

Leokī: A Powerful Voice of Hawaiian Language Revitalization

Mark Warschauer, University of Hawai'i at Mānoa
Keola Donaghy, Hale Kuamo'o, University of Hawai'i at Hilo

A revised version of this paper appeared as:

Warschauer, M., & Donaghy, K. (1997). Leokī: A powerful voice of Hawaiian language revitalization. *Computer Assisted Language Learning*, 10(4), 349-362.

Abstract

Political and linguistic repression over a period of 100 years nearly brought the death of the Hawaiian language. In the last 30 years though, a Hawaiian renaissance movement has helped revitalize the Hawaiian language. Hawaiian language activists and scholars are taking advantage of every possible tool to promote their language, including computers and the Internet. This article discusses the role of computing and online communications in Hawaiian language revitalization, focusing on the Leokī bulletin board system, the first BBS in the world fully based on an indigenous language.

"I ka 'ōlelo nō ke ola, i ka 'ōlelo nō ka make"

(In the language there is life, in the language there is death, Ancient Hawaiian Proverb).

Though some believe that the Internet will strengthen the worldwide dominance of English, indigenous language activists around the world are working for a different electronic future, one based on linguistic rights and cultural diversity. One of the most inspiring projects designed to bring about such a future is the *Leokī* (Powerful Voice) bulletin board system, the first Internet communication systems in the world fully based on an indigenous language.

This article describes the development and use of *Leokī*, but first provides some necessary background information on the history of the Hawaiian language and current revitalization efforts.

Ka 'Ōlelo Hawai'i

Ka 'ōlelo Hawai'i, the Hawaiian language, is a member of the Polynesian language family, which spreads over a large triangular area in the Pacific Ocean from Hawai'i to New Zealand to Easter Island. While Hawaiian is similar to other Polynesian languages such as Tahitian and Māori, they cannot be said to be mutually intelligible.

Hawaiian was a strictly oral language until the "discovery" of the islands by Europeans in 1778, followed by the arrival of American missionaries in 1820. The missionaries eventually developed an alphabet based on five vowels (a e i o u) and eight consonants (h k l m n p w '). The language is written with the roman alphabet plus two special diacritical marks, the 'okina [ʻ], which signifies a glottal stop, and the kahakō, or macron, which is placed over vowels to lengthen them (ā ē ī ō ū).

Hawaiian literacy flourished in the 19th century when Hawai'i was an independent kingdom with a parliamentary form of government. Dozens of newspapers were published, a number of religious and literary works were translated into Hawaiian, and Hawaiians transcribed a wealth of traditional oral literature. Literacy rates were high; indeed according to one published account they were as high as anywhere else in the world.

At the same time, though, the Hawaiian people and their culture were being devastated by Western colonization. Diseases introduced by colonizers reduced the Hawaiian population from some 300,000 in 1778 to approximately 50,000 a century later (Wilson, in press; Reinecke, 1969). Traditional language and art forms, such as the hula, were repressed due to pressure from the missionaries, who viewed these cultural expressions as "foul" and "idolatrous".

In the latter part of the 19th century, with American landowners strengthening their hold on the Hawaiian economy and large numbers of agricultural workers being brought in from Asia, English gradually began to supplant Hawaiian as a medium of instruction in the schools. The coup de grace was delivered by the 1893 U.S.-backed overthrow of the sovereign Hawaiian monarchy and the forced annexation of Hawai'i to U.S. territorial status five years later. The Hawaiian language was banned from the schools, and, for all practical effects, from society, under punishment of ostracization and beatings. As the number of pure Hawaiians diminished to 1%-2% of the population, and with Hawaiian banned from the schools, the language almost died out in the 20th century. By the 1980s, there were reportedly fewer than two thousand native speakers of the language, with only a few dozen of them under the age of 18.

