



**COLLABORATIVE APPROACHES TO
THE CHALLENGES OF LANGUAGE
DOCUMENTATION &
CONSERVATION**

Selected papers from the 2018
Symposium on American Indian
Languages (SAIL)



**Language Documentation
& Conservation
Special Publication No. 20**

edited by

Wilson de Lima Silva & Katherine J. Riestenberg

Introduction: Collaborative approaches to the challenges of language documentation and conservation

edited by

Wilson de Lima Silva

Katherine J. Riestenberg

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Introduction: Collaborative approaches to the challenges of language documentation and conservation

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The papers in this special issue are the result of case studies on methods in language documentation, language conservation, and language reclamation in the Americas. These papers were first presented at the 6th Symposium for American Indian Languages, held at the University of Ottawa, on April 13-14, 2018, jointly with the Workshop on the Structure and Constituency in the Languages of the Americas (WSCLA). SAIL and WSCLA were funded by a Connection Grants (#611-2017-0613) from the Social Sciences and Humanities Research Council of Canada (SSHRC).¹

The papers bring together unique, informed and relevant insights at the interface of several domains (language documentation, language conservation, and language reclamation, language assessment surveys), in which the focus is on Indigenous communities and their efforts to preserve and/or reclaim their language for the future generation of speakers. This is the first time papers presented at SAIL have been published together in one special volume. They build on the increasing efforts towards community-based language research around the globe (see for example Bischoff & Jany 2018; Czaykowska-Higgins 2009; Hinton & Hale 2013 [2001]; Penfield et al. 2008). There is a great deal of published material that resulted from community-based language revitalization work on the Indigenous languages of Canada and the United States (Burnany & Reyhner 2002; Cantoni 1996; Reyhner 1990, 1997; Reyhner et al. 1999, Reyhner & Lockard 2009).² Some recent volumes with case studies include Coronel-Molina & McCarty (2016) and Pérez Báez et al. (2016). This is not to say that community-based research is not being undertaken in these regions (see Fitzgerald, to appear, for an overview of the community-based research taking place in the Amazon region) and reports on some of the current community-based research in these regions have been published in open source journals such as *Language Documentation & Conservation* (e.g., Caballero 2017, Cruz & Woodbury 2014, Silva 2016, Stenzel 2014; Yamada 2007) and *Language Documentation and Description* (e.g. Hornberger 2017, Olko 2018). The

¹ Principal Investigator: Andrés Pablo Salanova, University of Ottawa; and co-PI: Wilson de Lima Silva, University of Arizona. We also thank the University of Ottawa's Linguistics Department for the support in hosting SAIL2018 and all speakers and attendees for the fruitful discussions.

² Most of these resulted from papers presented at the Stabilizing Indigenous Languages Symposium, and are available online at <http://jan.ucc.nau.edu/~jar/books.html> (visited August 20, 2019).

present issue builds on the trend of reporting case studies of community-based Indigenous language research so that we may better understand the challenges and successes of engaging in this work in diverse contexts.

This issue includes seven contributions that grew out of SAIL and the conversations and interactions that followed between the contributors and us, the editors. All the contributions were blind-reviewed by colleagues who are Indigenous linguists and/or are engaged in community-based research or “collaborative consultation” (Leonard & Haynes 2010) with Indigenous languages of the Americas. All three subcontinents of the Americas are represented in the papers in this volume. The first contribution of this volume, by Carreau, Dane, Klassen, Mitchell, & Cox provides an account of a partnership between a university and community-based organizations with the goal of implementing Community Service Learning (CSL) around language documentation training (e.g. linguistic annotation and the use of software tools to create searchable text). As a case study, they show how the collaboration between the Yukon Native Language Centre and graduate students from Carleton University contributes to community priorities for local language programs, resources, and training of both community members and graduate students. Furthermore, they show how this collaboration can foster mutually supportive relationships between a community-based organization and an academic institution, thus emphasizing the role of collaboration as a core component in language documentation and revitalization projects.

Josh Holden examines the role of land-based education and ceremony in the curriculum at Blue Quills University, and the contribution to language reclamation work. He also describes some of the approaches to teaching linguistics as well as Cree and Dene languages as second languages. Holden zeroes in on the creation of linguistic vocabulary for talking about the sounds and grammatical aspects of the language as a way to facilitate the teaching of linguistics in the Dene language. This activity not only broadens the domain in which Dene language can be used, but also provides a sense of ownership among the students who are part of the process of creating new lexicon in the language.

Benjamin Frey provides an assessment of the usefulness of corpora creation in Cherokee (Iroquoian, ISO 639-3 *chr*) for second language learning and language revitalization efforts. He discusses the challenges and pitfalls of corpora creation in Cherokee, noting for example how some concepts like words versus phrases can be problematic for automatic translation due to the language’s complex morphology. Notwithstanding, Frey presents some insights on how the corpora can be used for teaching and learning the language.

Suzi Lima describes the process of creating a monolingual pedagogical grammar of Kawaiwete (Tupian) as an outcome of a community-based language documentation project. Lima lays out the model she used to engage community members in language research through a series of linguistic workshops in the Kawaiwete communities. She demonstrates that in the process of creating material for language maintenance efforts, scholars can also contribute with capacity-building by training community members who are interested in these activities to become researchers of their own languages.

Katherine J. Riestenberg reports on teaching practices at a small Sierra Juárez-Zapotec (Otomanguan, ISO 639-3 *zaa*) language revitalization program in San Pablo Macuilianguis, Oaxaca, Mexico. Teachers at the program have sought strategies to support their student’s speaking abilities in the language. Riestenberg describes her work with the program which was aimed at adapting communicative language teaching

strategies to be more useful and appropriate for this particular context, noting that existing research on communicative language teaching has largely ignored the challenges of language revitalization. She explains how teachers adapted and applied two particular strategies: providing rich input and supporting meaningful social interaction. The examples show how teachers can support students' learning even when few pedagogical resources are available.

Laurel Anne Hasler, Marie Odile Junker, Marguerite MacKenzie, Mimie Neacappo, & Delasie Torkornoo describe their work developing new terminology and creating digital tools to support the East Cree (ISO 639-3 *mbc*) and Innu (ISO 639-3 *moe*) languages (Algonquian). Drawing on two cases, Innu terminology development in the legal context and East Cree terminology development in the medical context, the authors explain how workshops and digital technology supported the creation of new words as well as teaching resources such as interactive images, booklets, and multimedia apps. Several challenges of this type of work are discussed, including dialectal variation, social context, and linguistic considerations. The paper demonstrates the advantages of multi-community efforts in addressing these challenges.

Frederick White explores the role of film and drama in Haida (ISO 639-3 *hai*) language revitalization. The paper focuses on a theatrical production, *Sinxii'gangu*, and a film, *Edge of the Knife*, both of which are entirely in Haida. White reflects on how these efforts have generated excitement about the seeing and hearing the language beyond the typical settings (official community meetings, school), and he describes how they have offered opportunities to practice the language, especially everyday conversation as opposed to narratives, which are more commonly documented. He notes that much of the language and cultural material was new to the writers, actors, and producers, whose learning was guided by fluent elders. While he also points out some challenges, he concludes with a list of ways these efforts have positively impacted Haida revitalization efforts.

Vidhya Elango, Isabella Coutinho, & Suzi Lima examine the vitality of the Cariban language Macuxi (ISO 639-3 *mbc*) and the Arawakan language, Wapixana (ISO 639-3 *wap*) in the multilingual community of Serra da Lua, Roraima, located in Brazil. Due to the proximity with the Guyana border, some people in the community also speak English. Although the primary goal of the survey was to provide a diagnostic of the vitality of the two Indigenous languages spoken in the community, the authors also provide a discussion of the use of English in this community. Even though community members have positive attitudes towards the Indigenous languages of the community, the survey shows that there is little intergenerational transmission of the languages resulting in speakers shifting to Portuguese (the dominant language of Brazil). English seems to have little influence in language shift; however, Indigenous teachers note the importance of having pedagogical materials in English that can assist the Indigenous immigrants from Guyana who can only speak English.

Together, the papers in this special publication showcase the diverse ways communities are taking on the challenge of language revitalization. It is our hope that they can inspire further development of theoretical connections in which Indigenous ways of thinking and doing are brought into the discipline of linguistics through projects driven by Indigenous community members (cf. Leonard 2012, 2018). We are thankful to the contributors of this volume as well as all of the presenters and attendees at SAIL and WSCLA in Ottawa. We also want to express our gratitude to colleagues who provided anonymous peer reviews of the papers presented here.

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Integrating collaboration into the classroom: Connecting community service learning to language documentation training

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As training in language documentation becomes part of the regular course offerings at many universities, there is a growing need to ensure that classroom discussions of documentary linguistic theory and best practices are balanced with the practical application of these skills and concepts. In this article, we consider Community Service Learning (CSL) in partnership with community-based organizations as one means of grounding language documentation training in realistic and collaborative practice. As a case study, we discuss a recent CSL project undertaken as a collaboration between the Yukon Native Language Centre and graduate students in an introductory course on language documentation at Carleton University. This collaboration focused on annotating legacy language lessons for several Indigenous languages of the Yukon Territory, Canada, using software tools to create a text-searchable, multimedia database for pedagogical applications. Drawing on the reflections of both community- and university-based collaborators, we discuss the design of this project, some of the challenges that needed to be addressed as the project progressed, and offer several recommendations for future initiatives to integrate CSL into language documentation training.

1. INTRODUCTION. The fields of language documentation and revitalization have recently seen an increase in the availability of training opportunities indicating both a growing interest in work in these areas and a need to bridge gaps present between theory and practice (Austin 2016; Bischoff & Jany 2018; Fitzgerald & Linn 2013).¹ As recent studies have noted, these training opportunities are diverse, taking a variety of forms and aiming to serve a range of different audiences and purposes: whether responding to the specific needs of individual Indigenous and minority language communities in

¹ We gratefully acknowledge the many Yukon First Nations and Alaska Native Elders, teachers, language workers, and their collaborators at the Yukon Native Language Centre whose efforts produced the language lessons that are the focus of the Community Service Learning project discussed here. In particular, credit is due to Josephine Acklack, Lorraine Allen, Kathy Birckel, Mary Blair, Elizabeth Blair, Catherine Germaine, Isaac Juneby, Virginia Kemble, Mary Jane Kunnizzi, Annie Lord, Ann Mercier, Jane Montgomery, Emma Sam, Terry Sawyer, Marlene Smith, Grady Sterriah, Rachel Tom Tom, Jocelyn Wolftail, and Lucy Wren, whose voices and contributions are represented in these lessons. Financial support for this project was provided by a Carleton University Teaching Development Grant (2018–2019).

implementing local language programs (e.g., DRIL; Florey 2018) or introducing participants to common practices in language documentation and revitalization that may be relevant both to language community members and others with an interest in this area (e.g. Genetti & Siemens 2013).

Common to many of these training situations is an emphasis on collaboration as a core practice, with relationships of mutual respect, trust, and support enabling diverse partners to contribute and develop their skills and knowledge through collective engagement in language work. As central as this aspect of language documentation and revitalization may be to many language initiatives, collaborative practices can be challenging to integrate into training opportunities. Relatively short-term schedules, even in the context of intensive training, may limit opportunities for participants to begin to establish these kinds of relationships; while some forms of training focused on technical aspects of documentary linguistic practice (e.g., digital recording and annotation methods) may tacitly assume the existence of relationships between partners and a general alignment of interests that would allow such methods to be applied in practice.²

In this context, this article explores the potential for Community Service Learning (CSL) as a means of bringing together collaboration and documentary linguistic training, taking as an example a recent partnership between graduate students and an instructor (Cox) at Carleton University in Ottawa, Ontario, Canada and the Yukon Native Language Centre (YNLC) in Whitehorse, Yukon, Canada.

As a community organization, YNLC provides linguistic training and educational services to the fourteen Yukon First Nations, their citizens, and the general public. In addition, as part of its mandate as a department of the Council of Yukon First Nations, YNLC contributes to the development of learning materials and other resources in the eight recognized Indigenous languages spoken in the Yukon Territory, whose geographical distribution is summarized in Figure 1. These resources and programs have been focused most recently on the revitalization of Yukon Indigenous languages, with the aim of supporting the younger language learners' and emerging speakers' language proficiency development (Yukon Native Language Centre 2018). As such, these resources have been made available to the general public for over 20 years and are frequently used in Yukon public schools.

While YNLC has contributed substantially since its establishment as a language center in 1985 to the development of learning resources for Indigenous languages in the Yukon and neighboring areas of Alaska, British Columbia, and the Northwest Territories, this increasing emphasis on language revitalization and the needs of emerging speakers has brought renewed attention to the need to expand the accessibility of exist-

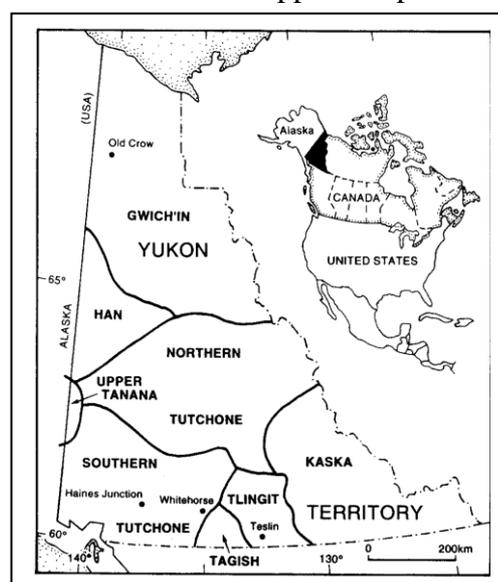


FIGURE 1. Yukon Indigenous languages in the Yukon Territory (reproduced from Wein & Freeman 1995:162).

² See Benedicto (2018) for further discussion of (mis)alignment between academic and community interests in language documentation.

ing language materials for a wide range of audiences. This situation presented an opportunity for members of YNLC and Carleton University to consider how they might be able to work together to improve the accessibility of one such set of ‘legacy’ language learning materials for Yukon Indigenous languages, which were already familiar to Yukon public schools and communities, while also providing training opportunities for the staff members and students involved. In the following sections, we discuss how this collaboration between a community language organization, a university instructor, and a group of graduate students came to be, and how its framing in terms of CSL assisted in integrating collaborative documentary linguistic activities as core components of both community-based and university-based training. As the following sections highlight, such partnerships—although not without challenges—can help foster positive relationships between linguistic communities, students, and others, yielding potentially impactful results.

2. PARTNERSHIP. The project detailed herein is conceptualized in terms of Community Service Learning (CSL): “an educational approach that integrates service in the community with intentional learning activities. (...) [M]embers of both educational institutions and community organizations work together toward outcomes that are mutually beneficial.” (Canadian Alliance for Community Service-Learning 2018).³ For this project, CSL was seen as a means of aligning existing opportunities for training in language documentation with the priorities of ongoing community language education and revitalization programs, in this case involving Indigenous languages in the Yukon. In part, this project came about as the result of an existing relationship between the Director of YNLC and Christopher Cox, an assistant professor at Carleton University who had worked in the Yukon between 2013–2016. This liaison facilitated the partnership between Carleton University students and the larger network of staff members at YNLC with the following broad roles:

Yukon Native Language Centre: Staff members at YNLC and the university instructor worked together to identify existing language resources that served as important learning resources in many Yukon-based language programs, and which would be appropriate to be developed into more accessible forms in a collaborative project involving Carleton University students, with whom YNLC staff members had previously expressed interest in collaborating. These discussions highlighted the need for technical training not only for Carleton students, but also for YNLC staff who would be working with these same materials and technologies. An overview of the collection of language materials and techniques that were ultimately selected for this project is provided in the following section. As well, it was recommended that this work focus not only on documentary linguistic training, but also on providing participants with an opportunity to learn more about the Yukon First Nations languages and communities represented in these resources with the assistance of YNLC.

Carleton University: Students participating in this project were enrolled in an introductory seminar in language documentation at the graduate level. The primary objective of this course was to examine current theoretical and ethical issues that

³ See also Fitzgerald 2009, 2010, 2018 for discussion of service-learning and its application in linguistics and language documentation and revitalization.

arise in the context of language documentation, while providing practical experience with current digital methods in documentary linguistics. These graduate students in applied linguistics and discourse studies generally had limited or no prior training in either descriptive linguistics or language documentation, and none had previous experience with Indigenous languages in northwestern Canada. This highlighted a need for training in common documentary linguistic methods that was shared with staff at YNLC, as well as for an introduction to Indigenous languages in the Yukon and Yukon First Nations. This training is discussed further in §4.

3. METHODS AND MATERIALS. The CSL project described here concentrated on a series of legacy language learning materials that were developed by Yukon First Nations Elders, language teachers, and YNLC staff members between 1994–1995. During this time, sets of language lessons were created for multiple dialects of eight Yukon First Nation languages, with each such set of lessons including textbooks with vocabulary-focused lessons as well one or more corresponding audio cassettes with recordings of first-language speakers' pronunciations of target vocabulary. The audio recordings for each lesson followed a common format: a speaker would read a word or phrase in English, followed by two repetitions of the equivalent in the target Indigenous language variety.

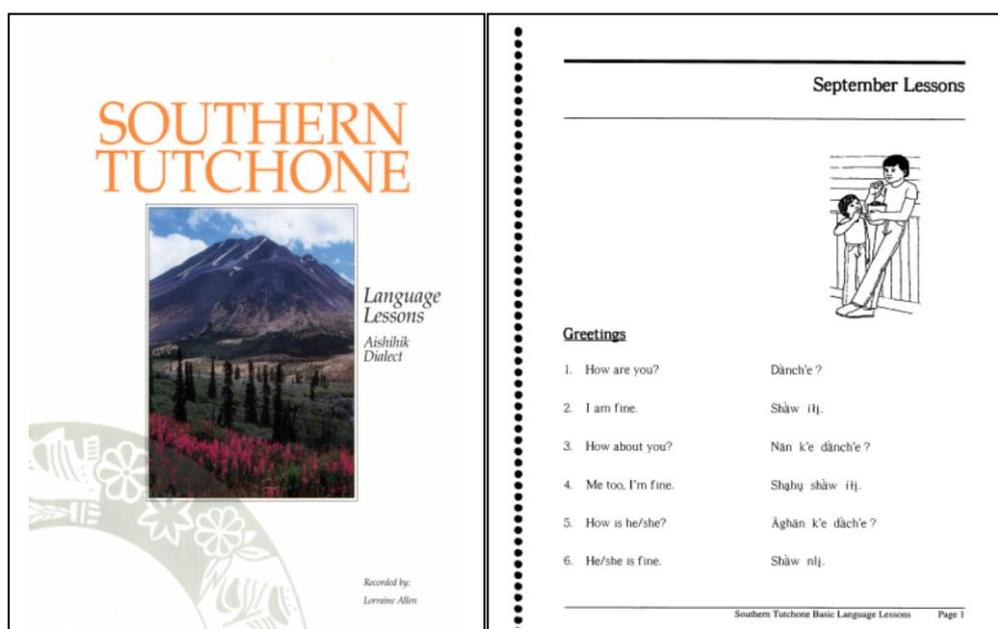


FIGURE 2. Example language lessons for the Aishihik dialect of Southern Tutchone (ISO 639-3: tce) (Allen & YNLC1994).

The corresponding printed textbooks had a similar structure, with lessons divided into monthly units that introduced vocabulary through conversational exchanges that typically centered on activities associated with that time of year (e.g., fishing, moose hunting, or fire-making), as seen in Figure 2.

Since their publication, these language lessons have served as important resources for language education programs throughout the Yukon, especially for Yukon First Nations languages with relatively few fluent, first-language speakers. However, the analog format of these materials presented barriers to their reuse as general-purpose

resources in current language programs. In addition, while organized coherently according to a seasonal calendar that limited the range of topics that might be anticipated to be covered in any given unit, the printed textbooks did not include a table of contents or index of the vocabulary they contained. This made it challenging at times to find information that could potentially be organized under more than one season (e.g., weather terminology, which was typically distributed across multiple lessons in several units). Similarly, while the original audio cassettes could be consulted to provide examples of fluent speakers' pronunciations of Indigenous language text, both the analog format of the cassette tapes themselves and the lack of an index providing the starting times of particular sections made it difficult for these resources to be navigated and their contents drawn on fully in ongoing language programs.

With the assistance of the Yukon Department of Education, the original printed booklets and the analog audio cassettes for each set of lessons were digitized by Cox, producing a collection of archival PDF (PDF/A) documents and uncompressed WAV audio files, as well as corresponding presentation copies in lower-resolution PDF and MP3 formats. The availability of digital facsimiles of these materials represented a first step towards improving their overall accessibility. The provision of digital audio reduced the need for functioning cassette decks to be present in language classrooms and other spaces to be able to consult recordings of fluent speakers, while applying basic optical character recognition (OCR) to the scanned textbooks allowed for limited searches of their English-language contents. At the same time, users of these materials were still restricted in their ability to search for information in these materials by Indigenous language text (for which the available OCR methods proved largely unreliable), or to call up the corresponding pronunciations in the digitized audio recordings. This limited the degree to which Indigenous language text and audio could be consulted without relying on the provided English equivalents.

4. COMMUNITY SERVICE LEARNING PROJECT FRAMEWORK. The CSL project was proposed as one way of making these language materials more accessible for language teachers, learners, and those involved in supporting language education and revitalization programs. Graduate students from Carleton University would be provided with digital files of the language recordings for segmentation and analysis. The language recordings would be parsed into individual segments, which were defined as pause-delimited utterances generally corresponding with boundaries provided in the original, printed lesson booklets that could be compiled into a searchable corpus.

Training in documentary linguistic methods

Annotation of the audio recordings was conducted in ELAN (Wittenburg et al. 2006; Sloetjes 2014).⁴ As the current *de facto* standard for audiovisual annotation in language documentation, adopting ELAN for this project provided both valuable practical experience for graduate students and YNLC staff members in working with multilingual documentary materials, as well as non-proprietary representations of the contents of these recordings that fit with the long-term mandate of YNLC to facilitate access to resources such as these for language revitalization, education, and study. As well, the ability of ELAN to represent complex annotation scenarios (e.g., recordings containing multiple speakers, languages, and different kinds of information) through user-defined

⁴ ELAN is an open-source desktop application associating time-aligned textual information with audiovisual materials; see <https://tla.mpi.nl/tools/tla-tools/elan/>.

sets of hierarchically organized tiers afforded the flexibility needed in this project to capture much of the primary linguistic information present in these materials.

As part of the planning for this CSL project, YNLC staff and the instructor decided that the initial annotation of these materials would be conducted by graduate students in applied linguistics and discourse studies at Carleton University as part of a four-month seminar on language documentation, with staff members at YNLC providing guidance as to how these materials should be treated. Since most participants in this project had not worked with ELAN before, the seminar's instructor provided training in the software to both the Carleton graduate students (through several hours of classroom training, as well as through direct supervision throughout the semester) and to YNLC staff members (through in-person training sessions offered by the instructor during a visit to YNLC that semester, as well as ongoing, long-distance support). Both groups participated in essentially the same number of contact hours of technical training, discussing the same annotation-related topics and working through the same practice exercises. This training focused on familiarizing both groups with three main features of ELAN: the segmentation of audio and video materials, the assignment of annotations to tiers and tier types, and the process of entering and working with textual annotations using the software.

Workflow

Each student contributor was provided with copies of two or three of the digitized language lesson recordings (totaling approximately 90 minutes of audio), as well as with the corresponding scans of the textbooks for these lessons. The file names of the audio recordings indicated the Yukon First Nation language being spoken, as well as the names of the speakers in each recording. Following their in-class training, students were expected to set up an ELAN transcript for each assigned recording, using common tier naming conventions and tier type definitions to facilitate consistency across the transcripts produced. Following the same conventions when defining tiers not only facilitated this initial training (and the later stages of peer review described below), but also allowed for sophisticated searches to be conducted across all of these materials as a unified corpus in the future (e.g., “retrieve all annotations that mention the word ‘blue’ in their English translations”). An overview of this structure is given in Table 1 below.⁵

<i>Tier name</i>	<i>Parent tier</i>	<i>Tier type and stereotype</i>	<i>Description</i>
<i>SPK-Text</i>	-	text (-)	Transcribed speech
<i>SPK-Translation</i>	<i>SPK-Text</i>	translation (SA)	English free translations
<i>SPK-Notes</i>	<i>SPK-Text</i>	note (SA)	Notes on this annotation

⁵ ELAN requires that every user-defined tier type be assigned one of a fixed number of “stereotypes,” which include the default and Symbolic Association stereotypes mentioned in this table. These stereotypes define how annotations of a given type relate both to the media being annotated and to other hierarchically organized annotations. More information on stereotypes is available in §2.1 of the ELAN manual: <<https://www.mpi.nl/corpus/html/elan/ch02.html>>.

