

## Problem space

- **Resources** (tools & content) **are scarce** for learners & teachers of endangered languages.
- **Messy infrastructure:** Language content exists across a variety of platforms & formats.
- **Retrieving & accessing** language content can be difficult.
- Language content needs to be made **usable for language learners** (and lessons).
- Learners often lack **opportunities to consult language speakers** (for feedback & advice).
- **Data sovereignty** can be an issue.

## Project goal

### A mobile tool for speakers, teachers & learners of Gathang and Ktunaxa...

- ...to facilitate the learner-oriented collection and exchange of language content,
- ...to organise the language content & make it reusable in learner-friendly ways,
- ...that is sensitive to cultural practices and protocols & supports the needs of community stakeholders.

## Research goals

- Investigate new methods for the learner-oriented collection & management of language content.
- Investigate the participatory design process, incl.
  - the influence of Ktunaxa & Gathang language, culture, protocols & practices on the design process,
  - participant agency & tool ownership,
  - dynamics among co-designers.

## Project team

### Indigenous & non-Indigenous • Multicultural

Randell Lum *Ktunaxa language educator; MT, USA*  
 Gulwanyang Moran *Gathang language educator; UQ, AUS*  
 Kathrin Kaiser *Language instruction researcher; UQ, AUS*  
 Mark Richards *Language instruction researcher; WSU, AUS*  
 Sarah Bock *eLearning software developer; UQ, AUS*  
 Jameson Nguyen *Software developer; UQ, AUS*  
 Ben Matthews *HCI design researcher; UQ, AUS*  
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## Challenges for a mobile tool



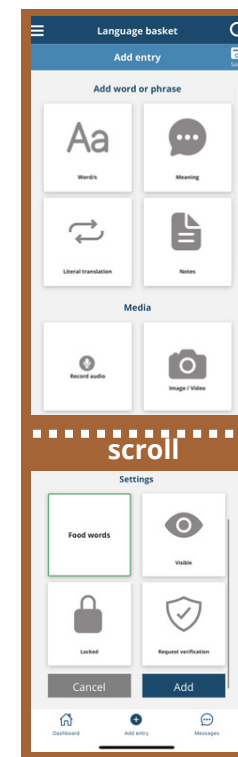
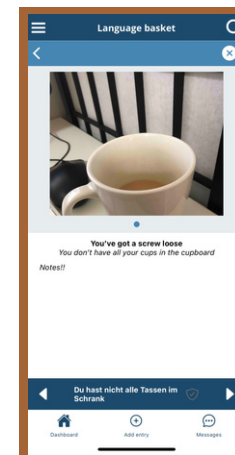
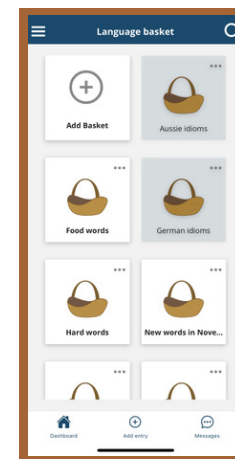
## The prototype features...

- **Learner-oriented content collection:** Input fields for words & phrases, literal translation, transferred meaning, notes & annotations.
- **Multimodal content entries:** Combine text, audio, video, images.
- **Personalised content management:** Entries can be organised in "baskets" by topic or category.
- A **messaging system** to request, share, and discuss language entries.
- **User groups** for content exchange.
- **Feedback & verification** features.
- An **exportable database** that can be re-used independently from the application; hosted via Google Firebase's free tier.
- Planned for v2: **Practice mechanisms** & automatic flashcard generation.

## Bigalgu-Na'hik The Language Basket

Co-designing a language content tool with teachers & learners of Gathang & Ktunaxa, researchers, and software developers

Funded by:  
ARC CENTRE OF EXCELLENCE FOR THE DYNAMICS OF LANGUAGE



The design process purposefully integrates the perspectives of two distinct language and cultural spaces in order to consider a broader range of usage contexts and requirements for this tool.

## Gathang

- Pama-Nyungan language
- Spoken by Birrbay, Warrimay and Guringay peoples
- Early stages of revitalisation
- Strong governance mechanisms
- Accredited certificates (TAFE, registered training organisation)

## SHARED GOALS

### RESOURCE DEVELOPMENT

### LANGUAGE LESSONS

### DATA SOVEREIGNTY

## Ktunaxa

- Language isolate
- USA: NW Montana & Idaho; Canada: SE B.C.
- Few fluent speakers (2018: 31)
- Language classes online & F2F
- Apprentice program
- Interactive language learning adventure game

## Insights about the process

- Team culture is important: Yarns, design activities and discussions help to develop rapport & mutual understanding of one another's needs & perspectives.
- The process facilitated an in-depth review of the problem space and the exploration of Gathang & Ktunaxa needs.
- Prototype features are built around the needs and goals of target users: language teachers and learners.

## Design process

### Phase 1: App design with the core project team

Bi-weekly, online participatory design sessions between June 2021 - April 2022

**DESIGN**  
 USER RESEARCH • WISH-LIST • PRIORITY RATING • UI SKETCHES • USER PERSONAS • USE CASES • TARGET FEATURES • YARNING & REFLECTION ABOUT THE CO-DESIGN PROCESS • WIREFRAMES • FEATURE REVIEW



### Phase 2: Software development

- Bi-weekly review of features & functionalities until Dec 2022.
- Testing & feedback sessions with the core project team.

### Phase 3: Usability testing with community groups

- Review of features and app usability testing in early 2023.
- (Re-)design activities for prototype updates / tool v2.