Language Revitalization

The decline of the Hawaiian language caused great concern, not only among the small number of pure Hawaiians, but also among the much larger number of part-Hawaiians (representing some 20% of Hawaii's population). A Hawaiian renaissance movement began in the 1960s and '70s, parallel with other national and international movements for oppressed and indigenous people's rights. In the face of grassroots movements, legal restrictions on the use of Hawaiian in the schools were removed, and Hawaiian was once again made an official state language (together with English) in 1978. Hawaiian language study began to soar at the university level, from 27 enrolled students at the University of Hawai'i at Mānoa in 1961-1962 to 1,277 in 1992-1993. But the most significant language initiative has been the development of Hawaiian immersion pre-school and K-12 education, since this is potentially a way of reversing the decline of fluent young speakers.

A group of Hawaiian language scholars and community leaders established the Hawaiian medium *Pūnana Leo* (Voice Nest) pre-schools in 1984 and lobbied for the removal of the ban on the use of Hawaiian as a medium of education. Three years later, the board of education approved the formation of the *Papahāna Kaiapuni 'Ōlelo Hawai'i* (Hawaiian Language Immersion Program), and two immersion kindergarten/first grade classes were formed in the islands to receive graduates of the Pūnana Leo Schools. Additional years of Hawaiian immersion education have been added each year, and the lead immersion class is now in the 10th grade. New schools in both the pre-school and immersion programs have been added, with the total student population now 200 children in 9 Hawaiian-medium pre-schools, and 1200 children in 14 elementary and secondary immersion schools.

Challenges

In spite of the many successes of recent years, the Hawaiian community faces daunting challenges in attempting to revitalize the language. As old age takes its toll, the number of living native speakers has now dwindled to less than 1,000 (by some estimates less than 500), many of whom are elderly people living in remote rural areas of the state. The only continuing native speaking community consists of a couple of hundred people who live on the small private island of Ni'ihau, which lacks regular electrical or phone connections to the rest of the state. The immersion schools thus suffer from isolation from any native speaking community, and, due to the geographical dispersion of the schools over several islands, they also lack sufficient contact with each other. And since the immersion schools are relatively small, most have been placed in the midst of larger English-medium school sites, thus making immersion education even more difficult.

The immersion program is also hampered by a lack of textbooks and other pedagogical materials in Hawaiian. At Ānuenuē School on O'ahu, parents and community volunteers are invited in for "cut and paste" sessions, where Hawaiian translations of American textbook pages are cut and pasted on to the original textbooks. This is of course an unsatisfactory solution, due not only to the immense time and effort involved. "The main problem is that this imposes a perspective from outside the islands," says Laiana Wong, a Hawaiian language instructor and a member of the Hawaiian language lexicon committee. "We need to develop original materials in Hawaiian that can reflect our own culture, perspective, and reality." Developing such materials, and other aspects of the immersion program, also involves a huge update of the Hawaiian lexicon, which had badly stagnated due to 100 years of linguistic repression.

Computing in Hawaiian

Like other indigenous peoples, the Hawaiian people are seizing new technologies to help overcome its challenges. For years, video has been an important educational and linguistic tool, capturing and preserving the voices of Hawaiian native speakers.

More recently, developing computer programs in Hawaiian has been a major focus of Hale Kuamo'o, a center for Hawaiian-medium education and culture at the University of Hawai'i, Hilo. The center's philosophy has been not only to develop computer content in Hawaiian, but also to make necessary changes in menus, commands, and alerts in order to provide a total immersion computing experience in Hawaiian. Keiki Kawai'ae'a, a former immersion teacher and currently Director of Curriculum Materials at Hale Kuamo'o, explained the rationale:

Without changing the language and having the programs in Hawaiian, they wouldn't be able to have computer education *through* Hawaiian, which is really a major hook for kids in our program. They get the traditional content like science and math, and now they are able to utilize this 'ono (really delicious) media called computers! Computer education is just so exciting for our children. In order for Hawaiian to feel like a real living language, like English, it needs to be seen, heard and utilized everywhere, and that includes the use of computers.

