Using Mobile Apps as a Small Step Toward Revitalization

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Overview

- Background
- Northern Pomo & Kashaya
- Jano sho:jin – Hearing Northern Pomo words
- Kashaya cahno – Kashaya words
- Technical Issues
- Open-source Template of the Android app
Background
Motivation

- Many field recordings and field notes collected over 25 years on a language now dormant...
- Desire to make these resources accessible to the community of the descendants
- We decided to first create mobile apps...
Goals

- Introduce the language to new learners.
- Provide an enjoyable, user-friendly, and accessible learning experience.
- Hopefully, allow learners to get something out of the experience.
Northern Pomo & Kashaya
The Pomoan Languages in Northern California
(Kroeber, 1925)
Northern Pomo

- Currently no living fluent speakers
- But, there is still a community that identifies with the language
- EGIDS Level 9: Dormant:

“The language serves as a reminder of heritage identity for an ethnic community, but no one has more than symbolic proficiency.”
Kashaya

- Also known as Southwestern Pomo.
- There are perhaps two dozen speakers.
- UNESCO: Critically endangered:
  “The youngest speakers are grandparents or older, and they speak the language partially and infrequently.”
Jano sho:jin
iOS App

- Designed and developed by Elodie Paquette.
- Currently, only the iPad app is available for download.
- The iPhone version is under development.
Android App

- The main focus of the talk.
- Available on most Android devices.
- Similar to the iOS app.
- Contains a word-learning quiz.
The Pomo basket was made by Clara Williams in 1943.

Organized in four components:

- About
- Words
- Quiz
- Contact
About View

- About the language, its speakers and where it is spoken.

Northern Pomo, one of seven distinct Pomo languages, was spoken in Northern California for thousands of years. Because of conquest and colonization by European settlers and government language policies, the language is no longer fluently spoken. The jano shojin language app is part of a project to archive and make available materials on the Northern Pomo language. These materials include voice recordings of Edna Campbell Guerrero and Elenor Stevenson Gonzales, both native speakers of Northern Pomo. These materials would not exist without their patience, dedication, and hard work.

The recordings were made by Catherine O’Connor between 1979 and 2005, and by Eero Vihman in the 1960s. The language app itself was designed by Elodie Paquette, and was implemented in 2015 by Finifie Paquette and Josh.
Words
Organized into seven categories:
- People
- Nature
- Animals
- In the home
- Traditional
- Places
- Food

Includes an ‘all’ category.
Words
Provides a list of all the words within the category.

Each word is accompanied by a picture or an illustration.

Users can scroll to view more words.

There are 85 Northern Pomo words featured in the app.
Words

bīta: bear
kayina? chicken
xadalom cat
diwī Coyote
Detailed Word View

- Automatically plays a recording of a native speaker saying the Northern Pomo word.
- Displays a word on its own with the English and Northern Pomo orthography.
- Clicking on the image plays the recording again.
- The icon provides the source or/and description of the picture.
How does the app know how to retrieve the relevant data?
Retrieval of Relevant Words

- Like a spread sheet, or a database.
- Columns are like fields.
- Each entry is represented by the row.

<table>
<thead>
<tr>
<th>Category</th>
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<th>Sound File</th>
<th>Image Name</th>
<th>Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>food</td>
<td>abalone</td>
<td>tʰem</td>
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</table>
Category View

- The Category View pulls data from relevant columns.
- In this case, the category and category image columns.

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<th>Quiz Image</th>
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<tr>
<td>pic_traditional</td>
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Word List View

➢ The Word List View for **food** pulls data from relevant columns, and relevant rows.

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[Image of the Word List View with data entries]
The Detailed Word View for **abalone** pulls data from relevant columns, and from the row containing **abalone**.

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</tbody>
</table>
Quiz
Quiz

Category View

- Organized into the same categories.
- Allows users to reinforce their learning within a category, or all the words across all the different categories.
Quiz View

- This view automatically plays a recording.
- The Quiz View pulls words either from a single category, or words from all categories.
- Users are shown three pictures corresponding to three randomly selected words.
- The recording corresponds to one of these words, and the user is prompted to tap on the picture that matches.
Quiz

Selecting any one of the three illustrations, correct or incorrect, will:
- Grey out the incorrect responses.
- Trigger a yellow border around the correct answer.
- Play the recording again, to reinforce the link between the image and the word.

Our approach provides a gentle reinforcing experience.
Community members have expressed appreciation for the lack of error buzzers.
How does the app randomly select the three words in the quiz?
Design of Quiz

- Each entry occupies a specific row in the table.
- Random number generator allows the app to “randomly” choose three of these rows.

<table>
<thead>
<tr>
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<td>acorn mush</td>
<td>acorn mush</td>
<td>pic_food</td>
<td>pic_food_quiz</td>
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<tr>
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<td>beans</td>
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<tr>
<td>4</td>
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<td>kayinaʔ</td>
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</tr>
<tr>
<td>5</td>
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<td>corn</td>
<td>ma:yish</td>
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</table>
Kashaya cahno
Using the code for jano sho:jin, we then made an app for Kashaya…

- **Cahno** means ‘word’ so **Kashaya cahno** means ‘Kashaya words’.
- The backdrop is of Gerstle Cove in Sonoma County, CA taken from Wikimedia Commons.
Kashaya, also known as Southern Bikon, is one of seven Pomo languages spoken north of San Francisco, in Sonoma, Mendocino, and Lake Counties. The name of the tribe is also spelled Kashia. Their territory, on the Sonoma coast from the Kashia River to the mouth known to Duncan’s Pt. and the mouth of the Russian River, includes Fort Ross, the site of a Russian settlement from 1812-1842. The Kashia reservation is located at Stewart’s Point, also called Surnumnu inlal, "Huckleberry Heights."