<i>SPK</i> -Questions	<i>SPK</i> -Text	question (SA)	Questions about this annotation
<i>SPK</i> -Lesson-Text	<i>SPK</i> -Text	ynlc-lesson-text (SA)	Published Indigenous language lesson text (e.g., “Dànnch’e?”)
<i>SPK</i> -Lesson-Translation	<i>SPK</i> -Text	ynlc-lesson-translation (SA)	Published English translations in lessons (e.g., “How are you?”)
<i>SPK</i> -Lesson-Chapter	<i>SPK</i> -Text	ynlc-lesson-chapter (SA)	Title of lesson chapter (e.g., “September lessons”)
<i>SPK</i> -Lesson-Section	<i>SPK</i> -Text	ynlc-lesson-section (SA)	Title of lesson section (e.g., “Greetings”)
<i>SPK</i> -Lesson-Item-Number	<i>SPK</i> -Text	ynlc-lesson-item-number (SA)	Item number in lesson (e.g., “1”, “2”)

TABLE 1. ELAN tier and tier type definitions used to represent individual speakers (SPK) in the CSL project (with corresponding stereotypes given in parentheses; “-” = default tier type, “SA” = Symbolic Association).

Students initially segmented their assigned recordings into utterances according to pause boundaries, with each Indigenous language target word or phrase in the lesson booklets generally appearing as its own annotation. For each time-aligned annotation that represented an utterance in a Yukon Indigenous language, students entered the Indigenous language text exactly as it appeared in the textbook, the corresponding English translation, as well as the chapter, section, and item where this information appeared in the textbook on each of the dependent tiers listed above.⁶ In this way, all of the Indigenous language text and English commentary found in the original textbooks was associated in the ELAN transcripts directly with the corresponding segments of the recording, allowing users of the resulting materials to search for any information that was present in the original textbooks and immediately arrive at the associated audio. An excerpt from one of these ELAN documents is shown in Figure 3, showing how the details for the first phrase in the February unit entitled ‘Speaking Native Language’ were represented in the final time-aligned transcript.

⁶ Students were expected to enter information from the textbooks into their ELAN transcripts verbatim, remaining as close to the original as possible. Any discrepancies or mistakes uncovered during this process (e.g., apparent typos in a textbook’s English text, mistakes in the original item numbering, inconsistencies in the use of punctuation, etc.) were flagged in annotations on an ‘*SPK*-Notes’ tier for further review.

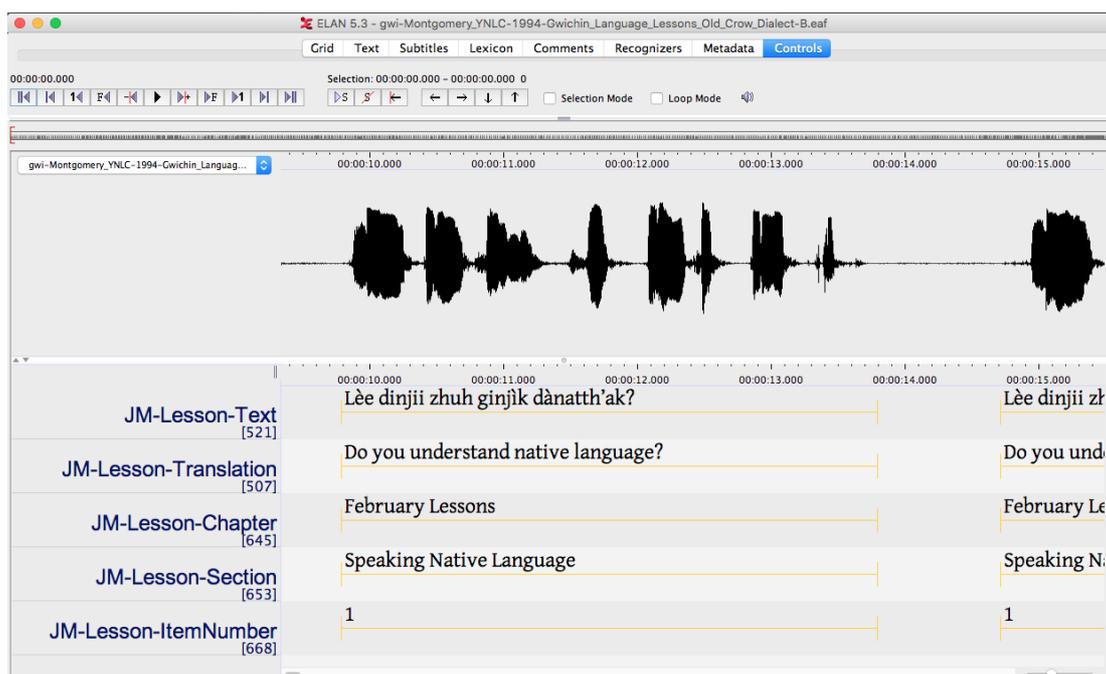


FIGURE 3. ELAN representation of an excerpt from a set of language lessons for the Old Crow dialect of Gwich'in (ISO 639-3: gwi) (Montgomery & YNLC 1994).

Although in-class training was provided in the use of ELAN, students annotated their assigned language materials primarily outside of class, working either individually or in small groups. After the students had completed the segmentation and annotation of their assigned recordings, they were provided with a set of ELAN transcripts to review. During this process, the students reviewed their peers' tier definitions, segmentation practices, and textual annotations, correcting (or, in uncertain cases, marking for the instructor to review) apparent inconsistencies or divergences from group conventions and/or the contents of the textbooks. This stage provided an additional opportunity for students to compare their annotation practices critically against those of their peers while improving the overall quality of the final set of transcripts. This peer review, together with a final written reflection exercise discussed below, concluded the student portion of the CSL project.

5. RESULTS. Students' work in ELAN over the course of one semester produced a 19-hour time-aligned corpus that included audio and bilingual text representing sixteen distinct varieties of seven Yukon Indigenous languages. More specifically, this corpus included 14,642 transcribed bilingual utterances and their accompanying audio segments, comprising 39,262 words in Indigenous languages and 60,478 words of English translations. All of these materials have been added to the permanent digital collections at YNLC for long-term preservation and reuse. In consultations between YNLC, Cox, and the students throughout this project, three key areas of potential application for this multilingual, multimodal database were identified: (1) as a source of information for language education and revitalization programs, (2) as the basis for other language learning tools and (3) as a resource for language promotion. As a multilingual audiovisual database, the results of this project allow students, educators, and policy developers to easily search, retrieve and compare information across Indigenous languages without having to manually search through lesson books or listen to hours of unindexed

audio cassette tapes. For example, if a language teacher were planning to develop a lesson plan pertaining to Valentine's Day and was unsure if audio recordings of words and phrases related to this topic (e.g., "my sweetheart", "I love you", etc.) were available in any existing language lessons, he or she could consult the database and find the corresponding items (or realize that they are not in the language materials) in mere moments.

Scenarios such as these that focus on supporting practical, everyday tasks involved in language education and revitalization programs bring attention to the need for increased accessibility of these resources in multiple forms, which was identified as a second priority for the outcomes of this work. The non-proprietary nature of ELAN transcripts allows their contents and the corresponding media to be transformed into a range of presentation formats, from interactive, online presentations (e.g., Cox & Berez 2009; Dobrin & Ross 2017) to full-fledged, web-based multimodal databases (e.g., the Komi Media Collection; <http://videocorpora.ru/en>). Similar conversion techniques are envisioned to allow the annotated language lesson recordings produced in this project to be used in similar ways, automatically generating sets of online language lessons that draw on the artwork and visual style of previous online language learning resources developed by YNLC.⁷ The use of flexible, 'future friendly' digital formats such as these allow language resource development efforts to concentrate on enriching primary materials with information that enables further applications, providing a range of user-friendly language learning resources that are ultimately derived from the same master transcripts and digitized recordings.

Finally, the third application anticipated for this database is as a tool for language promotion. By widening the scope of their accessibility, we hope that these legacy resources may serve to call further attention to current Indigenous languages and language programs throughout the Yukon, highlighting the work being undertaken by Yukon First Nations to support the maintenance and revitalization of their languages. As well, with Indigenous languages in the Yukon increasingly finding new uses in public domains (e.g., in official signage in some communities, in acknowledgments of traditional territory, and in digital media projects; cf. Moore & Hennessy 2006), resources such as these might also provide an additional source of information for language promotion activities in these spaces.

6. DISCUSSION & CONCLUSION

Partner responses

Following the completion of the CSL project, students were asked to reflect in writing on their experiences in this work and to offer recommendations for future CSL projects. This followed common practice in service learning, where regular reflection on the process and outcomes of the work is typical, and complemented regular, in-class discussions of topics in language documentation that took place in tandem throughout the project, where issues raised in the CSL project often offered a common point of reference to which assigned readings could be related. In general, students' responses were

⁷ For one example of these language lessons, see http://ynlc.ca/languages/han/lesson_han_1.html. The information recorded in ELAN transcripts as part of this CSL project, including unit, lesson, and item numbers for each Indigenous language phrase, enable a relatively straightforward conversion of the 'master' recordings and the corresponding ELAN transcripts into online presentation formats such as this.

positive, with many students indicating that they had enjoyed taking part in the project and expressing an interest in being involved in similar projects in the future. The project allowed students to develop a basic understanding of ELAN software through in-class training and project work, which several students mentioned helped to ground theoretically oriented discussions of recommended practices in language documentation into actual practice. Gaining confidence with the usage of ELAN was noted by many students as a useful skill to have, whether in working on other projects in language documentation and conservation in the future or in approaching transcription tasks in other courses and disciplines.

Several students commented on the benefits of having the opportunity to learn more about Indigenous languages and language communities in Canada, both through the presentations on Yukon Indigenous languages given via video teleconference by project partners at the Yukon Native Language Centre and through listening to and reading Indigenous language materials in this project. Some students noted that working with language resources that represented several distinct Indigenous languages had increased their appreciation for the diversity of Indigenous languages spoken in Canada, while others found that the time spent working in detail with the provided materials brought their attention to patterns in the languages themselves, which in turn helped to make the task of working with languages whose sound systems and morphological structures differ quite strikingly from English and French seem more approachable.

Implementing a CSL project as part of a single-semester, graduate-level seminar was also not without its challenges. The most significant barrier that students identified over the course of their involvement in this project was a lack of time. The majority of students participating in the project were at the Master's or doctoral level, and as such had significant academic commitments outside of the demands of this project. The difficulty with allocating adequate time to the project was compounded further by the students' limited working knowledge of and practice with documentary linguistic transcription methods at the outset of the class, which required they become familiar with general transcription and segmentation conventions, project-specific guidelines, as well as with the Indigenous languages themselves and the diacritics associated with each language. In some cases, these difficulties led to inconsistencies across transcriptions, which became evident and needed to be addressed during the peer review phase of the project. As noted in the preceding section, discussions between students and the instructor in this final stage helped both to identify areas of divergence between individual annotators (e.g., how much leading or trailing silence was acceptable within the boundaries of time-aligned annotations, if any) and to come to a degree of consensus on how such discrepancies might be resolved.

From the perspectives of the instructor and the community partners, as well, undertaking a CSL project presented both challenges and benefits. Project partners at the Yukon Native Language Centre commented on this project as offering one way of developing relationships with a wider range of potential partners for future collaborative language projects that advance local priorities for language education and revitalization, and of contributing to further advancing existing capacities for language documentation in the Yukon (e.g., through the on-site training in ELAN for Yukon-based support staff that accompanied this CSL project). Beyond the practical benefits of employing the resulting 19-hour bilingual corpus in creating new resource materials and responding to requests for information on (and in) Yukon Indigenous languages, these partners also noted the value in raising awareness of and appreciation for local Indigenous languages through this kind of work. For the university instructor in this course,

implementing a CSL project in the context of a graduate-level seminar required an additional investment of time beyond regular preparations for teaching, consulting with community partners well in advance of the course to discuss possible avenues for collaboration, preparing transcription guidelines and assembling sets of materials for students to work with, facilitating guest lectures and other opportunities for students and community partners to get to know one another, and in providing training in the relevant documentary linguistic software and annotation techniques for both university and community-based participants. Despite the additional effort that these tasks entailed, the instructor noted that most of these activities involved preparations that took place *before* the project and the graduate seminar began, and that the actual work of the CSL project was not difficult to accommodate in the course of regular teaching during the academic term. Additionally, some of the more time-consuming aspects of the project preparation, including developing assignment descriptions and guidelines, may be reusable in future courses.

From the perspective of the instructor, the pedagogical opportunities that arose from this form of service learning ultimately merited the effort required to implement it. In addition to the practical outcomes of this project (whether considered in terms of relationship building, language materials development, or intensive training in current annotation methods involving realistic language resources), this project provided encouragement for students to view documentary linguistics in its broader social context, requiring careful attention to both linguistic and technical detail *and* to the nature and quality of the relationships and communication between contributors. As noted above, students' reflections on their involvement in the CSL project often entered into general discussions of language documentation throughout the semester, providing a shared point of reference for areas of documentary linguistic practice that were previously outside of the personal experience of many students in the class. While intensive technical training in documentary linguistic methods could no doubt have been delivered without this CSL framing, the additional commitment to this work that students demonstrated as stakeholders with responsibilities that extended beyond their instructor and university was reflected in the quality of their final contributions, which exceeded what the instructor had encountered in previous ELAN training sessions that he had facilitated. All of these factors—greater student engagement with both social and technical aspects of language documentation, more nuanced reflection on documentary linguistic theory and practice, and beneficial, practical outcomes for all project partners—make CSL an attractive option for similar training in documentary linguistics.

Discussion

As noted above, all three groups of participants in this project—staff at the Yukon Native Language Centre, the instructor at Carleton University, and the graduate student participants—found the benefits of CSL in this context to be well worth the required investment of effort. Given this overall positive experience, the project participants would encourage others to consider undertaking similar CSL projects, albeit with several refinements:

1. It may be helpful to provide student contributors with an introduction to the phonetics of the language(s) to be transcribed. This would allow greater confi-

- dence in determining the boundaries of each annotation and in entering Indigenous-language text, helping ensure that utterance-initial and utterance-final sounds are not inadvertently omitted.
2. Students may benefit from receiving more opportunities for practice with and feedback pertaining to the use of ELAN prior to commencing a full-scale project. Not only would this reduce inconsistencies across transcripts in students' individual work and in later peer review, but it would also allow students to improve their efficiency in using ELAN and produce transcripts in less time.
 3. It may be more practical to divide the workload of future CSL projects on the basis of the number of annotations to be segmented and transcribed (which, in this case, could be estimated using the number of lessons each audio recording featured), rather than by the duration of the audio file. In this project, each student was provided with two or three audio recordings that totaled approximately 90 minutes in length. However, some speakers in the audio recordings spoke more quickly than others, and thus were able to progress through more lessons than others. The number of annotations also varied considerably depending on the number of speakers and dialects featured in each recording. As a result, a 45-minute-long recording for one student may have amounted to 800 annotations, while another student with a different 45-minute-long recording may have annotated more than 1200 items. Overall, dividing the workload by the number of estimated annotations as opposed to the duration of the audio file would more equally balance the time each student spends segmenting and transcribing.
 4. Finally, we would encourage others considering similar CSL projects not to overlook the value of the relationships that are fostered between all of the community partners in the course of this work. In this case, while the physical distance that separates the Yukon Native Language Centre and Carleton University made these kinds of connections challenging at times to incorporate, guest lectures given by video teleconference, phone calls between students and community partners, in-person training opportunities, and regular email contact contributed to a common sense of investment in this project, and has led to ongoing discussions of how to continue and expand these collaborations in the future.⁸ Viewing opportunities for relationship-building and interpersonal connection as a core component of CSL might, we hope, provide space for positive, collaborative relationships to emerge.

The aim of this discussion is to advance Community Service Learning in the context of language documentation and conservation as one additional means of bringing collaboration between community and university-based partners into closer contact with

⁸ From a student perspective, these kinds of connections often provide a valuable complement to the more structurally focused annotation tasks involving the language(s) represented in the CSL project, allowing students to gain a broader understanding of the sociolinguistic environment of the community or communities they are working with and encouraging a greater appreciation for the language(s) and related revitalization projects.

training in documentary linguistics, whether taking place in community language organizations or in universities and colleges. As the work described above suggests, these projects have the potential not only to contribute practically to community priorities for local language programs, resources, and training, but also to foster mutually supportive relationships between project partners that are increasingly seen as a core component in many contexts of language documentation and revitalization (Czaykowska-Higgins 2009). By highlighting the benefits of CSL projects here, it is hoped that more teams will be encouraged to embark upon similar projects in the context of language education, documentation, and revitalization as part of the range of strategies that seek to address the global threat to Indigenous and minority languages.

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Indigenous Universities and Language Reclamation: Lessons in Balancing Linguistics, L2 Teaching, and Language Frameworks from Blue Quills University

Josh Holden

University nuhelot'ine thaiyots'į nistameyimâkanak Blue Quills

1. INTRODUCTION. University nuhelot'ine thaiyots'į nistameyimâkanak Blue Quills¹ (hence UnBQ or Blue Quills) in St. Paul, Alberta, is currently the only fully independent First Nations university in Canada.² Located in a former residential school and owned by seven First Nations, six Cree and one primarily Dene, UnBQ is a centre for language revitalization and the exploration of Indigenous-oriented and decolonial approaches for second-language teaching and linguistics. Section 2 of this article provides an overview of the history of Blue Quills in the context of the North American tribal college and university (TCU) movement, followed by a description of the student body and language demographics, the language programs and cultural activities (land-based education and ceremony). Section 3 outlines the Cree and Dene language programs, with Section 3.2 detailing some Indigenous-centred approaches to L2 and linguistics teaching used in UnBQ courses so far. Section 3.3 describes the author's experience teaching introductory BA and Master's-level morphosyntax classes to Dene and Cree students and classroom discussions that attempted to integrate First Nations epistemologies and perspectives, following Leonard (2017, 2018). Section 4 features translations of linguistic concepts into Denesųliné (hence Dene) and Plains Cree languages. This section includes follow-up interviews with Cree MA students after their course, as well as interviews with the UnBQ president Sherri Chisan and the head of the Indigenous languages department, Marilyn Shirt, on the relationship between linguistics teaching, First Nations language epistemologies, and problems in the current relationship between linguistic research and community engagement, along with suggestions for how linguists can improve this collaboration, and how this meshes with current directions in the field. Finally, challenges facing Blue Quills and its possible future will be discussed in Sections 5 and 6 respectively.

¹ The author thanks UnBQ Language Program director Marilyn Shirt, UnBQ president Sherri Chisan, and UnBQ students who agreed to be interviewed or allow their comments to be included. Many thanks as well to Keren Rice, Wesley Leonard, David Beck, and Jessie Sylvestre for their valuable comments and factual corrections. Any remaining errors are my own.

² First Nations University of Canada (Regina, Saskatchewan) was established before Blue Quills as a First Nations-governed university, but has since become a college of the University of Regina, which awards the degrees.

2. HISTORY OF BLUE QUILLS IN THE TCU MOVEMENT. Blue Quills’s history and language programs should be understood in the context of the wider North American tribal college and university movement and the shift to Indigenous self-determination in education. This occurs in the backdrop of very low post-secondary attendance among Native American/First Nations populations in the latter 20th century. Geertz González & Colangelo (2010:4) identify the historical causes of this attendance gap as poverty because of past and current colonization, cultural bias, a legacy of forced assimilation policies in education leading to Indigenous resistance to majority education, and a dearth of Indigenous-specific rights. Historically in Canada and similar countries, education was weaponized as a means of coercion and cultural genocide in boarding and residential schools: “Education in [U.S., Canada, Australia and New Zealand] was used as an instrument of the White settler-state to eliminate Indigenous peoples whether by Christian or secular education”, which “suppressed Indigenous ways of learning” (Geertz González & Colangelo 2010:7).

In the Canadian context, the residential school system attained its peak in the mid-20th century, and by the 1960s it had exacted a devastating toll on First Nations people, cultures and languages, on an individual and a collective level. Resistance among survivors and the parent generation had been building. According to Dene National Chief Noeline Villebrun, “In the area of education we began to speak out against the injustices of residential schools, to speak out on low-quality education, language loss, cultural erosion, social dysfunction, and sexual abuse” (Villebrun 2006). At the same time, the Canadian government chose to address the crisis of First Nations education by pursuing even more aggressive assimilationist policies, this time under a secular rationale of “egalitarian” citizenship. In 1969 the Pierre Trudeau-era Canadian Ministry of Indian Affairs (INAC) produced a “White Paper” calling for the abolishing of First Nations treaty rights and the total assimilation of First Nations people into the Canadian state. This was withdrawn in 1973 following an outpouring of criticism. This existential threat also sped up the drive among First Nations people to begin to publish their testimonies about their experiences in the residential schools and other discrimination they faced—see for instance, the influential book *The Unjust Society* (Cardinal 1969). Relatedly, First Nations people started to pursue self-determination in education in the form of local control and Indigenous-run and -created institutions that recognized the languages and cultures. Political organizations such as the Assembly of First Nations were formed to pursue this goal, leading to changes in the government’s and white Canadians’ attitudes toward First Nations education. The move to administrative Indigenous control was virtually complete by the early 1990s. The number of Indigenous post-secondary institutions multiplied, but full autonomy, range and experimentation in program design to fit Indigenous frameworks and realities did not come as quickly. According to Geertz González & Colangelo (2010:10), today there are “over 50 post-secondary colleges for First Nations peoples in Canada, but they are not allowed to offer as many programs or degrees as the tribal colleges of the United States. Moreover, [they] are asked to partner with other ‘established’ universities as opposed to expanding their own programs.”

Blue Quills itself held a special role as a precursor and catalyst in the shift to autonomy in education (Geertz González & Colangelo 2010:16). “Blue Quills” comes from the name of a Cree chief who in 1898 petitioned Oblate missionaries to establish the school. The term *nuhelot’ine thaiyots’i* (updated spelling *nuhelot’ine thaa’ehots’i*) loosely translates to ‘our ancestors’ in Denesūliné (also ‘Dene’), as does *nistamey-imâkanak* Plains Cree. The history of UnBQ is outlined in Lewis et al. (2018): UnBQ’s

first precursor institution was Blue Quills Residential School (1862–1898), a Catholic school funded by the federal government and administered by the Oblates and Grey Nuns. Chief Blue Quill, or *Sîpihtakanep*, one was of four Cree chiefs who formed Saddle Lake reserve after they made Treaty 6 in 1876. At the time, schooling was only accessible in Lac La Biche via a long, tough dogsled journey from Saddle Lake in winter. Desiring education to be more accessible to his people, he lobbied the Oblate missionaries who operated the Lac La Biche School to move the Catholic institution to Saddle Lake, where it became Blue Quill Indian School. It moved to its current building in 1931. Like other residential schools, it was characterized by emotional and physical abuse, religious coercion and underfunding. This situation continued amid parents' rising concerns until 1969 when, faced with the prospect of the underfunded and abusive school being sold to the city of St. Paul, parents instead occupied the school, leading a months-long sit-in and demanding its transfer to Indigenous control. The sit-in began with Saddle Lake parents, but they were quickly joined by participants from eleven surrounding reserves (Sherri Chisan, p.c.). Ottawa negotiated with parent-activists and finally allowed the school to move to local control by the First Nations. In the words of Sherri Chisan, president of UnBQ (from the author's interview with her):

When the government proposed to close the school, our ancestors (parents and grandparents) said 'No, we'll run it'. Of course, neither the Church nor the government was very keen on that idea, so they resisted for several months. But finally the government agreed that they would sign over the operation and ownership of the school to the First Nations. My grandmother is Scottish, so I suspect that one of the bureaucrats felt a kindred spirit with her as opposed to his relationship to the Indigenous people on the board. At the signing ceremony apparently [he] whispered to her, 'Don't worry, they probably won't last six months anyway.' My grandmother happened to be on the board—[she] had been living at Saddle Lake for all of her adult life, and was very connected to and committed to, and related to, the people, and so she relayed that to the team. Thirty years later we invited then prime minister Chrétien, who was minister of Indian Affairs at that time, to our 30th anniversary, but he declined the invitation. We thought it might be nice for him to see we that lasted more than six months. So now we're approaching 50.

Blue Quills led a wave of transfers of educational institutions to local Indigenous control eventually the creation of a number of First Nations colleges in Canada. Chisan recounted the timeline of Blue Quills's evolution and expansion: after the residential school ended, Blue Quills was born in 1970 as Blue Quills Native Education Centre, taking over primary and secondary education. Then it became Blue Quills First Nations College circa 1990, and finally UnBQ in 2016. "In the '70s a lot of our nations started building their own elementary schools, so we released that programming to them. Then by the '80s most had their own high schools, so we released that programming to them." (Sherri Chisan, interview). The focus shifted to serving an adult population. The 1970s had begun to see partnerships in adult education with provincial universities. The '90s saw the next spurt of certificate and diploma programs: the BA in leadership and management, in 1998 (first graduates 2002), BA in Social Work (2017), the certificate in Cree language in (2009) and the BA in Cree in 2015 (and in Dene in 2016). An MA in Indigenous Language (Cree-focused) also began in 2015, as interest in language education and revitalization increasingly became a focus. The *sui generis* *iyiniw pimatisiwin kiskeyitamowin* doctoral program (ipkDoc) was launched in 2002 and the first cohort graduated in 2011).