To put this in practice required changes in all the immersion schools' Apple Macintosh computers' operating systems in order to allow the menus and commands to handle Hawaiian diacritical marks. Incorporation of diacritical marks is crucial, since they define meaning in Hawaiian; for example, *pau* means finished, *pa'yu* means soot, *pa'yü* means moist, and *pä'yü* means skirt. A short-term solution for modifying fonts was found using ResEdit. For a more permanent solution, Hale Kuamo'o has entered into an agreement with Apple Computer, Inc. that will allow the Hale Kuamo'o staff to completely translate the Macintosh operating system into Hawaiian. This translated version of the Mac OS will be freely available to the Hawaiian language immersion program, as well as any public or private educational institution that deals with Hawaiian language education. It will also be included on future versions of the system software CDs distributed with the Macintosh computers. This will be the first time that the Mac OS will be available in an indigenous American or Polynesian language.

This process has also involved coining new Hawaiian words for various computer operations. Keeping with the philosophy of the immersion program, to the extent possible words have been chosen which reflect Hawaiian traditions and culture rather than simply being transliterations of English. The word for upload, *ho'ouka*, is the same word used for loading gear into a canoe; the word for save, *mälama*, is used in a traditional salutation (*mälama pono*, "take proper care") and in a rallying cry of contemporary Hawai'i, (*mälama 'äina*, "save the land"). In some cases, though, terms chosen by the lexical committee face competition from popular transliterations. For example, a term for computer, *lolo uila* ("electric brain"), coexists with the English transliteration *kamepiula*; one reason for this may be that the brain is associated with spirituality in Hawaiian tradition while thinking is centered in the stomach.

INSERT FIGURE 1 ABOUT HERE

Hale Kuamo'o has fully translated several programs which have been popular in the immersion schools, including KidPix, Claris Works, and Mario Teaches Typing. The jewel though of the Hawaiian language computational system is the Leokī BBS.

Leokī: A Powerful Voice

Sitting in a small Hale Kuamo'o office packed with Hawaiian language posters and materials, Keiki Kawai'ae'a explained that she "went bonkers" when she first used an English language chat line seven years ago. "The first thing I thought was, this would connect us all together." At Hale Kuamo'o, she pulled together a staff of computer, lexical, and pedagogical specialists to develop the Leokī system and get it into the immersion schools. With equipment and software donations from Apple Computer, Inc. and financial backing from Bank of Hawai'i, Hale Kuamo'o purchased the FirstClass Bulletin Board System software and completely translated it into Hawaiian. The work was completed in 1995 and since that time Hale Kuamo'o has been gradually installing the system into the state's immersion schools, curriculum development offices, support agencies, and the Hawaiian language departments of the University of Hawai'i system.

INSERT FIGURE 2 ABOUT HERE

Leokī features many of the same kind of services that can be found on computer Bulletin Board Systems throughout the world, except that the interface, and all interaction of its users, is in Hawaiian. The interface of the FirstClass BBS closely mimics the Macintosh operating system. The familiar folders of the Macintosh OS are conferences; when opened they display e-mail documents and conference messages which can be viewed by double-clicking on their icons. Within each conference there is a colorful graphic and *'ōlelo no'ea* (wise saying) which set the tone and define the purpose of the conference.

The following are the main features of Leokī:

- Leka Uila (Electronic Mail): Each user has a private mailbox for sending and receiving mail to and from other users on Leokī, as well as via the Internet.
- Laina Kolekole (Chat Line): An on-line chat area for real-time interaction. Users also have the ability to create their own private chat rooms.
- Ha'ina Uluwale (Open Forum): Public synchronous computer conferences for discussion, debate, and surveys.
- Ku'i ka Lono (Newslines): Advertisements, announcements and information about Hawaiian language classes and important upcoming events.
- Hale Kū'ai (Marketplace): Announcements and online order forms for the purchase of Hawaiian language books and materials from Hale Kuamo'o and other agencies.
- Papa Hua'ōlelo (Vocabulary List): Dissemination of Hawaiian words being coined by the lexical committee. Users can suggest new words and offer input on terms being considered. Dictionary databases can be searched from within Leokī via a link to the Hale Kuamo'ō's database system.
- Nā Maka o Kana (The Eyes of Kana): The current and all back issues of the *Nā Maka o Kana* newspaper published by and for the Hawaiian immersion program.
- Noi'i Nowelo (Search for Knowledge): Shared resource area for old and new Hawaiian materials. Posting of stories, newspaper articles, and songs.
- Nā Ke'ena 'Ōlelo Hawai'i (Hawaiian Language Offices): An information section about the various agencies which provide Hawaiian educational support for Hawaiian studies coursework and Hawaiian medium programs throughout the state.