The most important linguistic study of Kashaya was conducted by Robert Oswalt, beginning in the 1960s. He worked mainly with Essie Parrish, the spiritual leader of the Kashaya people from 1943 until her death in 1978. Many of the words to be heard in this app were spoken by Mrs. Parrish. The other women seen here is Isabelle Johnson.
Organized into thirteen categories:

- Birds
- Home
- Trees, Plants
- Water
- Weather, Sky
- Traditional
- Body Parts
- Insects, Spiders
- Food
- Fish, Sea Creatures
- Land
- Mammals
- Reptiles, Amphibians

Includes an ‘all’ category.
There are 113 Kashaya words featured in the app.
Quiz

k’ahša:ya cahno ya šocahtimte?
Let’s listen to Kashaya words
```java
quiz[n] = i;
n++;
}

// Bitmap image = decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250);
BitmapFactory.Options options = new BitmapFactory.Options();
Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
gridArray.add(new Item(image, Word.getEnglish(quiz[i]), ""));

gridView = (GridView) findViewById(R.id.gridView1);
customGridAdapter = new CustomGridViewAdapter(this, R.layout.row_grid, gridArray);
gridView.setAdapter(customGridAdapter);
playSound(Word.getSound(correct));

if (player != null) {
    player.stop();
    player.release();
}

playSound(Word.getSound(correct));
gridArray = new ArrayList<Item>();
for (int i = 0; i < size; i++) {
    BitmapFactory.Options options = new BitmapFactory.Options();
    Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
    image = adjustOpacity(image, 90);
    gridArray.add(new Item(image, Word.getEnglish(quiz[i]), Word.getPomo(quiz[i])));
}
else {
    BitmapFactory.Options options = new BitmapFactory.Options();
    Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
    // Bitmap image = adjustOpacity(decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250), 90);
    gridArray.add(new Item(image, Word.getEnglish(quiz[i]), Word.getPomo(quiz[i])));
}
```
Screen Sizes & Android Operating Systems

- Android devices come in many different screen sizes.
- Android also have different operating systems.

https://s3.amazonaws.com/infinum.web.production/repository_items/files/000/000/190/original/emulator9.png?1393600184
The norm among developers is to attempt to cover most leading devices...

- If you don’t account for these different devices, some users may not be able to download the app.
- However, we cannot always anticipate what devices are being used.
- In these cases, access to the materials is restricted.
- Is it enough to cover leading devices?
Orthography

- Desire for unique orthography to represent the language, and as cultural identity.
- It may be difficult for digital technologies to accommodate novel and unique writing systems.
- There are many special characters (i.e. diacritics) that may not be easily represented...
Here’s an example...

- Northern Pomo and Kashaya use slightly different writing systems.
- In Northern Pomo, the *alveolar* ‘t’ – ‘t’ sound in English ‘stop’ – is written the same as the English t.
- In Kashaya, the *alveolar* ‘t’ is written as ṭ.
- On some devices, ṭ looks like this: □
Memory Management

- Phones and tablets have limited memory (or data storage), some less so than others.
- Memory management can be a bottleneck in any project.
- Multimedia (i.e. sounds, videos, images) adds to the problem.
- If you’re not already familiar with Android development, this can be a real issue...
for (int i = 0; i < size; i++) {
    // Bitmap image = decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250);
    BitmapFactory.Options options = new BitmapFactory.Options();
    Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
    gridArray.add(new Item(image, Word.getEnglish(quiz[i]), ""));
}

gridView = (GridView) findViewById(R.id.gridView);
customGridAdapter = new CustomGridViewAdapter(this, R.layout.row_grid, gridArray);
gridView.setAdapter(customGridAdapter);
playSound(Word.getSound(correct));
final Context ctx = this;

gridView.setOnItemClickListener(new OnItemClickListener() {
    public void onItemClick(AdapterView<?> parent, View v, int position, long id) {
        if (player != null) {
            player.stop();
            player.release();
        }
    }
    playSound(Word.getSound(correct));
    gridArray = new ArrayList<Item>();
    for (int i = 0; i < size; i++) {
        // Bitmap image = decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250);
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        Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
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        // Bitmap image = adjustOpacity(decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250), 90);
        gridArray.add(new Item(image, Word.getEnglish(quiz[i]), Word.getPomo(quiz[i])));
    }
    else {
        BitmapFactory.Options options = new BitmapFactory.Options();
        Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
        // Bitmap image = decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250);
        image = scaleCenterCrop(image, 250, 250);
        image = addWhiteBorder(image, 16);
        gridArray.add(new Item(image, Word.getEnglish(quiz[i]), Word.getPomo(quiz[i])));
    }
};
Our suggestion...

- Your team have a member who’s familiar with developing Android applications, or has experience with Java programming.
- Most of the code has been written, you just need to enter in your data.
- Android development is a non-trivial process...
Where to download...


Github: eddersko
Thank you!
_k’edi ma: ya:l na_

Acknowledgments:
Our deepest thanks to Edna Campbell Guerrero and Elenor Stevenson Gonzales for their many years of patient generosity and good humor. Thanks to the Tribal Historic Preservation Officers of several Northern Pomo Rancherias, and to Erika Estrada Carson.

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