2.1 A DISTINCT MISSION. As the name suggests, UnBQ places Cree and Dene languages and cultures at the centre of education. UnBQ's mission, while distinct from many major provincial and private universities, resembles that of many institutions in the wider North American tribal college and university movement, which led to the foundation of up to 35 TCUs in the USA by 1968, starting with Navajo Community College, today Diné College (Geertz González & Colangelo 2010). As a general tendency, TCUs tend to focus more on locally specific cultural knowledge in their curricula, and constitute a vehicle for cultural survival and self-determination for a specific Native American/First Nations group.

Tribal colleges exemplify their direct connection to Indian tribes and tribal sovereignty through the various curricula they offer. These most often are in the form of programs and courses in American Indian studies, tribal languages, history, heritage and spiritual practices, the arts, medicinal practices, tribal government and Indian law, and other similar place-based, culturally specific curricula. Tribal experts and elders serve as advisors, teachers, and resources for such offerings. (Crazy Bull 2015:4).

This sounds quite distinct from a mission statement of a major public university, which would tend to focus on offering world-class education on universal subjects, to national and international students. While such goals are not absent from TCUs, they tend to place a strong focus on their unique missions as well as their political and economic limits (DeLong et al. 2016). In the case of UnBQ specifically, Chisan sees it “the balance of achieving a credential in diverse fields of study through an Indigenous Knowledge lens in a culturally appropriate learning environment.”

Structurally, the connection with Native American/First Nations values is guaranteed by having a majority or plurality of First Nations/Native American faculty, and even more crucially an Indigenous governance structure. “Tribal experts and elders serve as advisors, teachers, and resources for [courses]” (Crazy Bull 2015:4); TCU boards are typically composed of community members, many of them Elders, who orient the direction of the university toward community needs. Along these lines, UnBQ also has a Board of Governors appointed by the seven owner nations, as well as an Elders' Senate, who all help orient the overall goals of the institution and the curriculum. In the words of Cree Elder and former Blue Quills board chairman Carl Quinn, “When I walk into [Blue Quills], I want to know it's an Indian school. I want to be able to smell the sweetgrass. I want to hear the language spoken, the drums and songs. I want to see pictures on the walls representing who we are” (Lewis et al. 2018).

Self-determination in education has been “among the key developments which have actively supported the sovereignty of tribal nations” (Crazy Bull 2015:3). The UnBQ university president Sherri Chisan describes the establishment of UnBQ as an act of First Nations sovereignty: “We are Indigenous institutions. We have relationships with the federal and provincial governments but we are clear that we do not surrender our jurisdiction in those relationships.” This has implications with regard to UnBQ's and other Canadian Indigenous institutions' funding structure, as discussed in Section 5. The following sections will describe UnBQ language programs as an example of an Indigenous-led higher education model.

Indeed, there has been a strong need to develop new, Indigenous-oriented models of education: “American Indians have historically struggled to adapt to a modern educational process with its inherent social, political, and cultural baggage. Yet, American Indian cultural forms of education contain seeds for new models of educating that

can enliven education as a whole” (Cajete 2006). This carries risks, as with many "firsts" for Indigenous languages, namely that lack of financial resources and structural issues will lead skeptical observers to question the rigour and legitimacy of Indigenous institutions, and ultimately Indigenous self-governance in education. “Responsibilities and challenges include inadequate operating funds, academically unprepared students, preservation of cultural traditions within the academic environment, economic poverty on the reservation, and maintaining a positive relationship between tribal colleges and the non-Indian education environment.” (DeLong et al. 2016). The TCU environment must address the specific needs of TCU students, who are typically non-traditional age and first-generation university students; “The typical student is often described as a single mother in her early 30s. It is estimated that over half of the enrollment is from single parent students” (ibid). TCUs usually have broad, open admissions policies aimed at working with almost every student who wants to take classes, even when a majority are “not academically prepared for college-level work.” (ibid.) At the same time, the existence of TCUs has vastly increased the number of Native American students with a university degree, and “factors such as family support, structured support systems, supportive faculty and staff, self-efficacy, connection to culture, and connections to home [are] positive influences on Native student persistence” (Shotton et al. 2013: 15). TCU faculty are well familiar with the opposition and skepticism they face in many corners of academia. Much is riding on the success of this generation of TCUs. According to its mission, Blue Quills will “address the spiritual, emotional, physical and mental needs of the seven member First Nations through the delivery of quality education programs”, and will increase “educational opportunities for students by empowering them to overcome barriers that restrict success in college and university settings.”³ The mission statement also mentions that “the maintenance and enhancement of culture contributes to positive self-esteem and, therefore, encourages participation in the learning environment”, in contrast with academic environments that students feel are alien, classist, stressful or exclusionary. UnBQ is also unusual in uniting Cree and Dene cultures in a single institution, as these two First Nations groups were historically in tension (Abel 1993:47–49).

2.2 THE STUDENT BODY: FIRST NATIONS AND LANGUAGES. UnBQ has about 200-220 students total in a given year, about 45 in the language programs. Over 90 percent are from the seven First Nations, representing a total population of over 20,000 people: Heart Lake (375 members; 184 on the reserve), Goodfish Lake (2912; 1753), Saddle Lake (9934; 6148), Kehewin (1893; 1039), Frog Lake (2454; about 1000); Beaver Lake (1054; 390) and Cold Lake (2858; 1382). The first six communities are Cree and the last is primarily Dene. Some students are fluent in their First Nations language, while others just beginning to learn it. Most are non-traditional age and first-generation university students.

Various motivations draw the students, for instance: starting an immersion program in their community, the desire to learn one’s ancestral language because the parents were stripped of it in the residential school system, or the birth of a child or grandchild to whom the student wants to speak the language. Still other students speak of their desire to hear an Elder’s knowledge in the original language, and to be able to

³ Blue Quills University’s Mission Statement: <http://www.bluequills.ca/mission-2/> (Date accessed: August 1, 2018).

pray and speak to the Creator and their ancestors. Some students are survivors of residential schools, including Blue Quills itself, while others recount family histories bound to the school.

Plains Cree overall has about 30,000 speakers and is classified as a “developing” language or classification 5 (“vigorous use”) in terms of vitality (Simons & Fennig 2017); according to the Ethnologue, it is “vigorous in many communities, particularly in the north. [Speakers of] all ages.” But this is not true in any of the owner communities of Blue Quills, where nearly all fluent Plains Cree speakers are middle-aged or elderly. The 2011 census (StatsCan 2011) lists 83,475 speakers of “Cree languages”, of whom nearly 48,000 are in Alberta and Saskatchewan; most of them are presumably Plains Cree speakers. It lists nearly 12,000 speakers of “Dene”, presumably many of them Denesų́líné speakers. But the terminology is ambiguous—“Dene” is listed as an option in addition to specific Dene languages like Dene Dhá/Sahtú (Slavey languages), Tłı̄chǫ, etc. The ambiguous meaning of “Dene” and the fact that some Denesų́líné speakers chose “Chipewyan” and “Denesų́líné” makes the exact number harder to ascertain, and the actual number of Denesų́líné speakers may be a bit lower. Denesų́líné is listed as “threatened” (level 6b) by Ethnologue (Simons & Fennig 2017). It is acquired as L1 in two Denesų́líné communities out of about 21.

3. THE CREE AND DENE LANGUAGE PROGRAMS. As noted above, in terms of language programs UnBQ offers a Bachelor of Arts in Cree, a Bachelor of Arts in Dene and a Master of Arts in Indigenous Language (focused on Cree culture and language). The BA in Cree is divided into fluent and non-fluent streams. Only a fluent stream exists for the Dene BA but a non-fluent stream is being developed. The MA requires fluency or a strong ability in Cree (with some case-by-case flexibility), and the program is being evaluated to see how it may accommodate Dene students. A variety of L2 approaches are used for the non-fluent (Cree L2) Cree BA students, while the fluent Dene and MA classes have more linguistics and language pedagogy-focused coursework in addition to advanced literacy, literature, and other courses. The more technical linguistics-oriented courses are part of a holistic program with other courses focusing on teaching, land-based skills, culture, and so forth. Cree and Dene ceremonies such as sweat lodges and dances are frequently available and almost always open to all student and staff.

3.1. LAND-BASED EDUCATION AND CEREMONY. Land-based education or the incorporation of Native technologies and activities is frequently a goal of TCUs. Participating in traditional activities is seen as key to learning; First Peoples’ education often emphasized experiential and implicit learning from Elders and ceremony holders. Land-based education is also a response to colonial practices isolating First Nations peoples from the land through the residential school and reserve system, which disrupted seasonal land-use patterns. Authors on TCUs have noted the multi-layered value of land-based education, with its cultural, practical and even political dimensions: “land-based education, in resurging and sustaining Indigenous life and knowledge, acts in direct contestation to settler colonialism and its drive to eliminate Indigenous life and Indigenous claims to land” (Wildcat et al. 2014). Dene authors, too, have argued for the need for land-based education in a de-colonial framework:

To decolonize education is to retrench and retrieve our traditions in the classrooms in our communities... A decolonized Dene school would follow our traditions and values,

our elders would be in the classrooms, the classrooms would be equally indoor and outdoor, out on the land and in the community. Dene will always learn best on the land, and we need to bring the computers, books and classes onto the land, into the context of Denendeh and what it means to be Dene. (Villebrun 2006)

Blue Quills specifically sees land-based education not only as a form of de-colonial education, but a way of restoring pride among young First Nations people in their identities and histories. According to Blue Quills Language Programs Director Marilyn Shirt (Cree, Saddle Lake):

There's so much that we've lost, and there's so much that we need to regain to help strengthen us as a people. So, this particular school that we're in, this building, this old residential school—that whole process took away from us our relatedness to each other, our relationships, our ability to take care of ourselves. It damaged the transmission of our language from one generation to the next, and it really affected our self-esteem. So what I see this school doing, and [land-based] projects in particular, is that they're helping move us out of that state of being. (Shirt 2018)

In a larger sense, ceremony and spirituality are a form of healing from trauma and embracing the values associated with the language.

Ceremony creates safety and there is a need to create a safe place where people feel comfortable speaking the language... Part of the UnBQ campus is a former [residential school] and has been an obstacle for some but also a form of healing from the trauma suffered in this building. Spirituality plays a foundational role as our language is a gift from the Creator and this has not hindered us as an academic institution. (Lewis et al. 2018: 242)

UnBQ programs present language reclamation and revitalization, healing, land use, and rediscovery of ceremony and spiritual practices inextricably interconnected elements in an overall de-colonial and Indigenous process (as colonization affected all of these areas at once). This connection between land-based education and spiritual practices was also described Wildcat et al. (2014): “This is more than a fortunate by-product of engaging in land-based practices... Protocols that demonstrate respect and reciprocity, such as putting down tobacco, making offerings, ceremonies, or particular ways of harvesting or treating unused animal parts, are a part of Indigenous land-based education” (Wildcat et al. 2014). This refusal to isolate these into discrete domains is in keeping with an overall ethos of cultural reclamation in TCUs and First Nations institutions.

3.2. L2 METHODS. UnBQ has experimented with a combination of L2 methods in the Cree program (only the Cree BA currently has a non-fluent stream). Some Cree L2 classes use an adaptation of the Root Word Method developed by Mohawk language teacher Brian Maracle (see Jeremy Green & Brian Maracle 2018). This approach word uses techniques as contrasting color-coding of affixes, which enable students to associate particular meanings with parts of polysynthetic words, without having to be confronted with a morass of technical morphological terms to study their own ancestral language. Students begin by memorizing person markers (on the right and left edges of

the verb word—see Table 1). Next they are introduced to a small vocabulary of roots or stems, seen in the third column of Table 1, as well as a handful of lexical “preverbs”.⁴

TABLE 1. Elements of Cree verbs in a Root Word Method approach.

inflection	“preverb”	root/stem	inflection
∅- 3SG	miyo- ‘good’	-nakosi ‘looks like.AI’	-w 3SG
ni- 1SG	mayi- ‘bad’	-takwan ‘sounds like.AI’	-n 1/2SG
ki- 2SG	nōhtē- ‘want’	-mīcisu ‘eat.AI’	-nân 1PL

Instead of learning a whole verb paradigm associated with each derivation (often found in formal linguistics grammars), students practise composing words with a small lexicon of elements from the four columns, while narrating contextualized utterances, and more preverbs and roots are gradually added as students internalize their meanings and use. “The idea is to help students recognize the parts of the word that mean ‘I’, ‘you’, ‘he/she’, tense markers, etc., without necessarily learning the terms. In English you can learn a bunch of words, then figure out how to put them together. But in [polysynthetic] Cree, you have to first learn how to construct the word” (Marilyn Shirt, p.c.). The polysynthetic structure has a large impact on how the language is taught. A desire for uncovering L2 methods oriented toward polysynthetic languages was sparked by dissatisfaction of Elders with levels of fluency students were reaching with previous curricula heavily based on English and French curricula emphasizing nouns (Marilyn Shirt, p.c.).

3.3 INDIGENIZING LINGUISTICS IN THE COURSES. This section primarily details the experience of the author teaching a Master’s-level class, “Morphosyntax from Linguistic and Indigenous Perspectives”, taught by the author, a non-Indigenous academic linguist who became a second language speaker of Dene, and who is not a Cree speaker, to an all-Cree group of students. Some of the students accepted to do follow-up interviews after the class, as did Marilyn Shirt (Cree, Saddle Lake First Nation), who is the head of the Indigenous languages department at UnBQ and who also audited most of the class, given her experience engaging with these issues in program development. University president Sherri Chisan (Cree, Saddle Lake First Nation) also accepted to offer opinions on the issues, having considered them on an institutional level. Quotes from these interviews are interspersed throughout. This section also references translations and issues from two BA-level Dene linguistics classes, “Dene Phonology and Morphosyntax” and “Intermediate Dene Syntax”, taught to Dene BA students by the author in a mixture of English and Dene. In both classes, students formed translation circles and, with discussion with the author, translated linguistic terminology into their languages.

The goal of “Morphosyntax from Linguistic and Indigenous Perspectives” was two-fold: first to introduce the Cree Master’s morphosyntactic concepts and to allow them to develop analytical skills that may prove useful in their future language teaching

⁴ Abbreviations used: AI ‘animate intransitive’, PL ‘plural’, INAN ‘inanimate’, SG ‘singular’, 1 ‘first person’, 2 ‘second person’, 3 ‘third person’.

or engagement work. The second goal was a bit the reverse—not bringing linguistics to the First Nations community but to bring First Nations epistemologies on language into the teaching of an introductory linguistics course, and to apply this not just to Cree but to the analysis of world languages. This was in response to a call by Miami scholar Wesley Leonard to include Indigenous frameworks for language in the academic field of linguistics in his paper “Towards a Native American Linguistics” (2018), presented at the Natives4Linguistics⁵ symposia at the Linguistic Society of America he organized, which led to his founding of a special interest group by the same name. Numerous Indigenous scholars at symposia echoed this call, and this course represents the author’s own efforts to implement this challenge at Blue Quills.

The directionality of the name Natives4Linguistics is significant. For Leonard, this is not about an effort to overcome obstacles to bring or tailor linguistics to a First Nations audience, but to explore the prospects of Native American and First Nations frameworks for language to influence linguistic science and how introductory linguistics classes are taught. According to Leonard (2018), “Linguistic analysis often isolates, fragments, and dissects language in ways that can be alienating to members of Native American communities for whom language is not an object that can or should be conceptualized separately from peoplehood, power, or spirituality, among other areas.” The Western epistemology conceives of languages as “as structurally-defined objects” which are rather abstracted from the above areas. Leonard considers typical formal definitions of language as an abstract system as too limited to be compatible with most Indigenous views of language, in which language can be as broad as “how a community connects to each other and how they express ... themselves and their culture to each other” (Leonard 2017:29). This is not a rejection of linguistics a science, nor of language documentation efforts, or even of traditional academic work on First Nations languages, but a call to broaden the scope of research to also include First Nations/Native American concepts of language and research methodologies, and to take into account the impact and usefulness of the research for communities. Both due to a severe lack of representation of First Nations/Native American scholars themselves in linguistics, as a proportion of the population and compared with the prominence of Native American languages in the literature (Leonard 2018), there are few opportunities to include First Nations epistemologies of language in academic linguistics. Chisan expressed a similar idea in her interview: “Academia tends to force an analysis through a theoretical lens that was birthed in Europe.” Leonard (2018) says that even when there is representation of individuals, there is not always the same receptivity toward Native American ideas about language, a sentiment echoed by Chisan: “There are these pockets of struggle at all of the institutions, and it’s really hard for them as Indigenous scholars to be acknowledged. And that goes back to the doctrine of domination, that this [Western academic] way is better.”

As Leonard’s call meshes well with ongoing discussions at UnBQ over curricula, and the UnBQ mission to place Dene and Cree perspectives at the centre of learning, the author decided to present the Cree MA students with first with readings of Leonard (2017) and (2018), before introducing traditional linguistics textbooks, *Exploring Language Structure* (Payne 2006), a morphosyntax workbook (Merrifield et al. 2003), with which students analyzed syntactic and morphological data from diverse languages such as English, French, Spanish, Min Nan Chinese, Palantla Chinantec

⁵ See <https://www.linguisticsociety.org/content/natives4linguistics-special-interest-group> and <https://natives4linguistics.wordpress.com>.

(Mexico) and Barasano (Colombia), although many classroom examples focused on Plains Cree and occasionally Denesųliné. Students interrogated these resources, their origin and epistemologies. In keeping with the idea of not treating the languages as data abstracted from the reality of their speakers, students were given some information about the culture and situation of each of the language communities and encouraged to explore this. This was typically followed by a translation circle. In the textbook students encountered phrase structure grammar, and toward the end of the course there was some mention and illustration of frameworks like minimalism (Chomsky 1995) and the dependency-based grammar of Meaning-Text Theory (Mel'čuk 1997; Mel'čuk & Polguère 2009). While students did not explore these in detail, drawing attention to the theoretical diversity within linguistic science creates space for students bring in their own epistemologies, First Nations epistemologies and specific Dene and Cree realities, and to consider the frameworks in that context. After all of this there were in-depth classroom discussions focused on local Cree realities, relating or comparing all of this content to what students felt were Plains Cree epistemologies.

The Cree concept of interrelatedness is *wahkohtowin* [relationship or relatedness]. This encompasses literal relatedness (kinship relations) and relatedness to the land and ceremony. Students often referenced *wahkohtowin* spontaneously and said it could inform linguistics in a variety of ways. One Cree student said that, all things being equal, linguistic examples should represent authentic knowledge—linguistic examples provide snippets of a worldview, which can be an asset to or a distraction from learning the culture. One student (Pat Shirt, Cree, Saddle Lake First Nation) mentioned that in more traditional times this interrelatedness was a physical reality: “for [our generation], we learned Cree as a way to survive. That’s how we learned ‘go get the water’ [...] the terms for trapping, it was survival. But nowadays anyone on a reserve who’s little doesn’t have to learn Cree to survive.” Some students expressed skepticism at the value of the traditional domains of linguistics and their heavy terminological load, especially when discussing a polysynthetic language: “In Indian Country you can find a more pessimistic view—morphology, syntax, that won’t work—but I think that if we can use it for teaching the language, then it’s good” (Pat Shirt). Students debated the artificiality of segmenting multimorphemic words. One (fluent, and adept at parsing and analyzing the forms) finally expressed her skepticism of the artificiality of “dissecting” a “spiritual language” (Glorya Badger, Cree, Kehewin FN) while another (less fluent) said, “Coming from a non-speaker, obviously culture is included with *nehiywawewin* [Cree]. As a learner it was important to break down the words for me. That way I knew what I was saying” (Dallas Waskahat, Cree, Frog Lake FN). Several students showed a keen interest in the etymologies of salient words such *nehiyawak* [Cree people] and morphological analysis was seen as an asset in exploring historical word formation, and the worldview that the images and associations in word etymologies suggested: “In Cree, a word is comprised of units of meaning, they don’t necessarily equate to the English translation. These units of meaning and how they’re put together – that would give an idea of the essence of the Cree mind” (Marilyn Shirt, Cree, Saddle Lake First Nation).

The idea of *wahkohtowin* itself does not necessarily transfer to other Indigenous cultures—it is seen as a Cree-specific framework. For students, this was related to the idea of linguistic relativity, as they frequently queried on how categories in their language might be related to worldview. As Marilyn Shirt also noted:

Cree which is different from Mohawk. For example, we have animacy and Mohawk has *he* and *she*. So that informs their language. There are things that are particular to

that view and it's not the same for others. Those kinds of things shape how we think. If you're wanting to look at interrelatedness I think that the environment shapes it as well.

Leonard (2018) also makes this point that there is not one single Native American concept of language, but many distinct, community- or group-specific epistemologies. Students frequently contrasted the naturalness including certain information expressed by grammatical categories in Cree, with respect to discussing the same topic in English. “[*wakohtowin*] is how we are related. For example [in Cree] we have animate and inanimate. A tree is alive in a certain way but in English you have to justify talking about it in that way” (Glorya Badger, Cree, Kehewin FN).

When asked how an Indigenous framework of language could inform the study of languages generally, not just Dene or Cree or other Indigenous languages, students accepted and encouraged a framework that integrated the language data with cultural, sociolinguistic and local worldview information. For example, unlike Cree and Dene, English and French are intercontinental languages associated with mass societies differentiated by class; how the associated values have shaped the lexicon in comparison with Cree was often explored, as was the situation of many distant Indigenous peoples. “For me it's interesting... you can have a connection to a person's identity the better that [information] is” (Pat Shirt, Cree MA student). Another student noted that “it's important to use the terms people use from themselves, instead of colonial or outside terms” (Dwayne Makokis, Saddle Lake, MA student). Marilyn Shirt added, “If you don't think about it as language... One group of people is interested in another group of people and they want to know what they are about. They're not going to be like ‘oh forget the people, we're just interested in the language.’” Overall, the discussion led to a promising feeling that a First Nations framework such as Cree *wakohtowin* could indeed cast a novel eye on language data from world languages and provide a useful contribution to linguistics.

A third theme that repeatedly emerged in the interviews was the problematic lack of relationship between linguistic research and language pedagogies and a call to make linguistics research more relevant to community stakeholders in a time of linguistic crisis. In the words of Marilyn Shirt, head of the Indigenous Languages Department who audited part of the course:

So even in understanding the quotes from [Leonard 2018], for me—The problem with linguistics it that's it an entirely different language, and a whole other way of thinking that the common person that's wanting to learn how to speak or wanting to teach a language might not be interested in, and it might not even be necessary for them. And English and some of those languages that have been studied for a lot longer have made some transitions and probably bridging ... For Indigenous languages, I don't think that there's been that bridging. (Marilyn Shirt, Cree, Saddle Lake First Nation)

Indeed the question of this still incomplete relationship between linguistics and language teachers, and community efforts, came up again and again: “There's defensiveness on the part of the linguist [saying] “The work I'm doing is useful, and anger [from community language teachers] that “The work you're doing isn't useful to me.” (Marilyn Shirt). Having used and taught academic linguistic grammars because they were the most comprehensive resources available for the UnBQ languages, but finding them utterly inaccessible to students, Shirt argued for the urgency for linguists to

create strong, clear and accessible bridging between their insights and work and the language teaching or revitalization efforts happening in communities.

It's very easy to just stay in linguistics. Because language is a puzzle, and it's a very interesting puzzle. It's like going into a cave, and getting lost and [saying] "wow." They need to keep reminding themselves, this is interesting but *how* can this be useful? That is what I would recommend if you want to decolonize your field." (Marilyn Shirt, Cree, Saddle Lake)

While Shirt recognized linguistic science and applied work as distinct, she noted that "it wouldn't be very hard to make that bridging", and that linguists are often those best placed to do it from within the field.

While there may be a wealth of user-friendly linguist-produced resources for some individual Indigenous languages, and one cannot generalize over this, there remains a general division and tension in academic language work in terms of funding, evaluations, etc. between "research" and "service"—a category in which linguists often find their pedagogical work assigned. This point was repeatedly raised in the Natives4Linguistics symposia. This is despite the fact that the interplay between documentation, revitalization, reclamation, and pedagogies itself raises interesting theoretical questions and is a fertile area of research, as seen by currents on community-based collaborative research, in which linguistic research and community applications are "interwoven and mutually supportive activities for language revitalization, documentation and linguistic description" (Silva 2018, following Penfield et al. 2008, Cope & Penfield 2011 and Rice 2018). This comes at a time of increased interest in Dene linguistics as to the pedagogical implications of formal models of language structure—see Holden (2013), Montoya (2017, 2018) and Cox (2018), for example, with similar discussions happening across the field.