Private conferences are also provided for the various Hawaiian immersion support offices, such as the Hale Kuamo'o, 'Aha Pūnana Leo, the Papahana Kaiapuni Hawai'i, the Hawaiian Lexicon Committee, and the Hawaiian language departments of the University of Hawai'i at Mānoa and Hilo. Only approved members of those organizations can see and enter those conference areas.

Leokī is accessed via the Internet, with either a direct IP connection to the Internet or a dialup PPP connection. SoftArc's proprietary FirstClass Client software, which has been completely translated into Hawaiian, is provided free of charge to the schools and various offices and organizations that service Hawaiian language and Hawaiian medium education programs.

Hale Kuamo'ō has concentrated its efforts on first installing Leokī in the immersion schools, a process which should be nearly completed this year as many of the schools are just now getting Internet access. All of the Pūnana Leo preschools are currently using Leokī as their primary means of communication with each other and with the Pūnana Leo administrative offices. All but 3 of the 14 Kula Kaiapuni sites are currently online.

There are currently approximately 300 registered users on Leokī. This number is expected to triple in the coming year as more schools involve their students in various online projects.

A Visit to Kula Kaiapuni Hawai'i o Keaukaha

A visit to Keaukaha immersion elementary school provided an interesting look at how computers and Leokī are being integrated into Hawaiian-medium education. Keaukaha is one of the two original immersion schools established in 1987. It is located on Hawaiian Home Lands territory, set aside for homesteading by native Hawaiian families. It is estimated that 98% of the students in the school are Hawaiian or part Hawaiian.

Located on the outskirts of the town of Hilo on the island of Hawai'i, the school has a distinct rural feeling, with one-story open-air buildings with corrugated metal roofs. The principal knows everyone on the school grounds by name, even the neighborhood dogs that stop for breakfast ("Manina, you know you're not supposed to be here! Go home now!"). This informal atmosphere does not collide with a profound respect for ancient Hawaiian culture. Every morning at 8:00, the Keaukaha children, clad in beach thongs and t-shirts, gather for traditional Hawaiian chants before entering class.

Keaukaha was one of the first immersion schools to get fully wired, thanks to the efforts of a computer-savvy principal and two hard-working computer resource teachers. One of the resource teachers, Kāhealani Nae'yole-Wong, explained that she got motivated when she wanted to use the Internet to help her pupils follow the daily progress of the 1992 voyage of the *Hökūlea* (a traditional Hawaiian canoe) to the South Pacific. She became so frustrated with the difficulties of gaining access to the school's one modem connection that she eventually organized the school's parents to come for volunteer shifts to lay ethernet hubs and wiring to the entire school. Currently there are two Internet-connected Macintosh computers in each classroom and twenty networked computers in the school's computer lab. Classes visit the computer lab for an hour a day three weeks a semester on block scheduling.

Kindergarteners who walk into the computer lab at Keaukaha School immediately set to work as if they had been operating computers for years. The children open up a Hawaiian version of KidPix and start making colorful computer drawings, based on earlier pictures they had drawn by hand. The classroom teacher, a parent volunteer, and the computer coordinator walk around to help them input explanatory Hawaiian language text based on sentences they had also composed previously. The result of 45 minutes work: handsome pages to go into the multimedia books they are completing for their kindergarten class project.

