the language. For example, if you were teaching commands relating to passing food in the Hupa language, explanations and examples would be as follows: *Dixwe:di cho:yawhe*, pass it, when we are talking about bread?" Meaning: "How do we say, 'pass it,' when we are talking about bread?" Then the elders will answer: "*xowung'awh* [you pass it to him/her (round object)] "Pass it." or "*which'ing' yung'awh*" [to me you pass it (round object)] "Pass the bread to me." Elders in the Hupa language class typically provided more than one response. In the examples above, the expression, xowung'awh is a more general expression, stating, "Pass it (to someone)," whereas which'ing' yung'awh states specifically, "Pass it to me." Both are examples of a command using a classificatory verb. They combine the classificatory verb and the command form ending in –'awh. This ending is appropriate for any round object, and the speaker in this instance identified bread to be round. However, the elder may also answer with other expressions including: "*de:diwiłiq' xowung'awh*" [bread you pass it to him/her (round object)] "Pass the bread to him/her." or "*de:diwiłiq' which'ing' yung'awh*" [bread to me you pass it (round object)] "Pass the bread to me."

All of the above examples are correct. In the last two examples, the command includes the word, "bread." There are situational differences that determine when one form would be used rather than another form. When there is only bread on the table, there might not be a need to mention bread, whereas a speaker would want to include the word "bread," when selecting from an array of items on the table.

Other considerations might influence a speaker to use a different classificatory ending. Whereas, the -'awh ending refers to a round object, if the speaker is thinking of the doughy quality of the bread, the ending would be łiq' (doughy object). Further, if the bread were in the form of separate slices, and the speaker were thinking of these different objects, the ending is *-liwh* (several) objects). Some illustrative examples follow:

xowułiq' [pass it to him/her (doughy object)]
"Pass it to him/her." or
which'ing' yułiq' [to me pass it (doughy object)]
"Pass it to me."

xowuniliwh [pass it to him/her (several objects)]
"Pass it to him/her." or
which'ing' yuniliwh [to me pass it (several objects)]
"Pass it to me."

Finally, if the speaker were requesting the basket the bread was being served in, but the bread is all gone, the speaker would request,

xowuntiwh {pass it to him/her (long object)]
"Pass it to him/her." or
which'ing' yuntiwh [to me pass it (long object)}
"Pass it to me."

In the Hupa verb classificatory scheme, the ending –tiwh for long objects, includes empty baskets regardless of their shape. Thus, there are more forms a speaker might use.

Present a language lesson in the classroom

Make Literal Translations: Using supported text, beneath each indigenous language expression write the literal English translation. Beneath this, write the free English translation. This builds in a way of discussing the grammar of the expressions.

In Hupa there are many expressions for one English expression as simple as "everyone sit down," which can confuse students. Hupa is descriptive, and there are frequently more than one way to say a simple expression. In addition, a simple expression can be interpreted different ways. There is only one letter difference in English, for example, between the phrases, "Everyone sit down," and "Everyone sits down," but a difference in meaning between a command and a reported event. And, if there are five ways to describe a definite act, there are sometimes many more ways to describe one word. For example, the word "day," can be said in the following ways: *Xatł'e'ding yisxa:n, yiłxay, jingkyohding, de:je:nis, xa:t xoling, xatł'e'ding silintehł,* and *xohłiq'ay tehsyay.*[3] For the benefit of second language speakers, it is important to explain the various meanings of the native words. In Hupa, this process begins with partitioning the elder's oral language into written words and writing down the literal meanings of words and parts of words. Aht'ine means "everyone," while no:nohdił means "you all sit down."

Hupa verbs have conglomerate parts consisting of pronouns, directional prefixes, verb stems, and identifiers for person, tense, and number. Some of the syllables in the Hupa verb are recognizable as syllables filling in the place of the form. In the Hupa verb *no:nohdil*, the parts are as follows: *No:* is the part of the verb that means "down" *noh-* is the pronoun "you all" and *–dil* is the plural present stem for "sit down." But in the verb, *no:ninde:tł'*, they sat down, no: means "down," *nin-* takes the place of the standard 3rd person plural form "*ya-*," and *-de:tł'* is the plural past stem for "sit down."