This integration fits well with a TCU such Blue Quills, with its strong focus on language teaching and revitalization, and loyalty to specific communities. Linguistics education is not kept separate from the goals of teachings and language reclamation efforts. Instead, instructors and students constantly seek to understand the implications of models of language for language teaching.

4. TRANSLATING LINGUISTIC TERMINOLOGY INTO DENE AND CREE.

A corollary of making the insights of linguistics accessible to the community members and the goal of using the language in the classroom is the project of translating linguistic terms into Cree and Dene. Some example terms are shown in Table 2. In the linguistics classes, students translated these terms as they came up, often resulting in interesting debates. For example, students initially gave 'word root' the two translations in (1):

- | | | | | |
|-----|----|--|----|---|
| (1) | a. | kicitowin
kici-itwewin
great-word
'word root', lit. "main/big word" | b. | itwewina ocepí
itwewin-a ocepí
word-PL.INAN root
'word root', lit. "words' root" |
|-----|----|--|----|---|

Cree has multiple words for 'root', depending on the plant. Students ultimately preferred the semantic extension of *ocepí* 'plant/tree root' in (1b) over (1a), but this was debated as other specific words for 'root', such as *watapí* 'root of white pine', exist.

TABLE 2. Denesųliné and Plains Cree Linguistics Terms Translated by UnBQ Students

	<i>Plains Cree</i>	<i>Denesųliné</i>	<i>literal translations</i>
'root'	itwewina ocepí	yati chįghaiyé	'word's root' (from 'tree root')
'prefix'	eyahkisitai	benatthé heltł'q	'it is tied before' (Dene) related to 'making larger' (Cree)
'morpheme'	itwewintsa	yatitsí	'small words' (Cree) 'word bits' (Dene)
'morphology'	tanisi e-ici-papasin-amihk	t'at'u yatitsí elá nílye	'how you twist out speech' (Cree) 'how morphemes are put together' (Dene)

The discussion brought out the whole question of neologisms for a First Nations language and a debate about the artificiality of such terms, especially when new. “The main idea is that [nehiyawēwin/Cree] was given to us [by the Creator] and it was given to us *in this form*. But today we have to make up these words to describe the modern reality—“justice”, even “prefix”, “syntax”, “morphology”. If not we can't be very precise about what we're speaking about [so] the terminology serves a purpose” (Pat Shirt, Cree, Saddle Lake First Nation).

In the Dene linguistics classes, students (all fluent or nearly fluent Dene speakers from Cold Lake) translated phonetics concepts such as places of articulation, found in Figure 1 below (the terms *tongue blade* and *uvula* remain untranslated at the time of writing, and the Dene linguistics lexicon is still evolving).

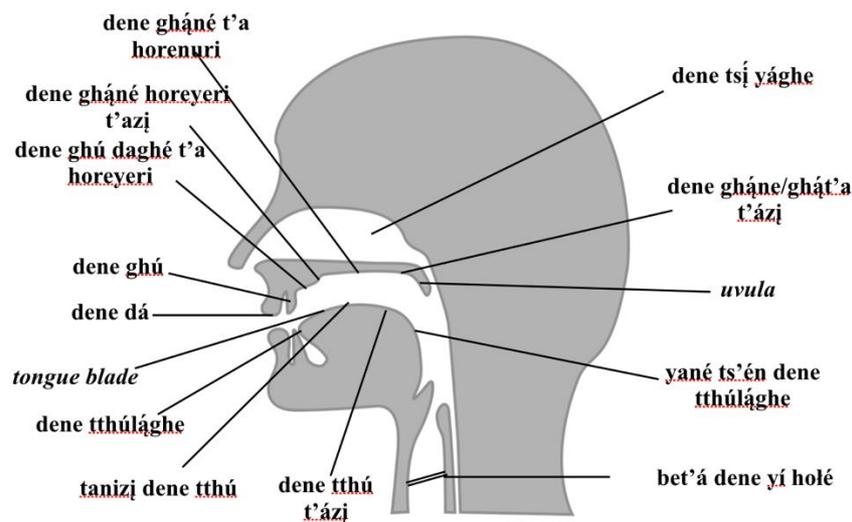


FIGURE 1. Places of articulation in Denesųliné, translated by UnBQ students.

The students initially struggled to name some of these highly specific anatomical features. However, a Dene instructor was brought in who was also an experienced hunter familiar with butchering moose, and he related that Dene hunters do have names for parts of the vocal tract. This not only provided valuable suggestions for terms, but ended up being culturally enriching. All of the students were women, and women do not usually hunt and butcher large game animals in traditional Dene culture, so the students were unfamiliar with these terms known to hunters. Also notable was the translation of many linguistic terms such as “syntax” and “morphology” with relative clauses. For instance, while “morpheme” in Table 2 is rendered as *yatitsí* “word bits” (or “morphology”) as *yatitsí t’at’u elá nilye* “how morphemes are put together”. Dene tends to use verbs to refer to abstract concepts, reserving nouns for concrete objects (usually), so the students used relative clauses rather than nouns. These terms resemble descriptions, and have the advantage of explaining the concept, unlike the more opaque Latin-based nouns used in English. Interestingly, the metaphors used to describe morphological structure in the two languages were markedly different (see Table 2).

In both Cree and Dene classes, this was a first attempt at translating this range of concepts. The Dene and Cree linguistics lexicons were continually updated and new versions handed out each week as they evolved. Students understood this as their own creation for these courses, but it was also clear from the beginning that the lexicons were resources they were creating for future UnBQ teachers and language instructors elsewhere, in part to enable a teacher to have the terms to teach about language monolingually in the future. To this end, students agreed to their use by others. However, other Cree and Dene people may translate these concepts differently—neologisms often take a long time to become established.

This co-creation of vocabulary also creates a sense of ownership among the students of the study of linguistics and over the resulting lexicon. This inventory of terms also provides material for future lectures on linguistics in the Dene language—one of the existing barriers to giving the classes mostly or entirely in Dene is the inability to be understood when speaking about specific aspects of grammar and sounds, due to a lack of established Dene terms to describe linguistic concepts. The resulting lexicon therefore furthers the cultivation of a Dene-speaking space for current and future students.

5. CHALLENGES FACING THE BLUE QUILLS LANGUAGE PROGRAMS.

Of the myriad challenges facing Indigenous institutions in Alberta and Canada, and in TCUs in North America generally, economic barriers remain a primary obstacle to success. In Canada, provinces are responsible for universities, but the federal government is responsible for First Nations, what responsibility will the government of Canada have for First Nations universities? The Alberta Ministry of Advanced Education refers to Indigenous institutions as a category (“First Nations colleges”) distinct from “public post-secondary institutions,” thus implying that the former are “private” or not public.⁶ The Canadian government leaves Indigenous universities in a sort of limbo of inadequate funding because they do not fall under the provincial mandates, nor does the federal government (responsible for First Nations secondary schools, clinics, etc.) provide stable core funding for Indigenous-controlled *post-secondary* institutions. However for Phillips (2011:232) the Crown indeed has this responsibility: “Education in Canada is

⁶ See <http://advancededucation.alberta.ca/post-secondary/institutions/fnmi/> (Date accessed: August 1, 2018).

not only a provincial responsibility [...] The federal government's constitutional responsibility in education is rooted in the Constitution Act 1982, the Indian Act, and treaties between the Crown (i.e., The Federal Government of Canada) and the First Nations of Canada."

UnBQ President Sherri Chisan, in the interview for this article, makes the argument that post-secondary education should in fact be covered by Treaty in Canada, based on historical and cultural factors of First Nations and the signing of the Treaties.

My understanding is [that] among our people education has always been considered a lifelong practice. So when our people entered into treaty, there are a couple of factors I believe that support the case for post-secondary education being covered by treaty. One of those is our clear understanding that education is lifelong, and we always need to have the opportunity to learn. The second one is that during the treaty signing ceremony, one of the leaders pointed to the scribe that was hired by the government, and apparently this person had a law degree (or whatever a law degree looked like in those days) and he said, 'We need our people to have an opportunity to have the same kind of education that he got.' Which is clearly not just high school, and it's not just law. It's to that level of professional education. So we maintain that that also supports post-secondary education being covered by treaty. We also maintain that treaty was entered into as sovereign nations, and that the sovereignty was not surrendered in treaty.

Today UnBQ and other Indigenous institutions receive a small fraction of the funding per-student of provincially funded universities, which in Chisan's view reveals an enduring colonial dynamic:

The land was not surrendered in treaty. The treaties were an agreement to share this land peacefully and respectfully. And to share the bounty of the land, the resources of the land. And so now when I talk about post-secondary and the resources, I say to governments: I can see how the resources of these lands have benefitted your people. [...] But then I go back to Blue Quills, into a former Indian residential school where my office is, and I see what the resources have built for our people, and the discrepancy in how much benefit the parties to Treaty have received. So there is still work to do.

This argument is for the logic and appropriateness of considering the education mandate in Treaty in the 21st century as extending to higher education. On a practical level, it is hard to see Indigenous universities and TCUs survive under a private model (which is difficult enough for established and wealthier non-Indigenous colleges in the USA). An impoverished student base and lack of revenue and employment on the reserves generally makes a private model or reliance on local tax base unsustainable for TCUs in Canada. In contrast with the Truth and Reconciliation Commission (TRC) call to action, which calls for more funding for preserving and revitalizing First Nations languages, many First Nations post-secondary institutions such as UnBQ have actually seen their government funding decline since the TRC calls to action (Marilyn Shirt, p.c.). Still, many community members remain optimistic that these promises will be honoured. In the meantime, with an unstable, proposal-based funding model, language programs are understaffed and the prospect of layoffs or discontinuation of needed language programs has periodically loomed over Blue Quills's 40-year history, though it has so far been avoided.

6. DISCUSSION AND FUTURE DIRECTIONS. UnBQ is working to boost its role in teaching First Nations languages and developing L2 approaches oriented toward their

specific structural and sociolinguistic features. UnBQ is developing a Bachelor of Education focusing on training in teaching endangered polysynthetic languages in a culturally authentic way—a program highly compatible but distinct from the current BA programs in Dene and Cree. A non-fluent or mixed stream for the BA in Dene is also being developed, as is a current pedagogical grammar for both languages—initiatives that have recently received funding from the Aboriginal Language Initiative—Aboriginal People’s Program of the Canadian federal government. These events, coupled with the current increase in interest in First Nations experiences and priorities nationally, are reasons to be optimistic about a shift in the relationship between the Canadian government and Indigenous institutions and the survival and development of the latter.

Many questions remain unresolved—for instance, how exactly should Cree and Dene languages be taught as second languages? Through implicit land-based teaching, root word-like methods, or some other method or blend yet to be devised? What exactly are First Nations epistemologies of language, locally and more broadly? Most of the UnBQ Cree and Dene students approach the linguistics material not out of abstract curiosity toward structure and typological variation (though some have these interests as well). Most have responsibilities as parents and grandparents. While there is indeed curiosity about the languages of the world, this is balanced by a deep sense of responsibility and commitment to the survival of their own languages. This, together with an overall epistemology of interrelatedness between language, peoplehood, culture and spirituality, constitutes a powerful and promising counterpoint to the abstract-typological framework the textbook is geared toward. What would introductory linguistics teaching look like if it were aimed equally at the needs of both audiences?

Despite recent shifts and individual linguists adopting a deeply collaborative approach, an overall mismatch appears to persist between linguistics as a field and the approach and priorities of various Canadian First Nations with regard to language. In general, First Nations communities mentioned here see a more expansive and relationship-based vision of a linguist’s role, one in which the blend of language work slants a bit more toward user-friendly pedagogical materials than is the norm in many projects. Despite the increase in discussions in the International Year and International Decade of Indigenous Languages, the advent of the Natives4Linguistics special interest group at the Linguistic Society of America, and a general recent shift in academic linguistic culture toward an increasing investment in collaborative community-based approaches, this is still not a mainstream position in linguistics. The interviews with UnBQ staff and students suggest ways in which First Nations’ needs can further inform training of linguists in community-engaged language work.

Finally, what role can First Nations and Native American universities, with their unique position and mission, play in this conversation? In the TCU corner of academia, the linguist-community relationship is closely led by community needs, and research proceeds with an eye to pedagogy and revitalization applications. With the needed terminology, some linguistics teaching can even be *in* the languages, not just about them. But these institutions have not generally been given the opportunity to thrive, given the political and economic realities. These questions will be worked out in a time in which language loss is a critical threat to the UnBQ member nations, and their needs for language education, revitalization and quality post-secondary education pressing, with time and funding scarce and unpredictable. One hopes for a future in which First Nations institutions can play a greater role in these academic conversations and have the resources to fully address the needs of their students while developing the quality linguistics and language teaching programs that they are so well placed to implement.

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“Data is nice:” Theoretical and pedagogical implications of an Eastern Cherokee corpus

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This paper serves as a proof of concept for the usefulness of corpus creation in Cherokee language revitalization. It details the initial collection of a digital corpus of Cherokee/English texts and enumerates how corpus material can augment contemporary language revitalization efforts rather than simply preserving language for future analysis. By collecting and analyzing corpus material, we can quickly create new classroom materials and media products, and answer deeper theoretical linguistic questions. With a large enough corpus, we can even implement machine translation systems to facilitate the production of new texts. Although the vast majority of print material in Cherokee is in the Western dialect, this corpus has focused on Eastern texts. Expanding the dataset to include both dialects, however, will allow for comparison and facilitate generalizations about the Cherokee language as a whole. A corpus of Cherokee data can answer second language learners’ questions about the structure of the language and provide patterns for more effective, targeted learning of Cherokee. It can also provide teachers with ready access to accurate representations of the language produced by native speakers. By combining documentation and technology, we can leverage the power of databases to expedite and facilitate language revitalization.

1. INTRODUCTION. The use of corpus material for language teaching and linguistic analysis is not new. Reppen (2010) cites many examples of the usefulness of corpora in the language classroom, while I and several colleagues have shown the potentially paradigm-shifting value of a thorough data-sift in Old High German data (Luiten et al. 2013). Corpora can provide straightforward information on statistical phenomena in a language such as word and character frequency, which teachers can use to improve their instruction of the language. Lewis (2014) and Wyner (2014) have both suggested language learning approaches that begin with high frequency lexical items, but information about what these are in Cherokee is sorely lacking. Because educating both new second language learners and creating first language speakers is important in revitalizing Cherokee, improvements in pedagogy are crucial. Data-driven approaches to polysynthetic languages with complex morphology are already underway in other indigenous communities, but have not yet begun in Cherokee. Mager et al. have demonstrated the value of this approach in the Uto-Aztecan Wixara, or Huichol language, establishing a parallel (Wixara-Spanish) corpus of Hans Christian Andersen’s literature (2018a). Similar corpora of parallel texts are available in Shipibokonibo, a Panoan language spoken in the Amazon region between Brazil and Peru, as

well as in Guarani; a member of the Tupi-Guarani family (Mager et al. 2018b). These projects, in addition to serving as the basis for future projects in those languages, increase their visibility in the digital domain.

The current work follows a trend in small language communities using technology for revitalization purposes. Scholars have outlined technology’s utility for language revitalization in several ways. Lillehaugen (2017) refers to social media as a means for small languages to reach wider audiences at low costs, and points to the internet as a way for community languages to appear on a global stage. This latter point is vital, considering that these languages are frequently devalued at the local level. In order for threatened languages to persist, it is important for them to establish new domains of use. Otherwise it is far too easy for both speakers and non-speakers to deem these languages to be things of the past (Lillehaugen 2017). More broadly, Crystal (2010: 141) asserts that “[a]n endangered language will progress if its speakers can make use of electronic technology” Part of the reason for this is that the internet can allow speakers of threatened languages to create virtual communities, even when participants are geographically disparate. In essence, the web serves as a vehicle to bring the local to the non-local, as it facilitates communities’ capacity for “sharing and interacting with culture, images, and experiences in a small-language context” (Lillehaugen 2017). For Cherokee, the use of technology in revitalization is a natural fit. The language is already included among existing Unicode-compatible fonts, comes standard on all Apple operating systems (Boney 2011), has a Google search page (Cornelius 2012), and has a Facebook translation project underway (Good Voice 2009). This project seeks to expand the existing work on Cherokee revitalization, focusing specifically on the language as spoken in North Carolina.

Documentation has long been understood as a crucial element involved in preserving endangered languages. From the perspective of revitalization, however, documentation has not been enough to assure the language continues to be used in day-to-day life. In fact, very few examples of original Cherokee texts have been recorded in North Carolina – unfortunately much material we have documented exists in translation. At present, Western Carolina University in Cullowhee, NC is in possession of an archive of spoken Eastern Cherokee, but this material has yet to be transcribed.¹ To make documentation truly useful to revitalization efforts, practitioners must be mindful of how the language they document can be applied in returning the language to its community of speakers. Recent technological advancements have facilitated not only the documentation of endangered languages, but the ability to arrange and sift the data such that it will be useful in curriculum development, lexicon creation, machine translation, and much more. This paper articulates the beginning of such a project as leveraged toward revitalizing North Carolina Cherokee among the Eastern Band of Cherokee Indians. I show several ways in which a Cherokee/English corpus can contribute to the contemporary revitalization of Cherokee, rather than simply preserving it for future analysis.

The Eastern Band of Cherokee Indians (EBCI) is located in western North Carolina on land known as the Qualla Boundary. Cherokees ceded most of the land in western North Carolina in an 1817 treaty. The treaty stipulated, however, that the heads of Cherokee families could apply for individual 640-acre reservations, renouncing their citizenship in the Cherokee Nation and becoming citizens of the United States (Finger 1984:10). Consequently, when Cherokees in Tennessee and Georgia were forcibly

¹ Dr. Sara Snyder-Hopkins, Coordinator of Cherokee Language Program, Western Carolina University, personal communication.

removed to Indian Territory (present day Oklahoma) in 1838 along the infamous Trail of Tears, some Cherokees in western NC had a legal basis on which to remain on their ancestral land. In addition to those who stood upon that legal basis, many citizens of the contemporary EBCI draw their ancestry to those who hid in the mountains from U.S. soldiers during the removal, as well as those who returned from Indian Territory after the Trail of Tears had ended.

The Eastern Band shares the Cherokee language with the Cherokee Nation and United Keetoowah Band (UKB), both federally recognized tribal nations headquartered in Tahlequah, OK. Even though the three nations speak the same language, many speakers in North Carolina today, as well as most members of the United Keetoowah Band in Oklahoma, speak the Middle, or Kituwah dialect. Kituwah is one of the three original dialects, alongside the Overhill and Underhill dialects. While Underhill went extinct in the early 1900s, the Overhill dialect continued to be spoken predominantly by Cherokees in Georgia and Tennessee; many of whom were removed to Indian Territory. Because of that, most Cherokee Nation speakers speak Overhill while most NC speakers and members of the UKB speak Kituwah.

Cherokee carries the distinction of having been the first American Indian language to have its own newspaper, the Cherokee Phoenix, which began publication in 1827 – six years after the invention of the Cherokee syllabary (Bender 2002:26). The syllabary is a writing system developed by Sequoyah; a monolingual Cherokee speaker who was previously illiterate in any language. Similar to the function of Japanese *hiragana* and *katakana*, Cherokee’s characters each indicate a syllable. The only exception is the Ꭰ character, which indicates an [s]. Today, the Sequoian syllabary has been adapted to Unicode and is available as part of all Apple product operating systems as well as Windows and Android. The Cherokee Nation has made significant strides in integrating the syllabary into the fabric of the internet as well, working with Google to establish a Cherokee language version of the famous search engine. Meanwhile, a Facebook translation project is underway.

Today there are approximately 230 speakers of Cherokee in North Carolina (Micah Swimmer, Adult Language and Education Coordinator, New Kituwah Academy, personal communication), the majority of whom are 65 and older. The language is typically not being passed on intergenerationally in the home. Despite this, there is an immersion school – New Kituwah Academy – that has endeavored to promote the language since 2005. Today New Kituwah extends from preschool through grade six, and children receive their education in the Cherokee language. Because of the large age gap between immersion school students and elders who speak Cherokee as a first language, however, many immersion school students are not exposed to the language beyond school hours. Because students are not hearing or seeing much Cherokee in their day-to-day lives and already speak English as their first language, there is a fear that they will abandon the language for English. To combat this, we must encourage the education of new second language speakers of Cherokee. Because these learners will be acquiring the language as adults, they will have different needs in acquiring the language than children learning it as a first (or child second) language. Among these needs are ample opportunities for practice speaking, listening, reading, and writing in Cherokee. Unfortunately, these opportunities are currently few and far between in the community, and not everyone is informed about those opportunities that do exist.

Although Cherokees have made great progress in making the language usable and available, access issues still remain. Not all first language speakers of Cherokee are

qualified teachers, and second language education in Cherokee is not as strongly informed by current best practices in L2 pedagogy as it is in other world languages. The current project aims to increase available input for language learners, archive existing Cherokee texts in searchable form, and begin iterating on available materials. We can use the texts that exist in the language – from children’s books and personal anecdotes to the recent translations of E.B. White’s *Charlotte’s Web* and Charles Frazier’s *Thirteen Moons* – to learn about the Cherokee language and pass that knowledge on to learners. To this end, I have begun a corpus of existing Cherokee language texts and their translations for use in future projects; the utility of which I enumerate below.

Section two of this paper describes the collection of materials that have contributed to the current iteration of the corpus. I provide the names of the particular texts and discuss text types, and lay out the procedure I used in importing the texts to the database. Section three describes what problems can be addressed using corpora, including how they can assist in planning curriculum material and producing new media in the target language. It also speaks to how well-sorted data can answer larger theoretical linguistic questions, such as how polysynthetic languages handle word order given their complex morphological structures. Section four concludes by articulating how the inclusion of corpus materials can help wider language revitalization efforts by leveraging data and creating new tools.

2. COLLECTION OF MATERIALS. The first step in creating this corpus was in locating Cherokee language materials. Through frequent contact with Kylie Crowe Shuler, Bo Lossiah, and Micah Swimmer, administrators at New Kituwah Academy, I was able to amass a collection of texts. Many of these texts were translations of English materials that school faculty and staff had translated into Cherokee, including both popular children’s books like *Charlotte’s Web* and stories the community members had authored themselves for the school’s use (*Buddy the Bluebird* and *The Beast*). That meant that both the English and Cherokee texts were readily available for entry into the corpus. Potentially, it also means there could be discrepancies in the kind of Cherokee the texts represent, as the structures may not be 100% natural in terms of what a speaker might spontaneously produce. Even so, each text was translated from English into Cherokee by an elder who speaks Cherokee as a first language (see Figure 1 for a list of authors and translators). This means that although some texts may come off as stilted Cherokee, there is little probability that they will be expressly ungrammatical. The largest source of data in the corpus so far is the Cherokee translation of E.B. White’s *Charlotte’s Web*. Future work will add the *Removal* section of Charles Frazier’s *Thirteen Moons*, translated by Myrtle Driver Johnson. Other texts included in the corpus’s current iteration are children’s stories written by EBCI citizens and translated by fluent speakers, as well as a telling of the traditional story *Spearfinger*. For texts that existed in digital form already, it was a simple matter to copy and paste the Cherokee syllabary and English texts each into their own raw text (.txt) file. Some texts required the use of Optical Character Recognition, which exists for Cherokee in rudimentary form via the Tesseract OCR engine.² I acquired some texts via a scraper program, which moves text from websites to local hard drive directories. Finally, some of the texts were hand-typed into (.txt) files by Duncan Britton, an enthusiastic undergraduate volunteer.

² <https://github.com/tesseract-ocr/>

TABLE 1. Corpus content as of October 30, 2018.

Title	Author	Translator	Word Count (Cherokee)
<i>Charlotte’s Web</i>	E. B. White	Myrtle Driver Johnson	17,913
<i>The Beast</i>	Ben Frey	Marie Junaluska	245
<i>Peas – Our Garden, Our Life</i>	Bill Johnson	Marie Junaluska	162
<i>The Big Journey of Little Fish</i>	Jeffrey H. McCoy	Myrtle Driver Johnson & Abel Catolster	792
<i>Bobby the Bluebird – The Blizzard Blunder</i>	Lynne Lossiah	Myrtle Driver Johnson	308
<i>Spearfinger</i>	Luzene Hill	Nannie Taylor	580
<i>A Very Windy Day</i>	Billie Jo Rich	Myrtle Driver Johnson	108

Once each Cherokee and English text was in its own .txt file, I employed regular expressions (a kind of advanced search and replace feature) to separate each sentence onto its own line within the file. After spot-checking to make sure each sentence was on its own line, I dropped the Cherokee sentences into a single column in an Excel spreadsheet with the English sentences in the column beside it. I then read through each sentence pair to check whether the sentences truly corresponded. In some cases the English or Cherokee text was longer. Often this represented material lost or gained in translation – some idiomatic expressions in one language or the other do not translate succinctly and sentences had to be added or subtracted. I found the most efficacious way to solve the problem was to combine two English or Cherokee sentences onto the same line in the Excel spreadsheet beside the single sentence to which they corresponded in the other language.

