Technology and Community-Engaged Language Revitalization: Building Accessible Solutions in Awakening the Tunica Language

Introduction

Many systemic factors work against the revitalization of an endangered Indigenous language. These languages are most often being supplanted by a hegemonic language like English or Spanish. As Indigenous communities experience various pressures from colonizing forces, the domains in which community members use their language are reduced. Children no longer use the language at school and parents use it less at work. Parents may discourage their children from speaking their language because they worry it will limit their economic opportunities or hinder their learning of the dominant language. Children may leave their language behind to fit in with peers and assimilate to the dominant culture. Thus, in the home, parents may speak to their children in the hegemonic language, or if they speak to their children in their native language, the children may respond in the hegemonic language.[1] Nevertheless, many communities that have been under strong, continuous societal pressures to abandon their language (and their other cultural practices) have worked to retain it or are working to reclaim it.

Creating teaching methods that are both engaging and relevant to the community is vital to any language revitalization effort. In situations where there is a break in intergenerational language transmission—where children no longer learn their heritage language from their parents or speak it had home—youth can view their heritage language as one for the elderly and not relevant to those their age. If the heritage language has no written form, its use logically becomes extremely

[1] In the case of Tunica, the last known native speaker would speak to his mother in French even though she spoke to him in Tunica (Haas 1950, 9).

limited in a society that prioritizes the written form. Even Indigenous languages that have long had a written form may not have a significant presence in work environments or on the Internet. In the case of reawakening languages—languages that were not spoken at all for a period of time—the conception of a heritage language being out of step with the "modern" world can be strong. The language will have no documented vocabulary for more recent concepts, and there are often concerns that words created by non-speakers are not "authentic" to the language.[2]

When a language is in vigorous[3] use, it remains well-integrated into the cultural life and practice of a speaker community. An endangered language, on the other hand, is in some stage of decoupling from the rest of cultural life. Language revitalization is an effort to reintegrate the language and rebuild the link between language and the rest of the community's culture. In cases where the language has no speakers at all, the task is to reintroduce the language to a community as a first step toward reintegration. In these contexts, language information is unfortunately no longer centered in the community but is instead often centered in language documentation previously extracted from the community by linguists and anthropologists. Because this extracted information is usually housed in archives and museums, it is useful to conceive of these institutions as sites of fieldwork. I delve further into this conceptualization of fieldwork later in this paper.

[2] See, e.g., (Sayers 2012) for concerns about the authenticity of various ways of speaking Cornish, a reawakening Celtic language.

[3] A "vigorous" language is a designation in the Expanded Graded Intergenerational Disruption Scale (EGIDS) defined as a language that "is used orally by all generations and is being learned by children as their first language" (Lewis and Simons 2010, 28).

Digital technology in Indigenous language revitalization

Digital technology has been a source of both optimism and concern for those who work with Indigenous language revitalization (ILR) projects. These technologies promise new and attractive ways of engaging language communities with interactive and easily disseminated content. Candace K. Galla writes that "[i]t is quite difficult to imagine the survival of Indigenous languages without support from digital technologies, with their ability to record, preserve, analyze, manipulate and transmit languages in a myriad of ways" (Galla 2018, 100). The digital realm also represents a new domain of Indigenous language use for communities. Language revitalization scholars have emphasized the importance of an endangered language's digital presence. András Kornai claims that languages that do not "digitally ascend"—that is, develop a robust presence in the digital domain—will be left behind, part of "a massive die-off [of language] caused by the digital divide" (Kornai 2013, 1). Not all see the imperative of digital language use in such dire terms, but a language's online presence can increase its reach as well as its perceived prestige (Buszard-Welcher 2001).

Adoption of digital solutions can also cause problems for ILR projects. Many digital solutions require significant up-front and continued investment of time and money. ILR projects often face limited resources and must carefully weigh whether a solution is worth the investment it requires (Galla 2016). Digital solutions are also of varying quality and effectiveness (De Korne 2009). Galla notes that "digital technologies used to document, archive, and teach language have also contributed to privacy concerns, cultural appropriation, misuse of control, and the manipulation of cultural knowledge" (Galla 2018, 104; Delgado 2003).