This kindergarten project, like many of the other computer (and non-computer) projects and activities witnessed at Keaukaha, attempts to take build on traditional Hawaiian customs of communication and learning. One tradition is an emphasis on "talking story," that is learning through the sharing of personal tales and experiences. Another tradition is that of oral (e.g., chants) and visual (e.g., hula) expression. "The children are so expressive, they're really great artists," explains Nae'yole-Wong. "They love to sing, they love to perform, and they love to draw, and the more opportunities we give them to express themselves in different media, the more inclusive it is."

The "talking story" and multimedia traditions are well captured in *Pāhana Haku Mele* (Compose a Song Project), the first interclass project being organized via Leokī. The participants in this elaborate five-stage project are Kahōyokele Crabbe's fourth grade class at Keaukaha school and a partner fourth-grade class taught by Kekaianiani Irwin at Pūyōhala School on the island of O'ahu. Crabbe, working with computer coordinator Nae'yole-Wong, started the project so his students "can have authentic opportunities to communicate outside the classroom. Too few of our students get a chance to really use Hawaiian outside of school."

The project started with each class working together to compose a class introduction, made of an electronic drawing (using KidPix), a written description, and a recorded spoken greeting. These multimedia introductions were shared as attachments using Leokī.

The second stage was for students to individually introduce themselves. To encourage a higher level of thinking, introductions were done through the writing of seven-line stanzas called "biopoems," which were emailed using Leokī.

The third stage involved choosing the tune for the *Pāhana Haku Mele*. Four tunes were shared among the two classes (recorded, digitized, and sent as Leokī attachments), and students in the classes individually

voted on which tune they preferred, using a special private Leokī conference. At the time of our visit to the school, voting was still in progress.

Once a tune is selected, the students will proceed to stage four: working in groups of four in each site to write verses to the tune that reflected the history and life of their own island and community. Each four-person group will type in and sing their verse and include a picture as well. They will then send e-mail the file to the next group on the other island, so they could add their own text/recording/picture before e-mailing it on once again. In the end, a single multimedia slide show will be electronically created through collaboration in and across sites, all done in and through the Hawaiian language.

Finally, in step five, the students will have an online *pā'ina* (party), making use of Leokī's chat line for real-time socializing with their long-distance partners.

The principal of Keaukaha, Katherine Webster, laid out advantages of these kinds of electronic communication for immersion students.

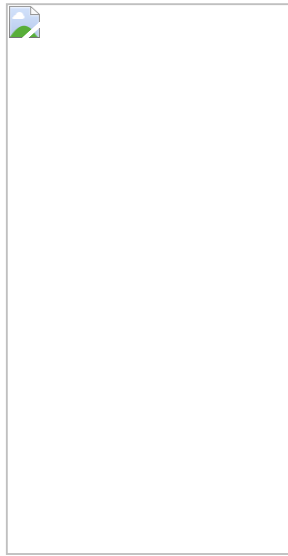
We are a truly a very inbred group. Because we're a new program by the time you get to tenth grade the odds are you're going to have the same classmates you've had since pre-school. Leokī expands the students' horizon beyond their intimate circle of friends. It establishes links elsewhere, and it's another means of practicing, and making use of all the things that they've gotten. It enables the teachers as well as the student to find out what's going on in the rest of the world. When you start sharing, you realize, "Hey, I'm not the only one who's suffering this problem."

The Future of Leokī

Hale Kuamo'ō staff have ambitious plans for expanding Leokī in several directions. They would like to add additional features to the system, such as audio-visual conferences. They want to provide more regular and systematic teacher training so that educators throughout the immersion program develop both the technical and pedagogical expertise to full use of the system. After most of the immersion schools are brought on to the network this year, they hope to gradually expand the Leokī network into other schools and colleges where Hawaiian language is taught, and eventually into private homes. One important area for expansion would be the native speaking community on the small island of Ni'ihau, possibly through creative uses of solar power and satellite telecommunications. Eventually, it should be possible to establish more cross-Pacific ties, with Hawaiians communicating in Hawaiian and other Polynesian languages with the Māori, Tongan, Tahitian, Samoan, and other Pacific peoples. These steps will be taken gradually though, to make sure that Leokī first builds a strong foundation as Hawaiian-medium gathering place for the teachers and students who are striving for native-like fluency in the *kula kaiapuni* (immersion schools).