After assembling alignment files in Excel, I dropped the aligned Cherokee sentences back into a .txt file and dropped the English sentences into a separate one. I used AntPConc (Anthony 2017) to designate the English .txt file as the English corpus and the Cherokee .txt file as the Cherokee one. Doing so made it possible to query the database in either language to search for individual English or Cherokee words. I was also able to designate the Cherokee .txt file alone as its own corpus in AntConc (Anthony 2018), which allowed for word and syllabary character frequency counts. Frequency counts will facilitate second language acquisition, allowing teachers to focus first on the most frequently-occurring words and characters. This will allow students a feeling of having “easy wins” early on, as well as deriving the greatest benefit from

some of the earliest forms learned. Acquiring high frequency words and characters first can reduce the difficulty curve in learning a second language (Ferris 2012).

3. SOLVING PROBLEMS WITH CORPORA. Scholars in SLA research have illustrated the usefulness of corpora in the language classroom. Teachers can, for instance, use a corpus of interactions within certain event types (meetings, presentations, discussions over coffee, etc.) to help students learn what expressions may be useful for certain communicative functions (i.e. expressing disagreement, asking questions, etc.) (Mauranen 2004). Corpora, and in particular frequency and distributional information, can also reveal information about the semantic, discourse, and syntactic contexts in which words occur – information that cannot be found in dictionaries or grammars (Pereira 2004). Particularly useful is the analysis of “chunks” of language; sets of words that co-occur on a regular basis (“I mean,” “this that and the other,” etc.) (O’Keefe et al. 2009). For Cherokee, corpora can help in two key ways: they can help to improve language teaching pedagogy and supply more Cherokee reading and teaching materials. Much of the pedagogy for teaching Cherokee in North Carolina until recently has consisted of first language speakers listing words and phrases on a white board and having students copy them, with occasional pronunciation practice. One of the major goals of my research is to improve on these pedagogical techniques in order to increase the number of proficient second language learners. This goal arises largely from my earliest efforts to learn the language as a citizen of the Eastern Band of Cherokee Indians, beginning in 2003. I want to facilitate efforts at language learning for other tribal citizens as well as for non-Cherokees because my own efforts were so trying.

Research in the field of Second Language Acquisition (SLA) on Communicative Language Teaching (Omaggio Hadley 1993; Lightbown & Spada 2013), can help parlay theoretical linguistic information into more effective pedagogy. Reference to existing textual materials can provide insight into the usage of particular vocabulary items, the collocations of verbs, and the general structure of Cherokee sentences. While these domains are well-articulated in the linguistic literature, they are under-utilized in teaching contexts. Proficient adolescent and adult second language speakers will, in turn, be able to support young learners and carry the language beyond the borders of the immersion school and into the community. In order to do this, however, we need to establish a link between theoretical linguistic research and good SLA pedagogy. Linguists have long focused on documenting endangered languages and analyzing their structure. Their hope has been to contribute to the pool of human knowledge on how languages function in general, yet a different tack may contribute to pulling these languages back from the brink. By abstracting linguistic patterns into learnable rules, second language learners may become proficient speakers of languages that are currently endangered or even dormant; potentially leading to fluent first language speakers in the following generation. Even in the absence of discrete *rules* for language learning, being able to model language lessons on real language will be crucial to second language teachers – students may not learn rules overtly, but will be able to infer them from exposure to accurate examples. This is where corpora can be extremely valuable.

Because many texts in the corpus are already translations of English texts, they serve as a good model for what structures are acceptable to translate from English into Cherokee. While translation from English may not produce the most representative samples of Cherokee language, they benefit from the ubiquity of existing English

materials. Translation is a quick route to a high volume of reading, viewing, and listening materials in Cherokee, and also allows the tribe to exploit the existing popularity of certain English language characters and stories. The creation of a corpus can facilitate quicker, more accurate, and more streamlined translation from English to Cherokee. Because second language learners and immersion school students are in constant need of new reading material in Cherokee, a demand exists for both texts originally written in Cherokee and translated texts. It took Myrtle Driver Johnson, Cherokee Beloved Woman and fluent speaker, 3 full years to translate *Charlotte’s Web* from English into Cherokee. A corpus of texts can provide the basis for creating Computer-Assisted Translation (CAT) tools, and ultimately even training data for a neural network such as the one used by Google Translate. Such tools can never replace a fluent speaker, but could assist them in their considerable tasks. By crowd-sourcing the initial pass of a translation with CAT tools, Cherokee language students might create a rough translation that could then be proofread by teachers and fluent speakers. This should reduce the workload for fluent speakers and make the task of translation slightly less daunting. While CAT tools are not particularly well-suited to literary translation, they could prove invaluable in generating largely fact-driven and/or repetitious texts such as documentaries, manuals, restaurant menus, grocery store item labels, etc. After enough material has been added to the corpus, it will serve as useful training material for machine learning systems. Similarly, a corpus of spoken Cherokee would facilitate the creation of speech recognition and speech-to-text tools that could further aid in revitalization attempts. For learners, text-to-speech engines trained on a corpus of spoken and written texts would be useful in many formats – from producing examples for dictionary entries to use in second language learning software.

Compiling a textual corpus will also facilitate the creation of dictionaries. Rather than entering words one by one, Cherokee lexicographers could reference words within a corpus, providing not only a definition but also a contextualized example sentence. Assuming the corpus contained a broad enough array of genres, word-frequency lists generated from a corpus would also inform second language teachers about what words would be most productive to teach beginning students. Table 2 shows a sample word frequency set derived from the current corpus.

TABLE 2: Forty most frequently occurring words in Cherokee corpus as of November 18, 2018.³

Syllabary	Roman orthography	English gloss	Number of Occurrences
ZᎠ	Nole	and	789
ᎠᎵᎠᎵ	Udvne	(s)he said	434
ᎠᎵᎠᎵ	Gesdi	not	308
ᎠᎵᎠᎵ	Osda	good	211
ᎠᎵᎠᎵ	Yigi	if it is	139
D4Z	Aseno	but/however	135
ᎠᎵᎠᎵ	Gohusdi	something	98
ᎠᎵᎠᎵ	Iyusdi	like/as (similar to)	96

³ Frequency list curated to omit genre-specific vocabulary items like personal names.

hʂL	Nigada	all/everyone	93
ZJ	Nodi	now then	92
Tʂ	Iga	day	88
ʋʊJ	Usdi	small/baby	82
TC	Itsa	toward	78
ʔ4	Gese	it was (non-evidential)	73
ʋʋʋʋ	Utvdvne	(s)he asked	72
dhʊʊIhAVJ	Tsunisquanigododi	enclosure	66
βʀ	yeli	if it is possible	66
ʔR	Gesv	it was (evidential)	65
ʊʋʊʊ	Sginana	and thus/and then...	63
ʔʋʋ	Soquo	one	63
RWJ	Eladi	low	62
ʊih	Navni	near it	62
ʊʋʋ	Squo	too/also	60
ʔ4T	Gesei	it was (non-evidential); full form	58
ʔ4ʊJ	Gesesdi	it will be	56
ʋG	Kilo	someone	55
ʂʊʂ	Sunale	morning/tomorrow	53
R.L.ʋʋʋ	Etlawehi	Quiet, silence	51
ʋʊʊJ	Tsesdi	Stop it!	51
Dʊ	aya	I/me	50
Zʋʋ	noquo	now	50
DEʌ	agvyi	first	49
ʊʋʊʊT	kanesai	box	48
d.ʋʋʋ	tsuwetsi	his/her egg/child	48
Dʂ	ama	water	47
ʌʔRʊ	yigesvna	without doing it	47
TAʌL	igohida	a duration; until	46
ʌD	hia	this	46
ʔG	hawa	alright, okay	44

With a very robust sampling of texts, a corpus would approach representation of the language at large, providing true insight about what words occurred most frequently in a general sense. Students could make use of that statistical knowledge in order to make great initial strides in language learning. A sampling of various genres would also enable researchers to generalize about the features of particular textual genres and how they are constituted in Cherokee. Even if the corpus under consideration were not representative of the language as a whole, teachers could key their lessons toward particular texts or text types they wanted students to learn, mining vocabulary lists from the corpus that were relevant to those particular texts. In designing a lesson on traditional stories, for example, a teacher might select words that occurred with high frequency within those stories. This could generate a vocabulary list for students to

projects. For example, there would be no need to translate the string “start game” for each new game translation project, assuming that phrase had been translated once and stored in a .tm file for future translators’ use. A CAT tool such as OmegaT or SDL Trados would simply suggest the existing translation, and translators could use their discretion in deciding whether they wanted to use it or not.

Like any translation project, participating in translation projects of games and apps would provide opportunities for second language learners to polish their Cherokee language skills. Their “verified translations” could be passed on to teachers to be proofed, and teachers could forward these to native speakers in order to assure accuracy. Once translations had been approved, they could be fed back into the corpus to provide more data for future projects. This would create a virtuous cycle, easing translation while putting second language learners and Cherokee language teachers in close collaboration with native speakers from the Cherokee communities.

Text translation and creation of new Cherokee language materials help stem the tide of English dominance in society at large. One key factor in driving language shift is the exposure people have to one language over another in their day-to-day lives (Frey 2013). Because we live in a society constantly connected to the internet and surrounded by media in various forms, it is extremely important that we be able to experience that content in the language we wish to revitalize. If people do not speak, hear, read, and write the language on a regular basis, their facility with it will only continue to decline. Having children’s books is therefore vital, but also not enough. If we are to truly see a reversal of the shift toward Anglo-centrism, we must take steps to reduce its overwhelming presence in our communities in favor of our own language. The best way to do that is for the language to be transferred from generation to generation in the home, but for many people in the Eastern Cherokee community that option no longer exists. That is why we must scaffold language learning opportunities with ubiquitous opportunities for exposure to Cherokee in day-to-day life.

Even if second language learners are not able to work closely with fluent speakers, a corpus can provide access to speaker-generated materials that can guide the acquisition process. Provided that texts in the corpus were produced by native speakers, the texts’ grammatical constructions will represent accurate Cherokee forms. On that basis, teachers could help students to “mine” sentences from the texts that contain forms students might want to learn and use those to create activities for classroom use. This would be an easy source of material for flash cards and “gap fill” activities, in which students must fill in a blank with the correct word. A corpus would provide a nearly endless supply of example forms, which teachers could integrate into such exercises. Teachers and students could also begin extrapolating on the structure of example sentences and substituting in different words to make their own, grammatically accurate, parallel sentences. A rudimentary example would be, upon finding a sentence like “The dog ate all of his food,” a class could turn that sentence into “the *cat* ate all of *my* food.” Substituting the word “dog” for “cat” and “his” for “my” is trivial, but it substantially changes the meaning of the sentence in systematic ways that students can follow. Exercises like this provide not only grammatical scaffolding and understanding, but can also be sources of humor and language play. Figure 5, below, presents the first four results that appear in the database when querying the English word “ate.”

From this small sample, we can see that Cherokee has a range of options available to translate English terms, especially when we consider the 5-way classifier system that divides direct objects into solid, liquid, flexible, rigid, and animate shape categories. These sentences, and the particular lexical items used, can prove useful for students if we maintain the senses in which each verb is used. From the above, we know that the verb ᎠᎩᎩ can refer to a solid object like a doughnut. We should be able to extend that to other objects, as long as they are similarly shaped. Hence, we could imagine Mr. Zuckerman eating an apple instead of a doughnut, and write this sentence simply by substituting the word “doughnut” (ᎠᎩᎩᎩ ᎩᎩ ᎠᎩᎩᎩ - *uganasda gadu atalvgidi*) for the word “apple” (ᎩᎩᎩ - *svgata*):

“ᎠᎩᎩ ᎩᎩᎩ ᎠᎩᎩᎩᎩᎩᎩ ᎩᎩ ᎩᎩ [ᎠᎩᎩᎩ ᎩᎩ ᎠᎩᎩᎩ] ᎠᎩᎩ”
 “ulisdi iyusdi ulisdvtsunei homi nole [**uganasda gadu atalvgidi**] **ugei**” →
 Mr. Zuckerman sat down weakly and **ate** [**a doughnut**].

“ᎠᎩᎩ ᎩᎩᎩ ᎠᎩᎩᎩᎩᎩᎩ ᎩᎩ ᎩᎩ [ᎩᎩᎩ] ᎠᎩᎩ.”
 “ulisdi iyusdi ulisdvtsunei homi nole [**svgata**] **ugei**.”

Although replacing a noun in the text for another seems trivial, using samples of existing texts reveals complexities we might not otherwise account for. Although learners might assume that “ate” could take any direct object based on the English verb’s meaning, looking at the translations reveals parameters, like shape classification, the learner might not have considered. Based on this example, we can begin experimenting with solid objects characters might eat as well as contrasting our sentences with ones that refer to eating flexible objects. Instead of a bug, we might talk of a person eating a well-cooked steak. It should be noted that although the first four results from the database come from the text *Charlotte’s Web*, querying the word “ate” returns 39 results from a range of texts.

Sentence mining techniques like this also provide a window into the general structure of Cherokee word order. This is particularly important from a theoretical standpoint. Montgomery-Anderson (2008: 25) notes that “[t]he current literature is ... lacking many details of the syntax of the language” while Beghelli (1996: 105) characterizes Cherokee syntax as “largely unexplored territory”. Existing scholarship has posited that word order in Cherokee is either free or governed by a principle of “newsworthiness,” (Scancarelli 1987; Mithun 1987; Montgomery-Anderson 2010, 2016) but has not provided a general rule of thumb for students to follow when ordering Cherokee sentences. Indeed, Montgomery-Anderson (2008: 115) observes that “[t]he idea of ‘basic’ word order is problematic in Cherokee. While there are word orders that are more common than others, it appears that, given the right context, most word orders are possible”. This corpus will allow us to directly probe the idea of a ‘basic’ word order, and, in the absence of such a phenomenon, to generalize about when particular orders occur. Most studies of Cherokee grammar to this point have, with good reason, focused on its complex morphology. Once learners of the language begin to get a handle on verb conjugation, however, they will need more robust phrase structure rules in order to both interpret and create novel Cherokee sentences. A large collection of existing Cherokee sentences will allow us to ascertain the practical distribution of word order in the language. Although theoretically, Cherokee’s morphology should *allow* a generally free word order, a corpus can help discover what speakers and/or authors

actually *do* when creating texts. If, for example, we can ascertain that 70% of sentences are Subject-Object-Verb (SOV) or VOS, we could provide that as a general template on which students could build their sentences. Further research could then discover why deviations existed and what conditioned them.

This kind of large-scale data sifting also has applications for theoretical research. A thorough sort of the data would allow inquiry into broader patterns. Linguists know, for example, that Cherokee attaches a relativizer prefix *tsi-* to create relative clauses, but what is the prevalence of that relativizer in comparison with wh-question words? What kinds of words or structures condition a change in verb stem, and how many instances of each verb stem can be contained within a sentence? Collection of a corpus, along with thorough part of speech and morphological tagging, can provide insight into such questions. This, in turn, would yield further information for students of the language.

One way to streamline second language learning is to gear initial lessons toward the most commonly-occurring words in the language. Assuming a corpus was broad enough, it could generate a list of most frequently-occurring words that was representative of the language at large. For Cherokee, the concept of words vs. phrases is somewhat problematized due to the language’s complex morphology. The solution I propose would be to query which particular verb forms occur most frequently and extrapolate from that which forms would be most helpful to teach. If the form *hega*, “you are going,” occurs in the list of high frequency words, for example, instructors could opt to teach it as well as forms like *uwenvsdi*, “for him/her to go.” The operative piece of information would be that the verb “go” is frequently occurring, and teaching its five stems (Montgomery-Anderson 2016) would therefore be useful to second language learners. By learning the 1,000 or so most frequently-occurring words (or forms) in a language, a learner should be able to understand as much as 85% of daily conversations (Lewis 2014). By learning the 3,000 most common words, that percentage may increase to 95%. Of course, learning words in context is also crucial, and a corpus can provide thousands of examples. Second language teachers could create gap texts out of sentences from the corpus, focusing on a particular word or construction they wanted students to attend to. This would reduce the workload of teachers by alleviating the need for them to think of dozens or even hundreds of novel example sentences. Students would also benefit from seeing the language as it has truly been used in texts, rather than simply being given a list of prescriptive rules or intuitive judgments about how speakers suspect the language should be. By basing their language on how speakers have used the language in the past, students may approach a more accurate spoken and written Cherokee than they otherwise would have.

4. PITFALLS. The methodology presented here of using parallel (English/Cherokee) texts is not perfect. Even though the translators of the English texts are first language speakers of Cherokee, there is potential for structural overlap between the two languages. Future work will transcribe and integrate material from Western Carolina University’s archive of spoken Eastern Cherokee into the database, as free conversation will yield more relevant and useful results. The corpus at present also suffers from being too small, lacking sufficient variation in text types to accurately reflect the breadth and depth of the language writ large. The inclusion of more and longer texts such as the Eastern Cherokee translation of *Encyclopedia Brown* and the “Removal” section of Charles Frazier’s *Thirteen Moons* should help to balance the corpus, as will the inclusion of transcribed spoken material. Future work will also collect new spoken

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The Kawaiwete pedagogical grammar: Linguistic theory, collaborative language documentation, and the production of pedagogical materials

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This paper describes the intersection between linguistic theory and collaborative language documentation as a fundamental step in developing pedagogical materials for Indigenous communities. More specifically, we discuss the process of writing a monolingual pedagogical grammar of the Kawaiwete language (a Brazilian Indigenous language). This material was intended to motivate L1 speakers of Kawaiwete to think about language as researchers: by exploring linguistic datasets through the production and revision of hypotheses, testing predictions empirically and assessing the consistency of hypotheses through logical reasoning. By means of linguistic workshops in Kawaiwete communities, linguistic training of Indigenous researchers and production of pedagogical materials, we intended to motivate younger generations of Kawaiwete speakers to become researchers of their own language.

1. INTRODUCTION.¹ This paper describes a community-collaborative project of language documentation of the Kawaiwete language and the products of this project; most importantly, it describes the monolingual pedagogical grammar of the language. The Kawaiwete language (also known as Kaiabi/Kayabi) is spoken by the Kawaiwete people, who number around 2000. Most of the population lives in the multilingual and multicultural Xingu Indigenous Territory, which is a territory protected by the Fundação Nacional do Índio (National Indian Foundation, FUNAI).²

A smaller part of the population lives outside of the Xingu territory in smaller communities located in the Mato Grosso state (Indigenous territory Apiaká-Kayabi, Indigenous territory Cayabi and Indigenous territory Cayabi Gleba Sul). While the majority of the Kawaiwete population lives in Xingu, this is not their traditional territory. In 1949, most of the population lived close to the Teles Pires River and a smaller group lived close to the Peixes River in the region known today as Tatuy (Souza 2004: 13).

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² The Kawaiwete are the most numerous Indigenous people in the Xingu territory. They number around 1193, followed by the Kuikuro people, who number around 522 people (Ipeax 2011, Unifesp 2010, Funai 2003 *apud* Almanaque Socioambiental Parque Indígena do Xingu: 50 anos).

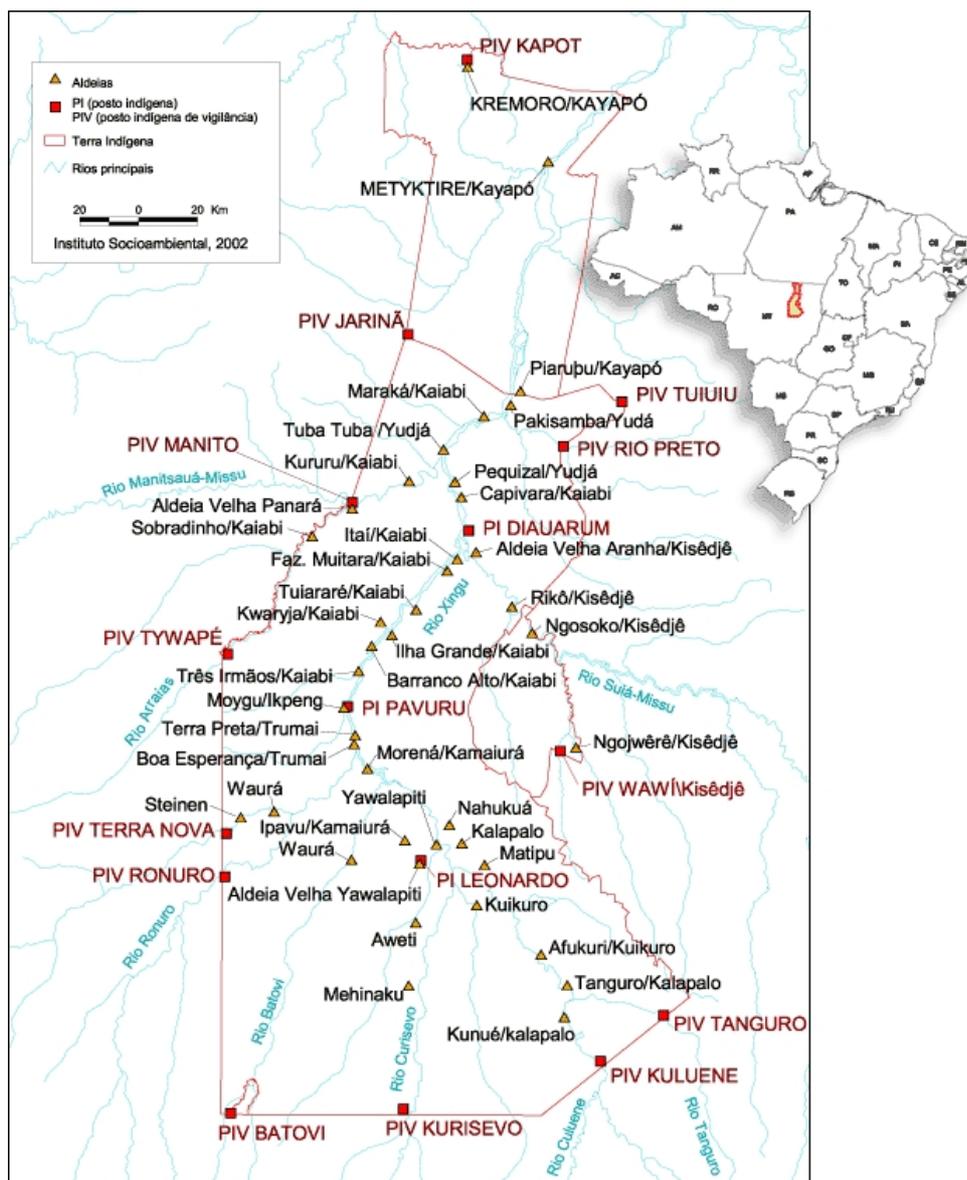


FIGURE 1. Xingu Indigenous Territory, Instituto Socioambiental/ISA, 2002 (Villas-Boas et al. 2002).

Due to several fatal conflicts with rubber tappers and land explorers interested in stimulating agribusiness in central Brazil, the Kawaiwete were gradually transferred by plane from their traditional land to the Xingu Indigenous Territory in 1966, in order to avoid further fatal conflicts (by gunfire and diseases spread by invaders).

Unsurprisingly, this process of transferring part of the Kawaiwete population to a multilingual, new territory complicated the linguistic history of the Kawaiwete people, due to the intense exposure to Brazilian Portuguese and other Brazilian Indigenous languages. Currently, most Kawaiwete who do not reside in the Xingu Indigenous Territory do not speak the Kawaiwete language. That is because the Kawaiwete residing outside of the Xingu area are much more susceptible, in comparison those in the Xingu

Indigenous territory, to contact with Brazilian Portuguese.³ One example of a Kawaiwete territory outside Xingu is the community located close to the city Juara (Mato Grosso). A preliminary language vitality questionnaire in the region with 83 people who live there (out of a total of 300 people) showed that the proportion of speakers within the total population in the area is small (nine out of 83 interviewees); a total of seven people (out of 83 interviewees) report that they understand but do not speak Kawaiwete. All interviewees reported, however, that they would be interested in revitalizing the language in the area. Efforts towards this goal are being discussed (as part of a collaborative project between the author and members of the community).

The Kawaiwete language belongs to the Tupi-Guarani family, Tupi stock. The Tupi-Guarani family is divided into eight subgroups (Rodrigues 1986).