These digital solutions may also have a high learning curve that discourages language learners from using them. Products may be high on promises and low on execution. In short, many

technological “solutions” are not solutions at all. Formulation of digital tools in the context of ILR should be low-cost, easily updated, and result in cross-platform, intuitive products with a low learning curve. Novel tools with significant learning curves or significant costs should be viewed skeptically and only employed if they have the realistic potential to vastly improve language learning outcomes.

The Tunica Language Working Group (*Kuhpani Yoyani Luhchi Yoroni*, or KYLY), a collaboration between the Tunica-Biloxi Tribe of Louisiana and Tulane Interdisciplinary Program in Linguistics, has worked for the last 15 years to reawaken the Tunica language, whose last known native speaker died in 1948. Over that time, the group has created a number of products, most of which employ digital technologies at some stage. I have worked as part of this group for 10 years.

This paper adapts a framework of Endangered Language Computer Aided Language Learning (EL CALL) from Ward and Genabith (2003) and applies it to examples from KYLY’s language learning projects over the past decade to support the proposal that language workers—especially those in language reawakening contexts—should employ technologies, digital or not, that allow for rapid updating and iteration, and have low upkeep costs. The creation and modification of two Tunica language software initiatives have shown that the ability to easily update information and publish it to users is a major factor in the ability to deliver and maintain digital language learning software.

The Tunica language

Tunica is one of the heritage languages of the Tunica-Biloxi Tribe of Louisiana,[4] a federally recognized Tribe based in Marksville, Louisiana, with communities in Houston and Chicago. Tunica is a language isolate, unrelated to any known language.[5] The last known native speaker of Tunica, Sesostrie Youchigant, died in 1948. Before that time, three Tunica speakers helped three linguists document the Tunica language: Albert Gatschet documented William Ely Johnson in 1886; John R. Swanton documented Volsin Chiki in 1910 and Sesostrie Youchigant in 1930 and 1931; and Mary Haas documented Sesostrie Youchigant in 1933, 1934, 1938, and 1939.

John Swanton published a sketch grammar of Tunica in 1921. In 1940, Mary Haas published a more detailed grammar, a book of Tunica texts in 1950, and a Tunica dictionary in 1953. These documents—alongside the field notes of all three linguists—comprise the written documentation of the Tunica language.[6]

Tribal and individual efforts to preserve language and culture continued after Sesostrie Youchigant's death. Tribal leadership and families sought out Haas's language documentation and recordings. In the late 1980s, the Tribe revived the yearly Fête du Blé festival, and in 1994 had their inaugural pow wow. There were language summer camps in the 1990s. In 2010, the Tunica-Biloxi Tribe of Louisiana began a collaboration with Tulane University's

[4] The Tunica-Biloxi Tribe's other heritage languages are Biloxi (Siouan), Ofo (Siouan), Avoyel (undocumented), and Choctaw (Muskogean).

[5] Tunica's status as a language isolate complicates revitalization efforts, as other documented languages cannot be used to fill gaps in grammar and vocabulary.

[6] There are some wax cylinder recordings that Haas made of Sesostrie Youchigant, but they are of such poor quality that words are hard to make out.

Interdisciplinary Program in Linguistics—the Tunica Language Working Group (*Kuhpani Yoyani Luhchi Yoroni*, or KYLY)—to revitalize the Tunica language based on existing documentation, particularly the published works of Mary Haas. Since that time, the project has produced a number of language materials, almost all of which involve digital technologies either in their creation or in their final form.

Reconceptualizing "the field"

Traditionally, fieldwork has been a practice of extraction, either of information or physical material. Archaeological fieldwork involves uncovering historical and cultural information, whether it be a physical uncovering or through use of technology (e.g., ground-penetrating radar). Biological fieldwork often involves the observation or collection of biological specimens.