Explain the Translation Process: As you are writing down the literal translations, explain the components of the translation process. Avoid confusion when presenting component parts of words by explaining that literal meanings of native words do not necessarily make it possible to predict free English translations. Present illustrations as they come up, for example in Hupa: *wha:na'a:k'idiłwuł* (for me-throw it in) or "Pour it for me." This expression can be a request for something to be poured, as when someone wants their coffee cup filled. The literal translation, throw it in," leads to the free translation, pour it for me, only to someone familiar with Hupa idioms.

There are many common Hupa expressions such as the one above where meaning is not apparent from literal translation and many words translate metaphorically. Computers make the process of translation easier. With *Word*, or another word-processing program, develop a format for supported text. Think of creating translations in layers. If you follow a supported text format, there will be three layers consisting of the native word, followed by a literal English translation, and then a free English translation.

To create visual clarity with a supported text, vary font type, font typeset, font size, and font color in arranging text. Arrange the text with native language and translations either in a vertically or horizontally.[4] Use supported text in language lessons, on flashcards, and in dictionaries.

Document Translations: To make language work accessible, put together a language dictionary database. Use *Corel Paradox* or another infinitely expanding database format. Create printed dictionaries in a variety of formats suitable for complicated dictionary entries, including colored entries, and consider the option for adding illustrations and photos. *Paradox* will re-sort data with one click of the mouse that will create a Native Language-English or an English-Native Language dictionary. For cross-referencing database entries, *Paradox* will link dictionary entries to other databases. Provide instructions to students for using the database, such as the following:

- Designing database with designated number of characters for each of three categories: Free English translation, Hupa verb or Hupa noun, and literal English translation
- Entering words according to the three designated categories contained in the *Word* files into the *Paradox* database:
- Sorting after adding a group of words to restore alphabetical order. Sort to arrange the database alphabetically by Hupa words if you are looking for a Hupa word or phrase. Then follow the same procedure as for an English word in the Free English translation category.
- Writing instructions to database users so that they will have a guide to the specific design of your database.

Move On from One Task to the Next: After one set of expressions, then go on to the next expression. Keep the lesson on track while being respectful to elders' contributions to a current expression. Allow students to question the el-

ders on various aspects of the translation. Ask if others have questions, check in the Hupa language dictionary, and then move on to the next expression

Introduce Practice Activities: When there are few or no questions from students, practice activities are a way to get participation. Practice activities require a facilitator and often helpers and involve the entire class. A sample practice activity for a lesson on "Commands at Mealtime," is a practice activity centered on food. Instructions are as follows: Divide the class into three tables and pairs students at each table. Place food items at each table, as well as place settings. Ask for two students to volunteer as helpers. Give the pair a command and a response. The command and response can include expressions previously introduced, such as variations of the Hupa verb form *xowung'awh*, "pass me," for the command. The response can be simply, *jo'*.

Have one student speak the command and the other speak the response. Then ask for other pairs and repeat the command and response routine. Then add other words to the practice routine. Instruct the first student (S1) in the pair to say *"łehqonch'e' xowungxawh"* [salt you pass it (filled container) to him/her] or "Pass the salt." And instruct the second student (S2) to answer *"jo'łehqonch'e"* (here salt) or "Here is the salt."

Give each pair in the room has an opportunity to practice this command and response. After a few demonstration practices, ask the pairs at the tables to practice simultaneously with the commands and responses he has written on the board. Another example follows: S1: *"which'ing' yungxawh"* toward me you pass it/Pass it to me." (pointing to juice pitcher). S2: *"jo' nich'ing"* Here toward you/Here you are. S1: *"xosah na:lit which'ing'yungxawh"* her-his mouth-it burns to me pass it (filled container) pepper/Pass the pepper. S2: *"jo'de: xosah na:lit"* here-this her-his mouth-it burns/here pepper/Here is the pepper.

Bring In Rewards: Introduce games, bring out food, or talk about upcoming special events. Especially in a lesson on "Commands at Mealtime," food is a welcome reward. Include the Indigenous language whenever possible during the reward process. If serving food, for example, introduce Hupa language expressions relating to passing items or words relating to foods or to table settings while serving. While eating, introduce conversation in the Indigenous language.

Develop a series of lessons

Decide on Topics or Stories for Future Lessons: Announce the topic for the next class session and tell students you are giving them something to think about between classes. Thinking of a topic can take some time. A topic needs to capture the interest of the people in the class, and it is more likely to do this if it concerns a central cultural issue. In a few weeks, the class has a series of lessons, each with a topic and including a list of expressions around that topic.