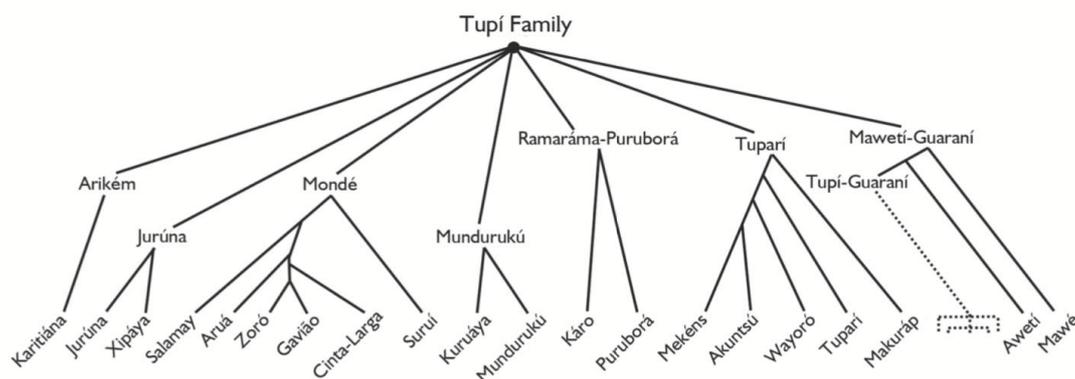


FIGURE 2. Proto-Tupi (figure provided by Comparative Tupi Project) (Galucio, Meira, Birchall, Moore, Gabas Júnior, Drude, Picanço, & Rodrigues 2015: 230).

Missionaries and academic linguists have conducted a few studies on Kawaiwete. Missionaries have described the phonology and morphosyntax of this language (Dobson 1980, 1997, 2005), produced a dictionary (Weiss 1998), and compiled mythological narratives (Dobson 1990). Academic linguists have described and analyzed aspects of the phonology (Souza 2004) and morphosyntactic and semantic aspects of the Kawaiwete language, such as its pronominal system (Souza 2004), its word order and the status second position clitics (Faria 2004; Gomes 2002), the grammaticalization of the count/mass distinction in the language (Lima & Kayabi 2015) and recursion of complex structures (Lima & Kayabi 2018).⁴

The development of the Kawaiwete language documentation project was strongly motivated by Kawaiwete Indigenous teachers' interest in exploring strategies for language maintenance and revitalization. In 2009, prior to the beginning of the project, a language vitality survey was done with 552 Kawaiwete persons interviewed in nine different villages in the Xingu Indigenous territory (Lima & Santos 2008). The results suggested that in the Xinguanian Kawaiwete villages, most of the children were

³ Brazil has two official languages: Brazilian Portuguese and Brazilian Sign language (LIBRAS) (Libras since 2002, Law 10.436, April 24, 2002). A few Brazilian languages are co-official in some municipalities of the country (Nheengatu, Baniwa, Tukano, Guarani, Xerente, Macuxi and Wapichana) (Machado 2016: 58).

⁴ See also Lima (2009) for an annotated bibliography of materials written about the Kawaiwete language and culture in the fields of Anthropology and Linguistics.

monolingual (L1, Kawaiwete). In most villages, adults use both Kawaiwete and Portuguese in their households and daily activities; the interviewees indicated that Kawaiwete was used more frequently than Portuguese, especially when they interacted with a senior member of the community.

The Kawaiwete Indigenous teachers answered an extended version of the survey that included questions about language maintenance, variation and teaching. In their answers, the Kawaiwete teachers raised a few concerns and questions that were later discussed in a series of linguistic workshops in the villages. First, the Kawaiwete teachers reported their interest in discussing and better understanding language variation across different villages, as they were aware that this was impacting the Kawaiwete language classes. Second, the Kawaiwete teachers reported the existence of variation in the writing of some words and manifested an interest in unifying the writing of the Kawaiwete language. Finally, the Kawaiwete teachers reported as a critical problem the absence of materials for language teaching in schools. This initial language vitality and pedagogical assessment was critical for the early steps in working with the Kawaiwete, as we discuss in more detail in Section 2.

2. DOCUMENTATION OF THE KAWAIWETE LANGUAGE. Between 2009 and 2012, the Kawaiwete language was the focus of a language documentation project promoted by the Indigenous Museum (Museu do Índio/FUNAI) under the Program of Language Documentation, ProDocLin.⁵ The activities developed by the ProDocLin Kawaiwete included i) mentorship of Indigenous researchers (in linguistics and language documentation methods), ii) preparation of a descriptive grammar, a dictionary and reading books and iii) linguistic workshops in the communities. We describe these activities here.

Training of Indigenous researchers

As part of the Kawaiwete language documentation project, two Indigenous teachers – Aturi Kaiabi and Pikuruk Kayabi – received training in language documentation techniques. They learned how to record and label their recordings (metadata) and to transcribe data in the program Transcriber.⁶ Furthermore, they received training in different types of research methods in linguistics, including how to build paradigms, how to identify minimal pairs and how to collect data by means of using controlled contexts (supported by verbal and visual stimuli).

Workshops in the communities

A total of four workshops were held in Kawaiwete villages in the Xingu Indigenous Territory.⁷ While the primary target group of participants in these workshops was the

⁵ The ProDocLin program (financially supported by the Brazilian government and administrated by the United Nations [UNESCO]) was characterized by not only supporting the documentation of different genres of speech and providing the resources needed for this type of work (video camera, voice recording, laptops), but crucially by supporting the training of Indigenous researchers in the field of language documentation. A total of 25 Indigenous researchers were trained during the first 13 projects funded by ProDocLin (Franchetto & Rice 2014).

⁶ <http://trans.sourceforge.net/en/presentation.php>

⁷ The first three were also supported by the Socioambiental Institute (ISA), a non-governmental organization that works closely with the Indigenous peoples who live in the Xingu territory.

Kawaiwete teachers, the workshops were open to all members of the communities. Each of the four workshops focused on different activities, detailed as follows:

Workshop 1: The Kawaiwete orthography and language variation.

In the language vitality survey, the Kawaiwete teachers had voiced their questions about language variation. In the workshop, after the presentation of concepts from sociolinguistics, groups of Kawaiwete teachers from different Kawaiwete villages in the Xingu Indigenous Territory identified examples of language variation according to different criteria (different geographic areas, gender, context of speech and age). For example, Souza (2004: 18) notes that some Kawaiwete dialects in Xingu (such as the one spoken in the Capivara community) are known for presenting more nasal spreading and nasal vowels in words that do not include nasal vowels/nasal spreading in other dialects. According to Souza (2004), this might be a consequence of two different sources of immigration of the Kawaiwete to the Xingu Indigenous territory: the speech community that presents an accentuated nasalization are in the majority immigrants from the Tatuy region; speakers that do not present this pattern are predominantly immigrants from the Teles Pires River area.

In another activity, the Kawaiwete teachers listed examples of words that presented variation in their orthography. Two main factors could contribute to the variation in writing: the absence of a dictionary and of other documents that list the orthographic agreements for consultation in the communities⁸ and the relative young life of the orthography (and therefore its consolidation in progress at the time). Kawaiwete teachers reported that early developments of the current Kawaiwete orthography date from the early 1990s. First, the Xinguanian Kawaiwete teachers worked with anthropologist Mariana Kawall Leal Ferreira on the development of a new orthography, intended to replace the orthography proposed by missionaries from the Summer Institute of Linguistics (SIL). Then, the Kawaiwete teachers worked with linguist Lucy Seki in order to further improve their orthography system (cf. Souza 2004: 55). The current orthography is mostly based on the work of Kawaiwete teachers with Lucy Seki.

During the workshop, after a discussion about the story of the development of the Kawaiwete orthography, the Kawaiwete teachers worked in groups and provided examples of words whose spelling varied across different communities. Based on these examples, we observed five common patterns. Then, we discussed these patterns based on concepts of different fields of linguistic theory and established agreement on the spelling of the words in variation. Table 1 summarizes the five patterns and the agreement established with the Kawaiwete communities.

TABLE 1. Variation in the Kawaiwete orthography

Phenomenon	Linguistic discussion	Strategy
Variation in the use of <i>m</i> and <i>n</i> .	A preliminary discussion of the properties of nasal consonants was provided. More particularly, we discussed the differences in the place of articulation	After a few exercises with the words that motivated the discussion, the Kawaiwete teachers observed a difference between words where the nasal was pronounced with the lips (<i>m</i>) and those that were not (<i>n</i>). An agreement on the words in variation (in the written language)

⁸ Weiss (1998) produced a dictionary of the language as part of her PhD work in linguistics at the University of São Paulo. Weiss's dissertation is available for consultation at the University of São Paulo libraries.

	between bilabial (m) and alveolar nasals (n).	was established based on the pronunciation of the words.
Glottal stop	We overviewed the phonetic characteristics of the glottal stop.	Exercises using minimal pairs were completed in order to emphasize the difference between words with and without the glottal (<i>a'y</i> 'a type of monkey'; <i>ay</i> 'pain').
The use of <i>u</i> and <i>w</i>	We discussed the difference between vowels and diphthongs based on phonetic concepts.	After a few exercises, the Kawaiwete teachers observed that <i>w</i> was only suitable when the 'u' sound was weaker (part of a diphthong), while <i>u</i> would be used to pronounce an independent vowel. Example: <i>erawaw</i> 'to take' and <i>jau</i> 'left'.
The use of <i>u</i> and <i>o</i>	The articulatory features of the vowels (close/close-mid) was used as a strategy to show the difference between the two sounds.	After a few exercises, the Kawaiwete teachers made a few compromises on which words they thought would be better represented as <i>o</i> or as <i>u</i> , despite variation in oral speech. In the workshop it was noted, based on several examples, that variation in oral speech was common across languages.
Long and short vowels	The distinction between short and long vowels was discussed based on phonological concepts and examples in Kawaiwete and other languages.	Exercises with minimal pairs were used to show the difference in the pronunciation of words with short and long vowels (<i>nakwawi</i> 'not pass' and <i>nakwaawi</i> 'not know'). Agreement on the words in variation (in the written language) was established.
Separation of words	Discussion of morphological concepts (bound and root morphemes).	It was established that bound morphemes would be written together with their root morphemes. We did exercises where we discussed strategies for deciding whether a particular morpheme was bound or independent. The exercises were based on two questions: (i) Can a particular morpheme occur by itself? And (ii) can a morpheme intervene between two other morphemes?

In sum, in this workshop, the participants were introduced to concepts of linguistics to explain why and how languages vary and how to build hypotheses based on datasets. One goal of this workshop was to emphasize not only the concepts, but also the methods for finding patterns and building hypotheses. The Kawaiwete teachers were encouraged to do similar exercises in their classrooms. It is important to say that at the time of the workshop (2009), most of the Kawaiwete Indigenous teachers had not been exposed to linguistics in their training to become teachers. As such, this workshop was a useful tool for teachers, complementing their previous education and in-class experience as language teachers. At the end of the workshop, we wrote a bilingual text about the history of the Kawaiwete orthography, the orthography itself (with its parallel in the International Phonetic Alphabet) and the agreement we came to on how to write the

words in variation, as the Kawaiwete manifested interest in unifying their writing system.⁹

Workshops 2 and 3: Genres of writing

As per the request of the communities, the second and third workshops (2010, 2011) were intended to promote different genres of writing in Kawaiwete (autobiographies, comic strips, texts for authorities [argumentative]). The results of this effort were two bilingual books, one of which has already been published by the Museu do Índio. This book *Yafu: o retorno do chocalho* (Yafu: the return of the rattle) (Lima 2015) includes the transcription and translation of 27 songs of the traditional ritual *Yafu*.

Workshop 4: Revitalization of Kawaiwete ceramics

The last workshop was an effort to facilitate the process of revitalizing the knowledge behind the production of the Kawaiwete ceramics. While this was not a workshop oriented to linguistics *per se*, the enhancement of traditional cultural practices is a strategy to stimulate the use of an Indigenous language (Hinton 1992: 6). Until then, only two senior women knew how to make traditional ceramics (pans). During the workshop, using only Kawaiwete in their interactions, one of these senior women worked directly with teens and young adult Kawaiwete women on all steps of preparing Kawaiwete ceramic pans. After the workshop, the Kawaiwete researchers reported that some of the younger women in different Kawaiwete communities started making ceramic pans as well. Another result of this initiative were two documentaries on the process of doing this type of work, the history of ceramics and their use in the community, which was directed by Aturi and Pikuruk Kayabi.¹⁰

Overall, the ProDocLin project resulted in 40 hours of audio and video recordings, a bilingual dictionary (1500 entries, in progress), a descriptive grammar (written in Portuguese) and two reading books (one of them was published, Lima 2015). These three initial years of the ProDocLin project were an essential stage for initiating an extensive documentation of the language that was later critical in developing the pedagogical grammar, as described in the next section.

3. THE KAWAIWETE PEDAGOGICAL GRAMMAR. Between 2013 and 2015, a monolingual pedagogical grammar of the Kawaiwete language was written in collaboration with the Kawaiwete teachers. The Kawaiwete pedagogical grammar was one of the projects under the program ‘Pedagogical grammars’ of the Project for the Documentation of Indigenous Languages (ProDocLin), Museu do Índio/United Nations (UNESCO).¹¹ This is a monolingual (Kawaiwete) grammar with illustrations by one of the Indigenous co-authors (Montirenti Kayabi). It was written between 2013 and 2015

⁹ The introduction of the Pedagogical Grammar of the Kawaiwete language (described in Section 3) includes the texts written during this workshop as well as an overview of sociolinguistics terminology and how it can be applied to the examples discussed in the workshop.

¹⁰ Both movies (with English subtitles) are available online:

Japepo 'Yja Pa'ruap (<https://www.youtube.com/watch?v=Cs7TUKA2240>, 16:30 minutes) and *Japepo* (<https://www.youtube.com/watch?v=wJcuCdiz8wE>, 20:08 minutes).

¹¹ Luiz Amaral (University of Massachusetts Amherst) was the technical coordinator of this program, which he designed. Luiz provided training on the method for developing this type of material and supervised the production of the grammars. The Scientific Coordinator of ProDocLin was Bruna Franchetto (Universidade Federal do Rio de Janeiro, Museu Nacional).

and consists of a book of 50 chapters (approximately 400 pages) written in collaboration with three Kawaiwete teachers (Pikuruk Kayabi, Montirenti Kayabi & Aturi Kaiabi), see Lima et al. *in press*.

A pedagogical grammar is non-technical, monolingual material, driven by communicative goals.¹² The critical concept behind the structure of the chapters of the pedagogy is *input enhancement*. Input enhancement is a pedagogical strategy of making more salient a specific grammatical feature in order to gain the attention of the L2 learner (Sharwood Smith 1991: 120). Strategies of input enhancement include making a particular form typographically salient by underlining it, bolding it and/or using varying color or font. Another form of input enhancement, known as *input flood* (Barcroft & Wong 2013), consists of the presentation of several instances of a particular target structure in order to make salient to the learner regularities of the input without the use of formal language (Rutherford & Sharwood Smith 1985).

The Kawaiwete pedagogical grammar was divided into five thematic groups, as described below. The grammar was not intended to be a comprehensive description of all aspects described in previous work on the language; most of them were aspects of the language's grammar featured in the descriptive grammar, written in the first three years of the project (Lima, Kaiabi & Kayabi 2012):

- *Group 1: language variation and history of the orthography* (the only bilingual section of the grammar; this part of the grammar includes the material written in the first linguistics workshop promoted under the ProDocLin project; see Section 1).
- *Group 2 (10 units): objects, people and substances* (pronouns, possessives, adjectives, compounding, derivational morphology [formation of nouns], augmentative and diminutive morphemes, and the generic morpheme).
- *Group 3 (10 units): time and space* (demonstratives, postpositions).
- *Group 4 (10 units): counting and measuring* (numerals, quantifiers, comparatives, pseudopartitives)
- *Group 5 (20 units): daily activities* (adverbs, different types of sentence connectives, questions, negation, causatives, reciprocals, imperatives, modals, conjunctions).

The chapters do not have to be used in a particular order; as such, the use of the pedagogical grammar could vary depending on the contents being explored in other classes. One characteristic of the grammar is the absence of technical terms in the chapters, as we discuss in more detail in 3.2.

3.2 STRUCTURE OF THE CHAPTERS. All 50 units of the pedagogical grammar of the Kawaiwete language have the same structure: they start with the contextualization of the form being studied in the chapter by means of presentation of a dialogue or a small narrative, as illustrated in Excerpts 3 and 4. The target structure of each chapter is made visually salient by the use of red and bold fonts in the title of the chapter, the contextualization and the description of the use of the form.

¹² See Silva, Amaral & Maia (2014) for a discussion of the general goals of the program in which the grammars were written and of the production of the pedagogical grammar of the Karajá language.

EXCERPT 1: Contextualization picture (Chapter *Natuwi te nipyituni* ‘small and few’)

— *Ma’a pe te tapi’ira erejuka ra’e?*
(‘Where did you kill the tapir?’)

— *Ypia pe je ijukai ko.* (‘I killed the tapir in the lake.’)

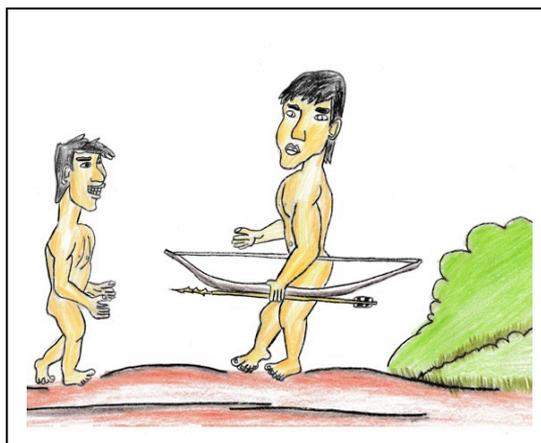
— *Natuwi te ‘nga nū’ū?* (‘Was it small [natuwi]?’)

— *Natuwi kuī.* (‘Yes, it was small.’)

— *Tajaua oko ‘jaw ‘ngā ū?* (‘I heard that there are not many tapirs there, is that true?’)

— *Ēē! A’ere nipyituni. Mukujā etee ajuereko ko.* (‘Yes, there were few [nipyituni] tapirs there. I only saw two.’)

— *Jaw ene kuī.* (‘Is that so?’)

**EXCERPT 2:** Contextualization (Chapter *Nga, ēē, kīa, kynā: ‘nga ujān, ēē ujān, kīa ujān, kynā ujān.* ‘he, she, he, she: he runs, she runs, he runs, she runs’)

Ere kwaa te ekaw?
(‘Have you heard?’)

Ma’ja? (‘What?’)

Pitaja ‘nga ujān ka’i rewiri.
(lit.: ‘Pitai, he [‘nga] ran after a monkey’)

Ēē, ajuka Pitaja kīa ka’ia erua.
(lit.: ‘Yes, Pitai, he [kīa] killed the monkey’)

A’ere nga remireko ēa i’waw.
(lit.: ‘After that, Pitai’s wife, she [ē] baked the monkey’)

A’eramū kīaremireko kynā ajetee futat i’waw.
(lit.: ‘Yes, and she [kynā] ate it by herself.’)

These exercises illustrate the contextualization portion of two chapters of the grammar. Excerpt 1 is from the chapter on how to describe negative sizes and quantities (*Natuwi te nipyituni* ‘small and few’), while Excerpt 2 is about third person pronouns that vary according to the gender of the speaker and hearer. In most chapters, as in these examples, we use the contrast between two forms in order to explain their meaning and use. That is, we include two or more forms that shared at least one property and, at the same time, differed from each other in at least one way. For example, *natuwi* and *nipyituni* are both negative words; they are different in the sense that one (*natuwi*) is an adjective that describes small sizes of individuals, while the other (*nipyituni*) is a negative quantifier that quantifies over cardinalities.

The contextualization of use of the form(s) being studied in the grammar is followed by a non-technical description of the use of the target morpheme/structure. In all chapters, non-technical descriptions are introduced in blue boxes (as shown in Excerpt 3 and 4):

EXCERPT 3: Non-technical description (chapter: *Natuwi te nipyituni* ‘small and few’)

Natuwi ‘jawa upe ae’i mamu’e tuwie’emã upe. **Nipyituni** ‘jawa upe ae’i mama’e pytune’emã upe ae’i.
(‘*Natuwi* is used to talk about a small object. *Nipyituni* is used to talk about a small quantity of objects’)

Nipyituni ‘jawa upe ae’i mama’e epytune’emã upe a’ei. Naparu’ia mama’e ku’iu pe.
(‘*Nipyituni* cannot be used to refer to substances or masses’)

I’jawe (‘Example:’): *nipyituni* u’i upe (‘~~there are few flour~~’)
☺ **nipyituni** sakua u’i upe (‘there are few bags of flour’)

In the non-technical description of the target structures throughout the grammar, we highlight specific subtle semantic aspects of the use of the terms. For example, in the exercise in Excerpt 1, we emphasize that *nipyituni* is a quantifier that cannot be combined directly with substance-denoting nouns such as *u’i* ‘flour’. Previous work had already described that some quantifiers can only be directly combined with count nouns (for example, object-denoting nouns such as *chair*); as such, the distribution of quantifiers is a reliable test in order to distinguish count from mass nouns in Kawaiwete (Lima & Kayabi 2015).

In this particular chapter, we present positive and negative evidence for describing the distribution of *nipyituni*. That is, we show when it can and cannot be used by discussing that mass nouns cannot be directly combined with the quantifier *nipyituni*. While we are aware that the use of negative evidence is controversial in pedagogical materials for L2 speakers (as it could draw the student’s attention to ungrammatical sentences and lead the students to mistakes), we considered that in material for L1 speakers this was not problematic given that they already know intuitively what is possible and what is impossible. Instead of being a potential problematic strategy, we decided that it was important to present negative and positive evidence as this is at the core of linguistic data analysis. It is important to say that no material written in or about in Kawaiwete has a prescriptive nature and the type of negative evidence featured in

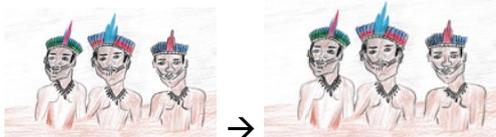
the pedagogical grammar only includes what is impossible for *any* Kawaiwete speaker. When relevant, the chapters include a note about the variation in the use of different forms depending on the gender of the speakers/hearer:

EXCERPT 4: Non-technical description (chapter: 'Nga, ēē, kīa, kynā: 'nga ujān, ēē ujān, kīa ujān, kynā ujan. 'he, she, he, she: he runs, she runs, he runs, she runs').

Jane je'engimū jane anga jareje'enga paru'i 'nga, ēē, kīa, kynā 'ngā nera py'raw. (Esak: kuima'e 'nga) 'nga rera moyka a'emū akwaapawa yramū awyĵjā upe jane 'jaw.

(‘In our language we use the words ‘nga, ēē, kīa, kynā after a noun (for example: *kuima'e nga* [man third person singular]) in order to complement the meaning of the phrase’).

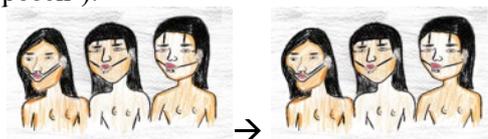
A oo tee ae je'enga mama'e mame'waw. Pee sak kuima'ea, kujāa 'jaw.
(‘The differences between male and female speech’):



Kuima'ea oje'enga ajaupe:
(‘Men referring to other men’)
'nga



Kuima'e jenga kujā upe:
(‘Men referring to women’)
ē/ēē



Kujā aje'enga ajaupe:
(‘Women referring to other women’)
kynā



Kujā jenga kuima'e upe:
(women referring to men)
kīa

In this unit, we focus on the use of pronominal forms after nouns. In Kawaiwete, nouns in argument position are either followed by the suffix *-a* (this morpheme is explored in a different chapter of the grammar) or by a pronominal form, as in the examples of this unit. A literal translation of sentences that include the pronominal form is provided. *Pitaja 'nga ujān* is, for example, ‘Pitai, he ran’. It is important to note that this is not the only use of pronominal forms in Kawaiwete, but this was the particular use that the Kawaiwete teachers wanted to explore in class with the L1 speakers of the language. This unit also features a table contrasting male and female speech.

The process of writing the contextualization and non-technical description of the target structures involved conversations about the uses of the target structure, based on examples created by the authors (in dialogues, narratives, etc.) and based on the

previous description of the target form featured in the descriptive grammar (Lima, Kaiabi, & Kayabi 2012).