Linguistic fieldwork has traditionally operated on similar principles of observation and extraction. The field was wherever speakers were located, places to gather and extract "specimens" of language to bring back to the academy for further study.[7] Albert Gatschet was inspired to seek out Tunica speakers because based on a brief historical account, Tunica seemed to "differ[] entirely from the rest of the Southern tongues" (Gatschet 1884, 41). Upon meeting a Tunica speaker, he wrote that Tunica was only worth in-depth study because it was unrelated to any other known language (Gatschet 1886). Swanton was interested in studying Tunica culture and how it compared to other Southeastern tribes. Similarly, Mary Haas's academic advisor, Edward Sapir, sent her to collect detailed information on Tunica as part of a larger project to

[7] Analogizing languages to biological species dates back at least to Darwin's *Descent of Man* (1888).

document as many Indigenous languages of the Americas as possible before they were no longer spoken so that research might show the relationships between these languages.

Community-engaged Indigenous language revitalization challenges the extractive nature of linguistic fieldwork: the community directs the information-gathering process and co-creates the resulting scholarship, which is undertaken to achieve the community's goals. Thus the "field" is still a place to observe and obtain information, but it is also the destination for any discoveries resulting from the analysis of those observations. Whereas traditional linguistic fieldwork too often offered no intentional benefits to the community, the goal of community-engaged ILR is to make the community both the source of the information and the beneficiary of the analysis.

Additionally, the very concept of the field is flipped fully on its head in a language reawakening project; because the language is no longer spoken—and in some cases hardly any of it is remembered—the language community can no longer be the main source of language information.[8] In most language revival projects, language information comes from documents that were extractive (e.g., documentation created by linguists or anthropologists), assimilatory (e.g., Bible translations), or strategic (e.g., language-learning guides for settlers to conduct diplomacy).[9] If the field is conceptualized as the place where information is gathered, then the field in language reawakening projects consists largely of museums and archives. In truth, the "field" has been split in two. The language documentation resides in these institutions, while the people and culture reside in the Tribal community. The work of documentation and analysis

[8] This is not to say that the community does not have insight into their heritage language or culture, only that conventional linguistic field methods like elicitation of words and phrases will not produce the desired results.

[9] There are certainly instances where Indigenous communities themselves created documents written in their languages, but these instances are the exception rather than the rule.

takes place at both sites, with the ultimate goal of decentering the institution as the primary home of language information and returning this knowledge to community. Thus the "fieldwork" in these projects is not an act of extraction, but an act of repatriation.[10]

Repatriating Tunica language documentation has involved obtaining materials—both published and unpublished—of all three linguists. This has involved archival research at both the National Anthropological archives in Suitland, Maryland where many of Gatschet and Swanton's unpublished Tunica fieldwork is stored, and at the American Philosophical Society, where Mary Haas's papers are housed. There is a smattering of other Tunica language material at other institutions, including recordings stored at Indiana University's Archives of Traditional Music and the California Language Archive.

Tunica language teaching and learning

Over its 15-year history, KYLY has produced language learning materials that it has used to teach Tunica in a variety of settings. This section offers a brief overview of the ways in which Tunica is taught and the tools used to teach it.

Much of the Tunica language curriculum was designed to be taught in an immersion environment. Language classes are immersive at the annual Tunica Language and Culture Summer Camp. Immersion workshops for both youth and adults are held each winter, with Language teachers and students practicing their Tunica over several days and workshopping

[10] A measure of the success of this repatriation is whether the community is the site of language analysis. See KYLY member Meg Harvey's for a recent example of linguistic work done with Tunica as spoken in the community (Harvey 2003).

activities planned for that year's summer camp. Weekly language classes are held in the fall and spring.

