
How to Structure the Design Workshop of a Conversational Language Aid for/with an Indigenous Community?

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Abstract

During the process of structuring a workshop with high-school students from an Indigenous community to develop a conversational language aid, we found that the literature, although rich in prescriptive ideas on what should happen in such contexts, is quite devoid of real ideas or methods on how to actually achieve those goals in practice. In this position paper we discuss those shortcomings, the opportunity for original work, and present some initial ideas on how we intend to actually ensure real, respectful, and inclusive engagement by structuring our design workshop around Indigenous ways of *doing*.

Author Keywords

Conversational systems; Indigenous design; participatory design; Indigenous HCI; chatbots; Indigenous language resources; Indigenous tools; conversational user interfaces.

CCS Concepts

•Human-centered computing → Participatory design;
Natural language interfaces;

Introduction

In 2022 IBM Research and the University of São Paulo, through the Center for Artificial Intelligence (C4AI)¹, have started a multi-disciplinary project focused on the use of

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¹<http://c4ai.inova.usp.br/>

The Guarani Tenonde Porã Community in São Paulo

The Tenonde Porã Indigenous community is composed of 14 villages in the south of the city of São Paulo, in a rural/forest area about 50km from downtown. In this area, about 3,000 Indigenous people live in a reservation created in 2016, comprising almost 16 thousand hectares. Most of the community members are ethnic *Guaranis* who natively speak the *Guarani Mbýa* language, although fluent in Brazilian Portuguese.

In the last 5 years the community have started a project to transform its schools (run by the State of São Paulo), into Indigenous schools where the *Guarani Mbýa* is being used as the primary language and employed as the basis of the alphabetization process. The project also includes the high school where most of the students, although native and fluent *Guarani Mbýa* speakers, learned to read and write in Portuguese.

More information available at tenondepora.org.br/

Artificial Intelligence (AI) to support the strengthening of Indigenous languages. Under this project, we have started working with the *Guarani* Indigenous community of *Tenonde Porã* in different areas, including the development of a *WhatsApp-based language aid* to support current and future speakers of the language, notably in its written form.

In this position paper I focus on the initial difficulties faced by the designers of the conversational language aid to structure the process of co-design and co-development. In particular, I address some shortcomings in the previous literature of Indigenous Design and HCI and describe how the engagement with the community led to ideas on how to structure the workshop using their own practices.

Many “Whats” but Few “Hows”

The last 15 years have produced many scholarly works covering different aspects and cases of engagement with Indigenous communities for the design of digital artifacts, such as [2, 10, 14, 9, 11, 15, 8, 12]. Most of those works focus on identifying and describing key principles which should be followed by the designers when engaging with the Indigenous community. For instance, [11] describes the process of co-designing interactive artworks with Sarawak communities in Malaysia based on the *respectful design* concepts of [13].

In fact, such literature, although full of descriptions of *What* should be done in the design process, is very limited on *How* the actual design process should be done. What we found was a possible gap in design knowledge about specific methods to engage meaningfully, respectfully, and appropriately with an Indigenous community. A few exceptions were [14, 9, 15] which present some details about how the design workshops were actually conducted. But even in those works, a more systematic description of the actual

methods and means is lacking, failing to provide examples of good ideas and practices on how to actually conduct design workshops and processes in those contexts.

Although this position paper cannot address those questions fully, it tries to provide, in the next two pages, some insights on what we did when facing those issues in the actual design engagement with the Tenonde Porã community.

Engaging the Indigenous Community

Our project is engaging with different Indigenous communities, notable in the area close to the city of São Paulo. In the particular case of the language aid, we are starting to work with the *Guaranis* of the *Tenonde Porã* community (see side box). After three meetings with leaders, teachers, and students of this community, held in praying houses (traditional places where decisions are made), they invited us to work with their high-school students in a weekly, 2-hour workshop to be held in their school.

During the three initial meetings we learned about different issues facing the community schools and the high-school students. The latter is a group which had very few classes during the COVID-19 pandemic, time which was also marked by the arrival of high-speed, fiber optics-based Internet connections to some of the villages (cell coverage in the area is spotty). The students used the fast Internet to engage in social media (*Instagram*, *WhatsApp*, *Tik-Tok*) and in online games such as *Free Fire*, sometimes using their own *Guarani Mbýa* language. We were also told that the use of *WhatsApp* by teenagers and adults is widespread, in both Portuguese and *Guarani Mbýa*, although keyboard difficulties make people use audio files in the latter case.

We learned that reading and writing in *Guarani Mbýa* is a challenge for people of all ages in the community, since



Figure 1: Photos of a praying house and of a meeting held in December of 2022.

most of them were alphabetized in Portuguese, including the students in high-school. At the same time, the community is very keen on increasing the use and the ability of people to read and write in their own language, as a way to strengthen the language and the culture.

This led us to propose to the community to work with them in the creation of a computational *language aid*, able to provide dictionary services, error correction, speech-to-text, text-to-speech, translation to Portuguese, and similar services to support and facilitate the use of text. Given the widespread use of *WhatsApp*, we suggested it as the basic platform, in the form of a conversational chatbot. The idea was received well and we were told to use the weekly 2-hour workshop with the high school students to design and develop the conversational language aid.

Ideas for a Design Workshop

It was in the context of planning the conversational aid design workshop with the students that we looked for ideas on how to structure the activities, guided by key concerns and issues related to *Postcolonial Computing* [5] and *Participatory Design* [6]. However, as mentioned before, the HCI and design literature related to work with Indigenous communities was disappointingly limited. Interestingly, some works discussing issues related to Indigenous education, schools, and connectivity [3, 4, 1, 7] were more helpful. In particular, the discussion in [1] about *being* an Indigenous person vs. *doing* the Indigenous way was enlightening and helped us to outline some initial ideas about the workshop.

First, we decided to bring to the workshops, as much as possible, the conversational structure we saw in the three meetings held in the praying houses (see fig. 1). In those meetings everyone seem to be welcomed to voice opinions, whenever they felt comfortable, and the discussion moved

at its own pace toward a consensus. There were no time limits and periods of silence were an opportunity to ask the opinion from shy people. People could enter and leave the conversation, mothers nursed their babies, and humour and laughing were common. Our challenge, as the executors of the design workshop, is to create a similar environment.

Second, we agreed to begin the workshop by exploring the students' current activities in the Internet, particularly in *WhatsApp* and in the game *Free Fire*, as a starting point to explore their difficulties in the use of written language and how a language aid could have a role to play there.

Third, we consider that it is important to downplay our own eminence as scholars, designers, and computer wizards. In the second day of the workshop we plan to present the current version of a translator from Guarani Mbya to Portuguese which we know has a poor performance. The goal is to make us look not only incompetent in the their language but also as people who can fail, sometimes miserably. The focus of the first 3 or 4 sessions will be to get the students' help on improving the translator and to the process of creating a common object for the community.

Only after these three phases are completed, and based on their results, we plan to start the process of designing the conversational language aid based on *WhatsApp*.

Discussion

At the moment we are writing this position paper we have already had an initial contact with the students in their classroom and are about to start the workshop. By the time of the CUI@CHI workshop, we will be able to discuss the first two months of the work with the students.

Our main objective in writing this position paper is to instigate a more practical discussion, among our community,

on how to conduct co-design with Indigenous communities. We believe we should focus more on sharing experiences, methods, and design processes, and less on theoretical principles. More Hows and less Whats.

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