3.3 EXERCISES. Each chapter of the grammar includes four to five exercises. All units have the same structure: the first exercises are always more controlled tasks than the last exercises of each unit. Examples of more controlled tasks include exercises of the following types: answer questions based on context, filling gaps, transforming phrases (by changing their word order, adding or removing a morpheme and performing necessary adaptations), word puzzles (word search, connecting words and their meanings), and forced-choice tasks (where readers would have to choose between two op-

	<i>Tuiat wesak</i> (‘Tuiat saw it’)	<i>Tuiat nuesagi</i> (‘Tuiat didn’t see it’)
		
<i>Pinaa Aturia amut ko.</i> (‘Aturi bought fish hooks’)	<i>ẽẽ</i> (‘yes’)	
a. <i>Eira Aturia a’u ra’e.</i> (‘Aturi drank honey’)		
b. <i>Piraa Aturi ‘nga ajuka ko.</i> (‘Aturi killed the fish’)		
c. <i>Aturi ‘nga ‘ywa amangai ra’e</i> (‘Aturi cut a piece of wood’)		
d. <i>Weymawa Aturi ‘nga wejat ko</i> (‘Aturi abandoned his pet’)		
e. <i>Ai’iwetewe nipoa’e Aturi ‘nga tapi’ira jukai ra’e.</i> (‘Aturi killed a tapir early in the morning’)		
f. <i>Kujãmera upe Aturi ‘nga maraka ra’angi ko.</i> (‘Aturi sang songs to the women’)		
g. <i>Aturi ‘nga weayrũa amaka’jam ra’e.</i> (‘Aturi forgot his glasses’)		

tions). The exercises always include one sample answer, highlighted in blue (identified in the examples below as *i’jawe*). Examples of the controlled exercises are presented in Excerpt 5 through 10 below:

EXCEPT 5: Controlled exercise, binary forced-choice task (Chapter on the tense/evidential morphemes *ko* [visual evidence] and *ra’e* [non-visual evidence])

Tuiara ‘nga amame’u morongyta’ia mama’ea ae ‘wyrife wara. Emome’u ikwasiaa “ẽẽ” maranamũ “nani” tuiara ‘nga je nga.

(‘Tuiat will describe a few things that happened in the community. Answer ‘yes’ if he saw what happened. Answer ‘no’ if he didn’t see what happened’)

EXCEPT 6: Controlled exercise, transformation of sentence (Chapter on the imperative construction *kasi ne*)

Kunumiakya mama'ea wopo ajemongyaw, a'eramũ morea peapoawi 'jaw jupe, pepaoat Morea mama'ea paw kare'emã kunumĩ upe.

(‘The children are doing things and Morea wants them to do the opposite. Help Morea to order children to do the opposite of what they are doing’)

I'jawe: *Kunumĩa ajo'oo* (‘The child is crying’)
Morea: Erejoo'o kasi ne! (‘Morea: Stop crying!’)

a. *Kujãtãĩ'ĩa apot akaw* (‘The girl is jumping’)
 Morea: _____

b. *Kujãtãĩ'ĩa oset* (‘The girl is sleeping’)
 Morea: _____

c. *Kunumĩa ujan akaw* (‘The girl is running’)
 Morea: _____

d. *Kunumĩa ojerokya akaw* (‘The child is dancing’)
 Morea: _____

e. *Kunumĩa amaraka'ang akaw* (‘The child is singing’)
 Morea: _____

f. *Kunumĩa imara'ne ajuee* (‘The child is fighting’)
 Morea: _____

EXCEPT 7: Controlled exercise, answer questions based on a context (Chapter about the adverbs *au'jeteramũ* ‘frequently’ and *amumeete* ‘rarely’).

Morowyky rupi etee angera ngã Pasi, Awakatu, Sirakup, Matari, Morowykya-poi. Imome'u karipy e apo i'wyrupewara.

(‘During the week, Pasi, Awakatu, Sirakup and Matari did the activities we report in the chart below. Answer the questions presented below the chart’)

	<i>Kokaru'wi</i> (‘the day before yesterday’)	<i>Karuwamũ</i> (‘yesterday’)	<i>Awamũ</i> (‘today’)	<i>Ai'iwe</i> (‘tomorrow’)	<i>Iko'i</i> (‘the day after tomorrow’)	<i>Morowykye'em</i> (‘the day when people don't work’)	<i>Morowypiat</i> (‘the day before the regular day of work’)
<i>Opinaetyka</i> (‘fish’)	Pasi Awakatu	Pasi	Pasi		Pasi	Awakatu	
<i>Akaupa</i> (‘hunt’)	Awakatu	Pasi	Awakatu	Pasi		Awakatu	Awakatu
<i>Koa paw</i> (‘plant’)	Sirakup	Sirakup	Sirakup	Sirakup	Matari		Matari
<i>Tamakari Apaw</i> (‘make baskets’)	Matari	Matari	Pasi	Matari	Pasi	Matari	
<i>Kanawa apaw</i> (‘make benches’)	Awakatu	Sirakup	Awakatu	Sirakup	Awakatu		Awakatu
<i>Yrupemã apaw</i>	Matari	Matari	Matari	Pasi	Pasi		Matari

('make sieves')							
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I'jawe: *Awỹjã te amumeetee yrupemã wopo? Pasi* ('Who rarely makes sieves?' Pasi)

- Awỹjã te koa wopo au 'jeteramũ?* ('Who frequently makes benches?')
- Awỹjã te koa wopo amumeetee?* ('Who rarely plants?')
- Awỹjã te apinaetyk amumeetee?* ('Who frequently fishes?')
- Awỹjã te apinaetyk amumeetee?* ('Who rarely fishes?')
- Awỹjã te tamakarea wopo amumeetee?* ('Who rarely makes baskets?')
- Awỹjã te au 'jeteramũ tamakaria wopo?* ('Who frequently makes baskets?')
- Awỹjã te amumeetee kanawaa wopo?* ('Who makes benches every once in a while?')
- Awỹjã te au 'jeteramũ kanawa wopo?* ('Who frequently makes benches?')

EXCEPT 8: Controlled exercise, word puzzle (chapter about compounds and neologisms in Kawaiwete).¹³

Kawaiweteramũ jane amumera mama'e yau reirogi. Esak jane'ea kwara'angawi 'jaw. Emojotyka mama'erera ajuapyt ma'ea ajuee esa'ã ae iapoa a'eupe.

('In the Kawaiwete culture we create words for new objects. For example, we use the word *kwaraanga 'wi* meaning 'watch'. Connect the compound with its function in the community')

Tet ('word')	<i>Iapoap</i> ('meaning')
My'ape'wi ('chest + thin = computer')	<i>Ae'anga eesakap</i> (<i>'it is used to see images'</i>)
<i>Maraka je'eng'i</i> (<i>'music that talks = cellphone'</i>)	<i>Ae pyta mojewaraap</i> (<i>'it is used to pedal'</i>)
<i>Ya rywate</i> (<i>'boat + height = airplane'</i>)	<i>Ae py ryrũ</i> (<i>'footwear'</i>)
<i>Werawerawuu</i> (<i>'television'</i>)	<i>Maraka renupam ka'arana ekwaia morowyky opat</i> (<i>'it is used to write'</i>)
<i>Ypopyĩ'ĩ</i> (<i>'bicycle'</i>)	<i>Ywate ae atap</i> (<i>'it is used to travel'</i>)
<i>Myapaap</i> (<i>'shoes'</i>)	<i>Morerekoemaak wa imomoripyt</i> (<i>'it is used to play'</i>)

¹³ Different strategies are used in the formation of compounds in Kawaiwete (Lima et al. 2012):

Noun + Noun: *Noun (diminutive [DIM]) + verb:*

Kwara-'anga'wi miruru-'i'i-faap

Verb + noun:

Yta-pap

Noun + verb:

Pi'ok

sun-drawing
'watch'

wound-DIM-tie
'patch'

swim-vest
'life guard'

pit-'ok
skin-remove
'to peel'

Loanwords from Portuguese are also observed in the language. Usually, loanwords are adapted to the phonology of Kawaiwete (*trator* 'tractor' (Brazilian Portuguese); *taratu* (Kawaiwete)).

<p><i>Ajaywywe</i> (‘liquid + rubber gatherer = ball’)</p>	<p><i>Ae je’enga monoap</i> (‘it is used to communicate’)</p>
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We also included metalinguistic exercises in which students have to compare sentences and evaluate their difference by thinking about contexts in which they could and could not be used, as shown in Excerpt 5. Working with contexts is a fundamental part of semantic fieldwork (see Matthewson 2004), as it is important to determine the situations in which a sentence can be used, beyond its grammaticality.

EXCEPT 9: Controlled exercise, answer questions (chapter about the suffix *-a* [generic constructions]).

Esak morongytaa jekwasiara a’ere ene ijuawy resaka a’ere ene ikwasiaa eka’ana pype

(‘See the difference between the sentences and write their difference in your notebook’)

I’jawe: a. *Kuima’e ’nga ujān ka’i rewiri.* (‘The man ran after the monkey’)
a’. *Kuima’ea ujān ka’i rewiri.* (‘Men run after monkeys’)

Ajuawy ae je’enga esak ijekwasiara. ’Nga nipo a’eramũ majepeja ’nga upe te ea’ i. Kuima’ea e’i nipo ae a’eramũ kuima’ea jujue

(Answer: ‘Some words are different, see the difference in the sentences. When we say *kuima’e* ‘nga we are talking about a particular person. When we say *kuima’ea*, we are talking generically about all men’)

b. *Ajuka kuima’e kĩa ka’ia erua.* (‘The man killed a monkey’)

b’. *Ajuka kuima’ea ka’ia erua.* (‘Men kill monkeys’)

c. *A’ere kujā ē eya i’waw.* (‘The woman baked (something) for eating’)

c’. *A’ere kujāa eya i’waw.* (‘Women bake for eating’)

d. *A’eramũ kujā kynā ajetee futat i’waw.* (‘The woman ate by herself’)

d’. *A’eramũ kujāa ajetee futat i’waw.* (‘Women eat by themselves’)

e. *Kunumĩ ’nga ujān* (‘The boy runs’)

e’. *Kunumĩa ujān* (‘Boys run’)

f. *Miaruu ’nga y’wa a’u* (‘The paca ate the fruit’)

f’. *Miaruua i’wa a’u* (‘Pacas eat fruits’)

g. *Miaruu ēwayra amaka’mu* (‘The paca feeds its kittens’)

g’. *Miaruua wayra amaka’mu* (‘Pacas feed their kittens’)

As previously mentioned, one of the main goals of the Kawaiwete pedagogical grammar was to motivate the students to reflect on their language. The place where this is more explicit in the chapters is in the formulation of the open-ended exercises where we try to encourage students to go deeper and do small research projects to further explore the target morpheme/structure being examined in the grammar. This process

followed the methodology of the activities used by the author in the Xinguanian communities (as previously described in Section 1) as a visiting professor of linguistics at the Indigenous undergraduate program at the Mato Grosso State University (UNEMAT) and during workshops at the State University of Roraima (UERR).

In the linguistics classes at UNEMAT, Indigenous students had to build paradigms based on data from their own language and formulate hypotheses about the word order type of the language, following the universals proposed by Greenberg (1963). At UERR, different types of exercise were proposed: the Indigenous teachers used a questionnaire about the count/mass distinction and students had to make generalizations and hypotheses based on the data they organized during this activity. A few other examples of the open-ended exercises are presented in Excerpts 10-17.

EXCERPT 10: Open-ended exercise (chapter on compounds and neologisms in Kawaiwete).

Pe mome'ukat jare pytuna upe, mama'e rera ajuapy ma'ea a'ere imome'waw ajemu'e ma'e 'ngã nupe

(‘Search in the community for other words that are formed by combining other words. Present the meaning of these words to the class’)

EXCERPT 11: Open-ended exercise (chapter about the suffix *-a* [generic constructions]).

Emongyta iyman ma'e 'ngã amũ, a'ere imome'waw kaa 'ngã nupe, ma'ja te aka'jam ja'wyja'wy, wyra, ka'a pe wara mama'e, y'waa aka'jam ja'wy ja'wy ma'e mama'ea. Irũpawẽpawẽ ikwasiaa

(‘Interview the elders and ask what kinds of animals, natural resources and fruits are disappearing from the community. Write eight sentences’)

EXCERPT 12: Open-ended exercise (chapter about the nominalizer suffix *-t*).

Ekwasiat irupãwẽpãwẽ amũ tera morowykyare jane pype Kawaiwete ramũ a'ere ene imome'wau 'ngã porowykya ikwasiaa eka'arana pype

(‘List eight activities we have in the Kawaiwete community (professions) and describe what people do’)

EXCERPT 13: Open-ended exercise (chapter about the prepositions *wi* ‘from’ and *te* ‘to’).

Aparanup Kawaiwete ruawera re, amũ aymãna upe, Xingu pe Kawaiwete ruawet. A'ere ene ikwasiaa anga tera pa'rua pe te wi 'jaw

(‘Interview the elders and ask them to tell you the story of the transfer of the Kawaiwete to the Xingu. Use in your text the words *pe* and *wi*’)

EXCERPT 14: Open-ended exercise (chapter about the causativizer *-mu*).

Tera apaw irũpãwẽpãwẽ (8) Mu emome'u 'ara ijapy'rua re kwara rupi

(‘Using 8 words with *-mu*, talk about the changes of time throughout the year’)

EXCERPT 15: Open-ended exercise (chapter about negation).

Eje'wyrīpe mama'ea ta'yryrũ remi'u e'emare eparanup nga nupe. Esã'a ytykure'emã, i'u e'emã, tesĩrumera

(‘Research in your community what a pregnant woman cannot do during gestation [for example, what she cannot eat, what she cannot drink, etc.]’)

While some of the open-ended exercises have a purely linguistic flavor (10), most value traditional knowledge, encouraging the students to research one particular aspect of their culture or history. For example, the students could research traditional local professions (12), the migration of the Kawaiwete from their traditional land to Xingu (13), or traditional knowledge about pregnancy care (15). Some of the exercises motivate students to explore other disciplines, such as environmental studies (extinction of some local fauna and flora (11), climate changes throughout the year (14), among other subjects). The *Kawaiwete Indigenous School Political Pedagogical Project*¹⁴ encourages a meaningful connection between local schools, community and traditional knowledge. As such, language classes can be a path for connecting the students with their traditional knowledge and motivate them to become researchers of their language and culture. We believe that the pedagogical grammar can contribute to this goal.

4. FINAL CONSIDERATIONS. This paper described how language documentation projects can impact L1 language teaching. We first described the activities developed under the ProDocLin Kawaiwete, a collaborative project that involved training Indigenous researchers, writing educational materials and providing linguistic workshops. One particular goal of this project was to provide the tools for Indigenous researchers to develop language documentation for their own language and to be able to carry on discussions about linguistic datasets with their students in their classrooms. In the linguistic training of teachers and Indigenous researchers, we emphasized not only the technical aspects of language documentation (how to make recordings, metadata, and transcriptions), but also linguistic theory and methodology for linguistic analysis (how to work with minimal pairs, paradigms, context elicitation, and grammaticality judgments). The documentation of the Kawaiwete language and the training of Indigenous teachers in linguistic methods were fundamental steps for writing the pedagogical grammar.

The work that preceded the writing of the pedagogical grammar of the Kawaiwete language included linguistic workshops and the development of a descriptive grammar and other materials (dictionary, cultural workshops, and reading books). The pedagogical grammar was intended to be an organic educational resource in the Kawaiwete communities, connected with other disciplines that value traditional knowledge, as exemplified by the exercises included in the grammar. We do not have information of the use of the grammar in schools. The grammar is not yet published and only a few hardcopies are available in Xingu. After the publication of the material and its distribution across different Kawaiwete communities, we intend to document the impact of this material in the local education of Kawaiwete children and teenagers. We expect that

¹⁴ The Kawaiwete Indigenous School Political Pedagogical Project is a document written in 2009 by the collective Kawaiwete in a series of workshops organized by the Socioambiental Institute (ISA). This document details what the Kawaiwete people consider as the traditional knowledge that needs to be taught and when the members of the community need to be exposed to each type of knowledge.

material based on communicative contexts rather than on technical terminology¹⁵ is likely to make a relevant contribution to education in local communities. Another goal of the pedagogical grammar of the Kawaiwete language is to encourage Kawaiwete children and teenagers to think about the characteristics of their language by gathering data and building hypotheses about them. We are particularly interested in observing the long-term effects of this type of material in local schools.

A future goal is to adapt the monolingual Kawaiwete pedagogical grammar described in this paper into material that can be used by L2 learners of Kawaiwete (adult Kawaiwete speakers that only speak Portuguese) in the region of Juara, where strategies are being considered for revitalizing the language. Ultimately, with such activities and with the support of Kawaiwete speakers who live in Juara and the Xingu territory, we intend to not only promote the revitalization of the language in the area, but also to encourage speakers of this community to become researchers of their own languages.

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¹⁵ Silva, Amaral & Maia (2014) note that several studies in other languages have already shown that formal grammatical information is not sufficient in language classes.

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Supporting rich and meaningful interaction in language teaching for revitalization: Lessons from Macuiltianguis Zapotec

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Many language revitalization programs aimed at teaching Indigenous languages are small, informal efforts with limited time and resources. Even in communities that still have proficient speakers, students in revitalization programs often struggle to gain proficiency in the language. This paper offers an illustration of how one language revitalization program has tried to make teaching more effective by adapting communicative language teaching strategies to be more useful and appropriate for their particular context. Having gained empirical support in the field of second language acquisition (SLA), communicative language teaching emphasizes the importance of rich and meaningful interaction for language learning to take place. “Rich” refers to the availability of target-like input that is not oversimplified. “Meaningful” refers to the type of interaction that takes place in real-life situations that necessitate communication. However, existing research on these topics has largely ignored language revitalization contexts, where providing learners with rich and meaningful interaction can be particularly challenging. This paper presents strategies for promoting rich and meaningful interaction in instructed language revitalization settings, as demonstrated through teacher practices at a Zapotec revitalization program in San Pablo Macuiltianguis, Oaxaca, Mexico. The focus is on shifting from Spanish language use to Zapotec language use in specific, everyday social spaces, then supporting interaction within these spaces.

1. INTRODUCTION.¹ Language teaching has a growing role in language revitalization efforts around the world (Cope & Penfield 2011; Hermes 2007; Hinton 2011; Hornberger 2008a; Reyhner 1997). A global survey of Indigenous language revitalization efforts showed that language teaching was a major objective for a majority of programs that responded (Pérez Báez, Vogel, & Koller 2018; Pérez Báez, Vogel, & Patolo 2019). This suggests that in many communities experiencing language shift, immediately reestablishing language transmission in the home is not seen as a viable option,

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and community members turn to teaching as an alternative. While some language revitalization efforts become well-funded, government-backed education initiatives (e.g., Benton 1986, 2015; Cowell 2012), many Indigenous language teaching programs are small, local efforts with little institutional support. A handful of community members may become concerned with the fact that children are not acquiring the language and simply decide to begin teaching the language themselves. In consideration of this reality, this article focuses on how teachers at a small, informal language revitalization program can employ strategies that maximize opportunities for language learning.

These language revitalization programs can face enormous challenges, even when a community still has proficient speakers. For one thing, Indigenous communities may not view schools as places of hope for their languages, as language loss has been perpetuated by boarding schools and exclusionary monolingual education around the world (Gantt 2016; Hornberger 2008a; White 2006). Even in cases where language teaching is seen as a positive path forward (e.g., De Korne 2017; Hermes 2007; Riestenberg & Sherris 2018), there is often an understanding that “schools alone are not enough to do the job” (Hornberger 2008b:1). As Hinton (2011) argued, Indigenous language learning is inextricably tied to one’s identity as belonging to a minority culture, and learning an Indigenous language reflects a sociopolitical ideology about cultural autonomy and resistance to assimilation. This sociocultural reality sets teaching for Indigenous language revitalization apart from the foreign language teaching contexts that have received far more scholarly attention. The goals and needs of Indigenous language instruction can differ greatly from other language instruction settings, and most resources on effective language teaching are not created with revitalization in mind (Riestenberg, *in press*; Riestenberg & Sherris 2018; White 2006). Indigenous language educators may therefore find it difficult to achieve their instructional goals, and although the need is urgent, students in many revitalization programs struggle to gain proficiency in the language.

This paper offers an illustration of how one language revitalization program has tried to make teaching more effective by adapting communicative language teaching strategies so that they were more applicable, useful, and appropriate in an instructed language revitalization context. A major concern of this paper is how to maximize limited time, resources, and access to proficient speakers by promoting rich and meaningful interaction in language teaching. The terms “rich” and “meaningful interaction” come from literature on communicative language teaching as discussed further in Section 2. “Rich” refers to the availability of target-like language input (i.e., listening) that is not oversimplified. “Meaningful” refers to the type of interaction that takes place in real-life situations that necessitate communication (e.g., Brandl 2008:5). Instead of designing teaching around the grammar of the language, the instructor designs it around the things that students actually need or want to do in the language. The goal is highly participatory interactions in which speakers must achieve some communicative goal (Lave & Wenger 1991; Long 1996).

Within this paper, the concepts of rich input and meaningful interaction are reconsidered in light of the specific challenges of instructed Indigenous language revitalization, particularly when time and resources are limited. The next section sets up the problem of directly applying strategies from communicative language teaching to instructed Indigenous language revitalization. The second half of the paper suggests possible ways of adapting communicative teaching strategies to better meet these challenges, offering examples from the practices of instructors who teach Sierra Juárez Zapotec in the community of San Pablo Macuiltianguis, Oaxaca, Mexico, which is further

introduced in Section 3. The paper concludes with a consideration of the outcomes and remaining challenges involved in applying these strategies.

2. COMMUNICATIVE LANGUAGE TEACHING FOR LANGUAGE REVITALIZATION. Communicative language teaching (CLT) is a meaning-based approach to language teaching that makes use of “real-life situations that necessitate communication” (Brandl 2008:5; see also Spada 2007). Based in an understanding that the primary function of language is social interaction, CLT aims to help learners develop ‘communicative competence,’ the characteristics of which are summarized by Lillis (2006:666) as follows (emphasis added):

- The ability to use a language well involves knowing (either explicitly or implicitly) how to use language appropriately in any given context.
- The ability to speak and understand language is not based solely on grammatical knowledge.
- What counts as appropriate language varies according to context and may involve a range of modes – for example, speaking, writing, singing, whistling, drumming.
- **Learning what counts as appropriate language occurs through a process of socialization** into particular ways of using language through participation in particular communities.

CLT can thus be understood not as a specific pedagogical method but rather as any approach “that understands language to be inseparable from individual identity and social behavior” (Savignon 2018:5). While a number of different models of communicative competence for language pedagogy have been proposed (Bachman & Palmer 2010; Canale & Swain 1980; Canale 1983; Celce-Murcia, Dornyei & Thurrell 1995), all of these models share an emphasis on language use, meaning, and fluency alongside lessons on language structure, form, and accuracy. This stands in contrast to methods that focus on learning words and grammatical structures without necessarily placing them in the context of their communicative objectives, a legacy of the grammar-translation method that was widely used in Western schooling in the nineteenth and twentieth centuries but is not considered to be an effective method of developing oral language proficiency (Brandl 2008; Richards & Rodgers 2001).

Proponents of CLT argue that the development of oral proficiency can be accelerated through the increased interaction in the language that the approach offers, and this is backed by empirical research on second and foreign language instruction (Gass, Mackey & Pica 1998; Keck et al. 2006; Mackey 2007; McDonough & Mackey 2013; Pica, Kang & Sauro 2006; Seedhouse 1999). This may appeal to teachers in revitalization programs, as the need for learners to quickly gain speaking proficiency is often seen as urgent. However, offering opportunities for interaction in the language presents pedagogical challenges. In many language teaching settings, revitalization or otherwise, the instructor is the principle or only speaker of the language to whom students have regular access. For this reason, a substantial subset of CLT literature has focused on how technology can be used to support classroom practices (Chapelle 2007; Thomas & Reinders 2010). Use of technology, especially videos and audio of natural language use, can be extremely effective for CLT when this is a feasible option, but many language revitalization programs do not readily have access to classroom technology, or the time and resources to carry out video and audio recordings that are appropriate for

classroom use. On the other hand, if language revitalization is taking place in a scenario in which learners and proficient speakers are living together in a community, this can be seen as an advantage over other language learning contexts in which learners do not have such direct access to speakers of the target language.

CLT may be appealing in revitalization contexts for other reasons as well. Because CLT proceeds based not on language structure but on the communicative needs of learners, the approach can be used in settings that lack extensive language resources in the form of grammars and textbooks. By focusing on real-life situations, CLT moves away from rote, teacher-fronted practices and focuses instead on interactions among learners or between learners and teachers. This in turn lends itself to engaging with sociocultural practices while maintaining a focus on language learning. CLT's focus on language as it is authentically used among a community of speakers means that it is flexible enough for community members to realize it in the way they see fit.