Design Instructional Objectives: Consider objectives in terms of state content area standards. Develop instructional objectives according to grade level. In California, the state's K-12 Language Arts Curriculum Standards identify instructional objectives applicable to indigenous languages, including, phonemic awareness, demonstrating listening comprehension, oral communication, read

ing accuracy and fluency, writing conventions, and discourse organization.

Specific practice activities accomplish the goal of integrating instructional objectives with program objectives. For example, a language lesson with an activity of passing various types of food and eating accoutrements provides a sociocultural learning context with an opportunity to demonstrate listening comprehension. Students engage in sociocultural learning as they demonstrate their understanding by passing foods and demonstrate oral communication skills using Hupa expressions.

Integrate instructional objectives for the language proficiency areas with program objectives, such as those identified in the research: Getting community attention, increasing quantity of quality language, documenting spoken language, creating sociocultural learning contexts, improving study skills, and expanding comprehension. Integrate these objectives with state curriculum standards. Some states do not have language standards for indigenous languages. In California the applicable standards are those for Language Arts curriculum from Kindergarten through Grade 12.

Keep Thinking of New Ideas: By writing down the expressions from each lesson, compile a group of lessons, including expressions associated with each topic. Put stories into booklets as well as topic-centered expressions. Create activities that correspond to curriculum standards for teaching the indigenous language within Language Arts. Define instructional objectives according to grade level.

Finally, keep on thinking of new ideas to keep the process going. In the Hoopa valley there was a weekly Hupa Language radio show. The show presented translations from Hupa to English, Hoopa valley stories, and weekly Hupa language bingo games. This program encouraged students to think about how to present the language to the community. The efforts of the program's coordinator and teacher resulted in interactive language activities for language students and the community. The program offered incentives for listeners to learn Hupa through bingo games that require winners to speak in Hupa when claiming victory and in order to receive prizes (Supahan, 2001). The radio program featured people from the Hupa Language community class as language speakers. Hupa language speakers present material gleaned from language lessons developed in the community class. This radio show is to demonstrated that if a language program responds to community need, it will continue to evolve.

Significance of technology in Hupa language instruction

Technology is available for saving indigenous languages, but acceptance of technology among fluent speakers of an indigenous language influences how successfully technology is used. In the Hupa language program, computers and tape-recorders contributed to lesson preparation and were used in classes. A step-by-step process for preparing and conducting lessons was presented as a guide for indigenous language programs to model. Linking language lessons to objectives identified in prior research in technology as well as state curriculum stan-

dards made language lessons more likely to be accepted by public school educators. Besides looking at prior research, language program designers need to be looking ahead and developing new ideas. The newest idea to involve technology in the Hupa language program is the weekly community radio program.

Notes:

[1]There are other Hupa language classes as well. For three years, the tribe, in conjunction with Hoopa Elementary School, a public school on the reservation, conducted Hupa Cultural Arts classes and assisted with Hupa language classes in a six-week summer school. The Elementary School conducts Hupa language classes during the regular school year on a weekly schedule that varied depending on grade level and program. Other tribally sponsored language events are held for children and youth for a few days at a time, including day camps or overnight camps. Hupa is also taught at Hoopa High School where there have been as many as three levels of Hupa Language: Hupa 1, Hupa 2, and Hupa 3. These classes were held daily, with 50 minutes per class devoted to oral and written language.

[2]A list of topics can be requested from the Ethnographic Researcher, Center for Indian Community Development, Humboldt State University, Arcata, CA 95531

[3]Xatł'e'ding , morning time, yisxa:n, it dawned, yiłxay, it dawns, jingkyohding, daytime, de:je:nis, today, xa:t xoling, still-it becomes, and xatł'e'ding silintehł, morning time–it is about to be, xohłiq'ay tehsyay, whiteness–it goes along.

[4]Variations for formatting supported text can include varying font type, size, and color and arranging translations in horizontal order.

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Statements made by representatives of least endangered languages at the 1994 Native American Language Issues (NALI) conference held in Glorieta, New Mexico.

My first encounter of people making fun of me for speaking my language was my own Lakota people. The school made it worse. When you teach the language, teach the good and the bad of the language.

—Albert White Hat, Lakota

Christianity has had a devastating effect on our language. We need to talk to people who say they are Christians and do not want the language. We shouldn't say that. Speaking the Navajo language has nothing to do with believing in a different creator. We need people who can understand the elders, so we can learn from them and we need to help them.

—McQueen Redhouse, Navajo

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