To support language learning and language teaching efforts, KYLY started by reworking the information in Mary Haas's published works—her Tunica grammar (Haas 1940), texts (Haas 1950), and dictionary (Haas 1950)—into more accessible works:

Tunica grammar: KYLY developed Tunica language lessons to teach grammatical concepts described by Mary Haas in her published Tunica grammar. Haas's work is written for linguists and uses some terms that are outdated, making this work crucial for community (and language worker) understanding of Tunica. These lessons were expanded into grammatically themed chapters to make concepts contained in Haas's Tunica grammar more accessible. The textbook chapters served as the basis of the much more accessible *Tunica Textbook* (Kuhpani Yoyani Luhchi Yoroni 2023). [11]

Tunica texts: KYLY adapted documented Tunica texts into bilingual children's books. Presenting Tunica texts in the familiar form of a children's book made the text more approachable.

Tunica dictionary: one of KYLY's first digital efforts was to input the data from Haas's dictionary into SIL's Fieldworks Language Explorer (FLEx) software, update it to reflect the

[11] KYLY has expended a great effort working with the data and the community to determine how to fill gaps in the language documentation, but that vital aspect of language revitalization is beyond the scope of this paper.

new spelling conventions, and add neologisms (new words) that the community creates to it to fill lexical gaps in the documentation.[12]

KYLY's pedagogy for classroom and in-person learning is designed to use a five-step methodology derived from communication-based instruction (Supahan and Supahan 2001), which emphasizes orality and interpersonal communication in an immersive setting.[13] However, digital distribution of language materials is important due to the smaller Tunica communities in Houston and Chicago (where there are no trained Tunica language teachers), and because it allows language learners and the community at large to engage with Tunica outside the classroom—and outside of a language-learning context.

The following section details some of the digital language materials KYLY has created, how each serves the purpose of reconnecting the community with extracted data, and how the trajectories of each of these solutions show the importance of simplicity, accessibility, customizability, cross-platform compatibility, and responsiveness to community need.

Constraints, accessibility, and inclusivity of digital language tools

Ward and Genabith (2003) list constraints in endangered language projects that affect Computer Assisted Language Learning (CALL) solutions. Limits on financial resources, personnel, time, technical knowledge, technical support, and project management skills can all hinder endangered language projects. Ward and Genabith suggest that language projects should use existing CALL solutions where they are adaptable to the project's needs. Where no existing solution is available,

[12] For a detailed account of the creation of the new Tunica dictionary, see Anderson (2020).

[13] Much of the structure of the Tunica language pedagogy is derived from the language programs Judith Maxwell helped design for *Oxlajuj Aj*, a Kaqchikel language program in Guatemala.

solutions should be simple, reliable, easy to use, and able to be quickly updated (Ward and Genabith 2003).

Analyzing two KYLY digital projects—the online Tunica dictionary and online Tunica texts—illustrates how software that is unintuitive and hard to update quickly has hindered development of digital versions of two key solutions.

Online Tunica dictionary

The digital version of the Tunica dictionary was originally available only in a complicated database readable only by SIL's Fieldworks Language Explorer (FLEx), software that was designed for linguists doing fieldwork. The software is only available as a locally installed program on a computer running Windows. FLEx allowed the user to export printable PDF of the dictionary as well as a very basic HTML export. A newer version of FLEx introduced a new feature that allowed the dictionary to be easily exported to Webonary, a WordPress website hosted by SIL. This website offered improved search functionality and the ability to include supplementary materials as webpages or PDFs.

However, the website was not fully customizable, and SIL would periodically update the version of its WordPress theme, sometimes in ways that broke links or interface elements. Perhaps its biggest drawback was that the site was not optimized for mobile devices and users commonly accessed the dictionary from their phones. At the yearly Language & Culture Summer Camp, older students are encouraged to use their phones to access the Tunica dictionary in the neologisms workshop, where campgoers create new words in Tunica by combining existing ones

into compounds.[14] A site more compatible with mobile devices would allow for improved ease-of-use in educational settings.