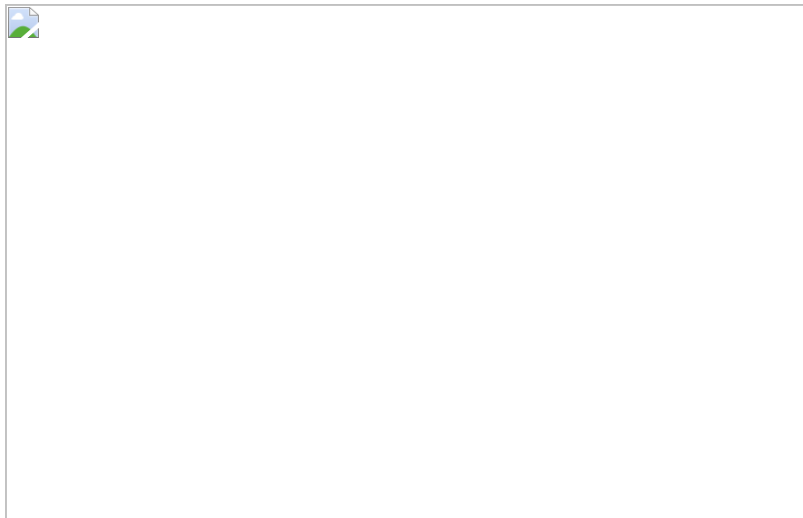
"*I ka 'ōlelo nō ke ola, i ka 'ōlelo nō ka make.*" In the language there is life, and in the language there is death. Hawaiians have a proud history of taking advantage of a wide range of media, from song to dance to print, to preserve and the life of their language and culture. Now they are using the computer to provide one more powerful voice for language use and revitalization, and their example can be of potential benefit to other indigenous communities throughout the world.

Figure 1



Hawaiian Language Menu

Figure 2



Leoki Welcome Screen

References

Benton, R. (1996). Making the medium the message: Using an electronic bulletin board system for promoting and revitalizing Māori. In M. Warschauer (Ed.), Telecollaboration in foreign language learning (pp. 187-204). Honolulu, HI: Second Language Teaching & Curriculum Center, University of Hawai'i.

Bernard, H. R. (1992). Preserving language diversity: Computers can be a tool for making the survival of languages possible. Cultural Survival Quarterly, Fall, 15-18.

Bishop, A. (1889). Why are the Hawaiians dying out? Elements of disability for survival among the Hawaiian people. The Friend, March, 18-20.

The coming global tongue (1996, December 21). Economist, 7991, 75-77.

Hale, C. (1995). How do you say computer in Hawaiian? Wired, 3(8), 90-100.

Hale Kuamo'o (1995). The story of the Punana Leo. [Online document]. Available at <http://128.171.15.130/OP/orgs/apl/story.html>.

Heckathorn, J. (1987). Can Hawaiian survive? Honolulu, 21(10), 48-51, 82, 84-86.

Judd, L. F. (1880). Honolulu: Sketches of life social, political, and religious in the Hawaiian islands. New York: Randolph & Co.

McCurry, M., & Kleinfeld, J. (1986). Developing English language software for Athabaskan students. Journal of American Indian Education, 25(3), 30-39.

Reinecke, J. E. (1969). Language and dialect in Hawai'i. Honolulu, HI: University of Hawai'i Press.

Schütz, A. J. (1994). The Voices of Eden. Honolulu, HI: University of Hawai'i Press.

Schütz, A. J. (1995). All about Hawaiian. Honolulu, HI: University of Hawai'i Press.

Wilson, W. H. (in press). I ka yölelo Hawai'i ke ola, 'Life is found in the Hawaiian language'. International Journal of the Sociology of Languages.

Notes

We would like to acknowledge the assistance for this article provided by Hale Kuamo'o at the University of Hawai'i, Hilo, and especially by the children, teachers, and principal at Keaukaha Elementary School in Hilo.