SIL later introduced a method to take an exported dictionary database from FLEx and create a mobile app for Android and iPhone. Whereas exporting a new version of the dictionary to Webonary required simply clicking on a menu item in FLEx, using SIL's Dictionary App Builder requires an app developer account with Google and/or Apple, a Mac for signing the app for use in Apple's App Store, and passing through an app review process. Using Webonary made the project dependent on SIL for web hosting and upkeep of the WordPress installation, but using Dictionary App Builder and making a dictionary app for download made the project additionally dependent on SIL's continued development of the Dictionary App Builder program as well as on Apple and Google for app review and their app store infrastructures.

The release of the mobile Tunica Dictionary app—and particularly the iPhone app—was met with enthusiasm by the community, but updates to the mobile apps are less frequent due to the difficulty of the workflow; language workers use the Webonary version where possible because it is more up to date.

Due to the difficulties of maintaining a full-fledged app on Android and iOS, and the necessity of having a mobile-friendly interface for the community to interact with the dictionary, KYLY has begun looking at other web-based dictionary options in the last year.

[14] For a more detailed description of a summer camp neologism workshop, see Whitaker (2017).

Online Tunica texts

KYLY also uses FLEx as a repository for all digitized Tunica texts due to FLEx's linguistic analysis capabilities. FLEx allows export of a very basic web display of interlinear Tunica texts. An open source solution called LingView (Pride et al. 2020) provides more features like dynamic search and tier filtering. The FLEx web display is static and lacks search features. LingView has these features, but novice users would still have trouble learning how to use and interpret interlinear texts. LingView also takes some technical knowledge to set up and update.

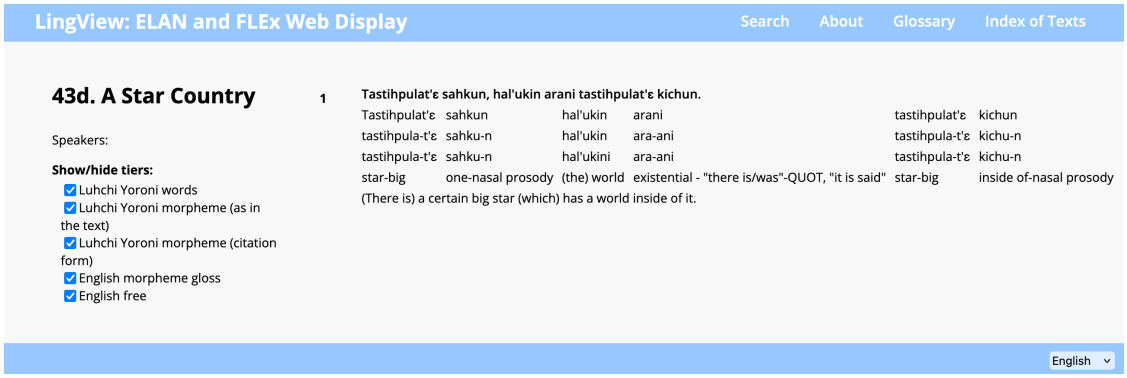

Figure 1: LingView interface

While the group considered (and continues to consider) how best to display the Tunica texts online, KYLY member Craig Alcantara and I discussed how both language workers and the community at large might benefit from a reformatted print version of Haas's Tunica Texts. The two of us completed the project over the course of a few weeks. While this solution doesn't demystify the texts as much as some of the online solutions, it provides the original content of the documentation as a more readable and searchable document than the scanned PDF of the original publication of the Tunica texts.

Conclusion

Language reawakening projects repatriate extracted linguistic information back to the community. Digital tools can be powerful facilitators of this repatriation, but they must operate within project constraints, be tailored to community need, and be adequately user-friendly to be successful. Language projects struggle when resources are expended on projects that the community can't or does not want to use.

Looking at the direction of projects KYLY has undertaken shows the importance of ensuring that digital tools are simple, accessible, customizable, cross-platform, and responsive to community needs. Even in a context where nearly everyone has high-speed Internet in their pocket, concerns about accessibility and feasibility are still warranted in considering what tools will ultimately make an ILR project successful.

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