Still, a major challenge in applying CLT in revitalization contexts is that there may not be any real-life social situations that truly require the learners to speak the target language (Riestenberg & Sherris 2018). This puts the focus on authentic or "real-life" language use that is the basis of CLT directly at odds with the realities of language revitalization. Because CLT aims to foster learners' ability to communicate outside of the language classroom, there must be an active speech community on which to base authentic and useful communicative tasks for the learners. Speakers must be using the language in at least some social domains, and these domains must be accessible to learners, at least in principle. This presents a dilemma in Indigenous language contexts if language loss has resulted in an overall decrease in language use across social domains and a social divide between older and younger generations. For revitalization to be successful, social practices for using the Indigenous language must be identified. This involves identifying potential changes to linguistic habits, such as everyday interactions, cultural practices, or routines that could be done in the Indigenous language instead of the colonizing language (Riestenberg, *in press*). Once these spaces of potential language use are identified, authentic communicative tasks of the type emphasized in CLT can emerge. This is not easy to do, however, and the responsibility to create these new spaces of language use often falls to language teachers with limited time and resources to devote to language instruction and who may themselves be learners of the language.

It is worth noting that CLT is not incompatible with other widely known approaches to language revitalization such as master-apprentice programs (Hinton 2001; Hinton, Vera & Steele 2002; Olawsky 2013), language nests (e.g., King 2001), and immersion schools (e.g., Bishop, Berryman & Richardson 2002; Greymorning 1997; Hermes 2007). While these approaches represent different ways to structure a revitalization program, CLT is better thought of as a set of pedagogical ideologies (e.g., a focus on social situations that necessitate communication) and strategies (e.g., promoting rich and meaningful interaction) that facilitate language learning. Any of these approaches can therefore incorporate CLT, or aspects of CLT, into lesson design. When these immersion-based approaches are not feasible due to lack of time or resources, CLT offers an alternative way to make the most out of limited instructional time. At the same time, it is important to acknowledge that the existing body of research on CLT has largely ignored language revitalization contexts, and, in any case, it is widely understood by language pedagogy experts that there is no "one-size-fits-all," single best method for language teaching. Instead, it is important to critically consider what strategies are applicable, useful, and appropriate in a particular setting.

This paper focuses on how teachers at a small language revitalization program adapted two particular strategies of CLT to fit their needs. The first strategy is to provide rich, authentic language input. The second strategy is to support frequent, meaningful interaction among learners or with other interlocutors. In the subsections that follow, I summarize how each of these strategies is presented in the CLT literature and the challenges for implementing these strategies in revitalization contexts, before turning in the subsequent section to ways the teachers adapted these strategies to better meet these challenges.

3. PROVIDING RICH, AUTHENTIC INPUT. Rich input is authentic, target-like input that is not oversimplified. According to Brandl (2008:12), the goal of rich input is to offer learners exposure to “a plethora of language patterns, chunks, and phrases in numerous contexts and situations.” Long (2015:307) states that rich input should display “quality, quantity, variety, genuineness, and relevance.” He argues that methods such as modeled dialogues, drills, and reading passages tend to offer input that is linguistically impoverished, resulting in limited or even unrealistic “data” for the learners who are processing the language. Instead of exposing learners to scripted interactions, the goal is to expose them to authentic, real-life discourse. Depending on the context, this input may come from the speech of the instructor, of other speakers of the language, or from classmates. It may be through face-to-face interactions, phone or video calls, or watching or listening to pre-recorded video or audio of people communicating in the language in a realistic context. For example, students may listen to someone describing how to weave a type of basket before being asked to complete the same task themselves.

One way to think about providing rich input is to consider both lexically and structurally rich input. In terms of lexically rich input, students need to be exposed not only to concrete, basic, isolated words (e.g., ‘tree,’ ‘house,’ ‘jump’) but also more abstract words (e.g., ‘tired,’ ‘fun’), category labels (e.g., not just ‘fork,’ ‘knife,’ ‘spoon’ but also ‘utensils’), grammaticalized words (e.g., the plural suffixes of ‘cats,’ ‘bugs,’ and ‘foxes’), and collocations (e.g., ‘get ready,’ ‘a large amount of,’ ‘a strong feeling’). In terms of structurally rich input, students need to be exposed to a variety of sentence structures. This may be quite different in different languages, but this could include things like using both questions and statements, using subordinate clauses, and using different types of agreement (e.g., ‘You like to play baseball and she likes to play basketball.’). In a CLT approach, these lexically and structurally diverse forms emerge naturally through participation in real-life interactions that necessitate communication, rather than by teaching these forms directly. After an initial period of getting accustomed to these input floods, learners’ implicit language learning mechanisms kick in, and learning takes place at a much more rapid pace than it would without rich input (Long 2015, 2016). This is one reason why “immersion” is widely understood to be effective for language learning.

It seems logical that we would want to offer students in instructed language revitalization contexts this type of immersive, rich language experience. However, providing learners with rich spoken input can be particularly difficult in language revitalization settings in which the number of proficient speakers is rapidly declining. Even when there are speakers, they may not be available to attend the classes. It may be particularly difficult to find existing authentic materials such as the “texts, photographs, video selections, and other language resources...not specially prepared for pedagogical purposes” suggested by Brandl (2008:13; see also Tschirner 2003), and programs may not have access to video or audio recordings, or the time and resources to carry this out.

Because many revitalization programs are led by teachers who are also learners, the input students receive is sometimes minimal, simple, and highly scripted. At the same time, the focus on “authentic” language input is attractive in revitalization settings because it is unnecessary to generate a large amount of teaching-specific materials. It can also help students make important sociocultural connections in the language, learning whole phrases and relationships among words instead of isolated words or calques from their other language. There are therefore significant benefits to providing rich, authentic input in an instructed revitalization setting if the stated challenges can be addressed.

4. SUPPORTING FREQUENT, MEANINGFUL INTERACTION. Interaction involves both input and learner production; learners cannot simply listen to input. Rather, they must be active conversational participants who interact and negotiate about the type of input they receive. A learner speaking to a teacher might ask for a clarification or check whether she has the right word. These kinds of negotiations for meaning take place naturally between speakers in everyday interactions to avoid conversational trouble and make oneself understood. It turns out that this type of interaction functions like a catalyst that promotes language acquisition. Several studies of instructed language learning have shown that a significant amount of learning takes place during interactions between the learners and teachers, other speakers, or other learners (Keck, Iberri-Shea, Tracy-Ventura, & Wa-Mbaleka, 2006; Mackey, 2007; McDonough & Mackey, 2013; Pica, Kang, & Sauro, 2006; Seedhouse, 1999).

In order for communicative interactions to be beneficial in this way, it is crucial that the interactions be meaningful. One way of thinking about providing opportunities for meaningful language use is through the use of tasks. Task-based language teaching (TBLT), a particular pedagogical approach within CLT, is grounded in the principle that language learning is most successful when learners engage in activities that are “worthwhile for their own sake” (Dewey, 1933:87 as cited in Norris 2009:579). This means going beyond language practice to achieve a nonlinguistic objective, such as getting to know one’s classmates or learning to cook traditional food. In order to develop tasks, one first conducts a needs analysis (Long 2005; Serafini, Lake & Long 2015). This involves collecting information using qualitative research methods such as interviews, observations, or focus groups in order to identify the real-world tasks that learners need to be able to perform in the language and the discourse that is involved in completing them. Then instructional versions of these tasks, called pedagogic tasks, are developed for the classroom (Long 2015).

Another conceptualization of a task comes from Ellis (2009:223), who states that for a language-teaching activity to qualify as a “task,” it should have the following characteristics:

- The primary focus should be on “meaning” (i.e., learners should be mainly concerned with processing the semantic and pragmatic meaning of utterances).
- There should be a “gap,” a need to convey information, to express an opinion or to infer meaning.
- Learners should largely have to rely on their own resources (linguistic and non-linguistic) in order to complete the activity.
- There is a clearly defined outcome other than the use of language (i.e., the language serves as the means for achieving the outcome, not as an end in its own right).

For both Long and Ellis, it is not the task itself but rather the context surrounding the task that creates meaningfulness. Introducing yourself to your classmates is not meaningful if everyone already knows your name, or if no one really feels that it is important to learn your name. However, introducing yourself to your classmates is meaningful if others would truly like to learn your name. Brandl (2008:16) further argues that for a language interaction to be meaningful, it should be “relatable to existing knowledge that the learner already possesses.” For instance, a lesson on terms used when playing basketball is not going to be successful if the learners aren’t familiar with the sport. What all of these ways of understanding tasks have in common is their emphasis on meaning over decontextualized practice of words and grammar.

Promoting meaningful interaction is likely to be appealing to instructors working in language revitalization settings because of the opportunities it creates to engage with sociocultural practices while maintaining a focus on language. However, creating opportunities for meaningful interaction can be difficult if language shift has resulted in an overall decrease in language use across social domains and a social divide between older and younger generations. The authentic task idealized in TBLT requires significant community investment in the target language, because in Indigenous communities that have experienced language shift, there may be few tasks that learners truly need to do in the language (Riestedberg & Sherris 2018). This is particularly the case if everyone in the community is either bilingual or only speaks the colonizing language. Frequent, meaningful interaction is a major advantage of revitalization approaches such as Master-Apprentice (Hinton 2001), but this type of program is not practical in every community. What if there is only one committed teacher? Even if there are multiple proficient speakers participating in a program, are they able to commit to frequently (and patiently) interacting with the learners?

Still, the shift from grammar and vocabulary practice to a focus on language meaning can provide an enormous advantage in Indigenous language contexts, particularly if little linguistic analysis has been conducted. In addition, Riestedberg & Sherris (2018) argued that when learners in revitalization programs experience in meaningful, communicative use of the target language, this fosters their identities as knowers and users of the language and reinforces their relationship to the language as symbolic capital. This type of learning by doing also demonstrates to community members that students can actually use the language, which can foster positive beliefs about language revitalization (ibid 2018).

5. MACUILTIANGUIS ZAPOTEC REVITALIZATION PROJECT. The remainder of this paper offers examples of strategies for adapting CLT to meet the challenges of language revitalization settings described in previous sections. The examples come from a program aimed at teaching children the traditional Zapotec language of the community of San Pablo Macuilianguis, Oaxaca, Mexico. Zapotec is the term used to designate a subfamily of “probably twenty-some” (Beam de Azcona, 2016:3) languages of the Otomanguean stock primarily spoken in the state of Oaxaca in southern Mexico, with many speakers also living in other regions of Mexico and the United States. Macuilianguis Zapotec is the variety spoken in the small municipality of San Pablo Macuilianguis, located in the mountainous Sierra Juárez region north of Oaxaca City. The 2010 Mexican census suggested a rapid decrease in the number of Indigenous language speakers in Macuilianguis over the last two generations; 96% of people over age 45 reported that they spoke an Indigenous language but this was true for only 36% of people ages 5-14 (INEGI, 2010). During a year of fieldwork in the community (2015-

2016), I encountered no Zapotec-speaking children between the ages of 5 and 14, suggesting that there are perhaps even fewer speakers than the census indicates.

The Grupo Cultural Tagayu' (Macuilianguis Cultural Group) was founded in 2008 by several community members with the broad goal of preserving and revitalizing the local language. The group established an alphabet for the language and have since produced several printed resources, including a Bingo game, a domino game, a booklet of songs and stories, a book on counting and measurement, a book on the community's history and traditional knowledge (Grupo Cultural Tagayu' 2017), and a workbook for learning the local practical orthography (Grupo Cultural Tagayu' 2018). In 2010, the group registered a learning center to teach Zapotec to children with the Center for the Study and Development of the Indigenous Languages of Oaxaca (CEDELIO), who provide training opportunities for Indigenous language activists. Between 2010 and 2015, the retired primary school teacher who voluntarily directs the revitalization group sporadically taught Zapotec classes to children in the community. In 2014, she attended a workshop on TBLT in multilingual contexts that I offered in Oaxaca through CEDELIO. We subsequently formed a collaboration to assess, create, adapt, and apply communicative and task-based strategies in the Zapotec classes, with the instructor's main goal being to promote authentic spoken interaction among the learners and between learners and speakers living in the community.

It is important to acknowledge that I write this paper as a non-Indigenous, outsider researcher and auxiliary to the language revitalization group. The reflections in this article are written and published with the permission of the community members involved and are based on work that took place between August 2015 and June 2016, during which time I was living in Macuilianguis, working closely with the revitalization group on lesson plans and language materials, and conducting linguistic research. During this time, a fluctuating group of children (mostly ages 7-11) regularly attended a two-hour Zapotec class after school around three times per month. All learners were true beginners in terms of speaking, reading, and writing, but a few learners had higher-level listening comprehension abilities. Class lessons were centered on speaking tasks, though pedagogical tasks involving listening, reading, and writing skills were often used to support speaking task performance. Other members of the revitalization group occasionally co-taught classes with the main instructor. The examples presented in this article are based on lesson plans and video and audio recordings of class sessions and their accompanying transcripts. The latter were collected as part of a larger project to document the nature of the target language input learners receive and are archived at the Archive of the Indigenous Languages of Latin America (Riestenberg & Grupo Cultural Tagayu' 2019).

6. STRATEGIES FOR CLT IN REVITALIZATION SETTINGS. In Section 2, I described the various challenges involved in applying principles of CLT in instructed language revitalization settings. I suggested that providing learners with opportunities for rich, authentic input and frequent, meaningful interaction can be particularly difficult because 1) There may not currently be any real-life situations that truly require the learners to speak the target language; 2) There may be few highly proficient speakers, and/or language use may be restricted to a subset of social domains, and/or the language may be rarely used around younger community members; and 3) Access to technology may be limited and/or there may not be existing recordings of appropriate conversations or narratives in the language. In this section I suggest possible strategies for adapting

principles of CLT to better meet these challenges, offering examples from the practices of the instructors who teach Macuilianguis Zapotec.

The examples from Macuilianguis may not apply to every language revitalization context, and I do not claim that all of these practices are generalizable across settings. The examples I give are most practical when there are at least a handful of speakers in the community where learning is taking place. Although the strategies presented are most likely to be of interest to programs that have limited time and resources, some strategies may also be worthwhile in Master-Apprentice programs or in full-time immersion programs. Overall, my goal is to share with a wider audience the ways that this revitalization group has addressed some of the pedagogical challenges they faced, in hopes of sparking others to explore these ideas as they may apply in their own specific contexts.

6.1 STRATEGY 1: ESTABLISHING SPACES THAT NECESSITATE COMMUNICATION IN THE LANGUAGE. One of the major strengths of CLT is its emphasis on real-world language use. However, when the target language is rarely or no longer used in natural communication, it is not clear how CLT can be implemented (Riestenberg & Sherris 2018). The experiences of the Macuilianguis revitalization program suggest that it is necessary to reestablish or forge open social spaces that necessitate communication in the target language (Riestenberg, in press). Many people involved in language revitalization have acknowledged the need to develop a wider range of functional social uses for threatened languages (e.g., Hornberger 2008a), including early work on reversing language shift (Fishman 1991), so I do not claim to be the first to raise this issue. Nor do I wish to suggest that this is easy or straightforward. My goal is only to point out the connection between the need to establish social spaces of language use and the practices advocated in CLT.

In Macuilianguis, spaces for Zapotec language use were forged open by focusing on encouraging students to speak Zapotec in situations in which they were already interacting with Zapotec speakers but doing so in Spanish. This approach emerged from interviews and meetings with students, their parents, members of the revitalization group, community leaders, and members of the wider community which revealed an overwhelming desire for children to speak Zapotec in routine interactions in public spaces in the community. Therefore our initial focus was on everyday tasks such as greeting others on the street, making small talk, and making purchases at a local store. When learning to make purchases in Zapotec, students first practiced the task in the classroom by imagining the store setting. The instructor brought items that could be purchased at a local general store into the classroom (a bag of black beans, a bag of rice, tortillas, an empty carton of milk, an empty water bottle, and so on). First, two speakers would model the task for the students, imagining that one person was the shopkeeper and the other was there to make a purchase. As a comprehension check, students had to answer questions about the interactions they observed. The instructors highlighted key phrases for the students and asked them to repeat these phrases. Then task practice switched from dyads of two native speakers to dyads of one student with one native speaker.

Eventually, students were taken to local stores where the shopkeepers were Zapotec speakers to try making purchases in Zapotec. The instructors asked parents ahead of time to send students with some change and instructions about which item(s) to buy. The shopkeepers were asked ahead of time to only speak Zapotec to the students when they came in the store. The Zapotec instructors asked the shopkeepers to keep speaking

Zapotec to the students in the class whenever they came into their store. I did not conduct any specific follow up observations to check how often this happened, as the scope of my research was limited to the classroom setting. However, I later observed a shop-keeper who had participated in the task speaking Zapotec to students who came into the shop on a handful of occasions.

Another example of a new space for Zapotec use was during students' basketball games. Basketball has been an important sport in this region since the mid 20th century. Communities host all-ages basketball tournaments several times a year. Before an important tournament, the Zapotec instructor brought materials to the classroom for making signs in Zapotec that people in the crowd could hold when cheering on the basketball players. They said things like *¡Tsitsiteba!* (Strength!) and *¡Guakaba!* (You can do it!). During the tournament, when the Zapotec students and instructors were in the crowd watching other age groups from Macuiltianguis play, they recited these phrases in Zapotec as chants to cheer on the players.

Both of these examples illustrate use of Zapotec in a social space that had previously been Spanish-only. While the impetus for this change started in the classroom at the direction of the Zapotec instructors, both examples show ways that the use of Zapotec extended beyond the classroom. Another benefit of these activities as they were implemented by the Zapotec instructors is that they required very little preparation ahead of time. They did not require worksheets, audio recordings, or preparation of scripted dialogues. Some materials were required, but these were things that could be easily found in the community. The main requirement was willingness on the part of a handful of speakers in the community to interact with the children in Zapotec.

6.2 STRATEGY 2: PLANNING MEANINGFUL, FACE-TO-FACE INTERACTION. One advantage for CLT in some language revitalization programs, as compared with most foreign language programs, is that students may have regular access to multiple speakers of the language who live in the same community where the learning is taking place. This is the case in Macuiltianguis. It is a small, walkable village, and many older members of the community speak Zapotec. The instructors decided to take advantage of this by planning opportunities for students to interact face-to-face with a variety of speakers. This included visits to speakers' homes in the community, visiting speakers at their place of work (as in the shop example given in the previous section), or asking speakers to visit the Zapotec classroom. For example, a community member who played and coached basketball in the 1970s (when Macuiltianguis was establishing itself as a serious contender!) came by the classroom to talk to the students about how basketball has changed in the community over time. In another instance, students visited a speaker's home and she described the different traditional tools and items in her house and what they were used for. One class session even led students on a sort of scavenger hunt around the community, visiting with different speakers along the way.

Of course, one challenge for the instructors was how to make sure these interactions were meaningful for the students. For one lesson, members of the community showed students how to make *pan de muerto*, a sweet bread baked for Day of the Dead in Mexico. The speakers demonstrated and explained the process to the students, but the lesson also incorporated ways for students to interact with the speakers using Zapotec by looking for ways to insert communicative "gaps" into the activities (Ellis 2009). Students needed to ask for ingredients from speakers or from each other, they needed to ask how much of each ingredient was required, and when they finished a step, they

had to ask a speaker what to do next. These simple key phrases were practiced ahead of time, with instructors first modeling language that could be used.

Another way instructors made such interactions more meaningful was by incorporating practice using key phrases for negotiating comprehension or requesting clarification. These included phrases such as “Can you say that again?” “How do you say ___?” “What does ___ mean?” and “I don’t understand.” These kinds of phrases were not included in any existing language documentation, and it was not immediately obvious which phrases would be most helpful, so the instructors first had to observe their own patterns of meaning negotiation with other speakers and analyze the language that was used to be able to teach these phrases to students for their own use.

Organizing home and classroom visits in this way reflects the value of face-to-face interaction advocated in language revitalization methods such as Master-Apprentice (Hinton 2001). However, when this type of high-commitment model is not feasible, this approach makes use of the same principle while spreading the commitment out among different speakers. The small amount of time students spend with speakers is maximized by ensuring opportunities for meaningful interaction through creating communicative gaps (Ellis 2009), modeling the language needed to address those gaps, and then asking the students to use the target language to close the gap.

6.3 STRATEGY 3: PRACTICING ELABORATING SPOKEN INPUT OF SELF AND OTHERS. Language teachers sometimes worry about exposing students to the large quantities of varied input advocated in a CLT approach. Learners in revitalization programs are often beginners, and this kind of immersive, input flooding approach can be overwhelming, especially if there are few cognates or little typological similarity between the target language and the other language(s) the learner knows. In order to make the input easier for learners to process and understand, proponents of CLT suggest elaborating input rather than simplifying it. Elaboration of input involves adding redundancy and highlighting regularity. Redundancy can be added by through things like repetition, gesturing, and paraphrase. Regularity can be highlighted through parallelism (e.g., ‘We get tired when...,’ ‘We get hungry when...,’ ‘We get annoyed when...’) or through retention of optional words and morphemes (e.g., ‘Do you want to go to the store with me?’ rather than ‘Want to go to the store with me?’). Explicitly drawing learners’ attention to grammatical and semantic features by raising your voice, writing on the board, or using gestures may also be considered a type of input elaboration. Various empirical studies have demonstrated that students at a variety of levels are able to comprehend elaborated input just as well as simplified input (see Long 2015:248-258 for an overview).

Most of the CLT literature focuses on elaborating written texts, but this may not be very useful for language revitalization programs whose principle goal is to get the learners speaking the language. Therefore it may be useful for instructors to focus on becoming skilled elaborators of the spoken input they produce in the classroom, as well as ways to elaborate the language offered by other speakers. Elaboration mostly occurs orally in the Macuiltianguis Zapotec classes. Instructors often repeated and paraphrased their own language or the language of other speakers, and they often recasted or expanded upon the utterances of the learners. The transcription in Table 1 shows how the Zapotec instructor elaborated a spoken riddle to aid learners’ comprehension (Riestedberg & Sherris 2018).

TABLE 1: Elaborated spoken input in the Zapotec classroom (Riestedberg & Sherris 2018)

1	Instructor:	Nu' ruinna na, ruttina na. Nu' ruinna na, ruttina na.	<u>He who makes it, sells it. He who makes it sells it.</u>	<i>repetition</i>
2	Instructor:	Nu' ro'ona na, labí ruki-na'na na, labí rukina'na na	<u>He who buys it, doesn't use it, doesn't use it.</u>	<i>repetition, parallelism</i>
3	Instructor:	<i>Es mucho nana pero es que na “él” y na de las cosas que estoy...</i>	<u>(Spanish) It's a lot of nana because there's na “he” and na the things that I'm...</u>	<i>explicitly draws learners' attention to the fact that na is used as both a subject pronoun “he” and an object pronoun “it”</i>
4	Instructor:	Nu' ruin...NA...NA, ruttina na, ruttina na, ruttina, ruttina.	<u>HE who makes IT, sells it, he sells it, he sells, he sells.</u>	<i>use of pauses and louder voice to make pronouns salient; repetition</i>
5	Instructor:	Inte ruttiya etaxtila, lu rutilu iyya, lu rutilu la'go	<u>I sell bread, you sell tools, you sell food</u>	<i>paraphrase, use of verb sell in different hypothetical contexts</i>
6	Instructor:	Student 1, nancho'a rutiye lha'go, nancho'a rutiye ettatosa lani bela', nancho'a rutiye etaxtila	<u>Student 1, your mom sells food, (to another student) your mom sells tacos, (to a third student) your mom sells bread</u>	<i>paraphrase, use of verb sell in different real life contexts</i>
7	Student 2:	<i>El que hace tortillas</i>	<u>(Spanish) He who makes tortillas</u>	

This example shows the Zapotec instructor's willingness and ability to elaborate spoken input in the classroom, using strategies such as repetition, paraphrasing, drawing learners' attention to grammatical features, and occasionally translating to the L1. This example suggests that without text elaboration, students did not understand the riddle. It also illustrates that for this Zapotec instructor, spoken elaboration became natural in the Zapotec class. By focusing on elaborated rather than simplified input, the learners received exposure to richer and more varied language.

7. OUTCOMES AND REMAINING CHALLENGES. The primary goal of applying CLT in the Zapotec program was to increase spoken interaction in the classroom. Both students and teachers reported that students speak much more in class than they

did before, and this is corroborated by the class videos. A number of community members who have worked with the program have commented that they were surprised how much children spoke when in a classroom setting. In this sense, the practices outlined in this paper offer potential ways for programs with limited time and resources to use their limited time and resources efficiently.

A more ambitious goal in Macuiltianguis, as for most language revitalization programs, is to create a new generation of Zapotec speakers. It is less clear how well the community is poised to achieve this goal. The program faces various challenges. Students tend to stop going to the classes when they reach middle school and their regular academic demands become greater, and there has not been enough community interest to find a way to teach Zapotec through the regular school system. Class hours are limited to just a few hours a month, and no language teaching method can create fluent speakers with so few hours of class time.

Acknowledging these challenges helps to reiterate the fact that the academic fields that in principle could have much to offer language revitalization efforts, those concerned with second language teaching and learning, have not traditionally concerned themselves with the teaching of endangered Indigenous languages. If these fields are to be relevant for the challenges of language revitalization, the approaches used must be critically examined and remain open to adjustment. Perhaps future implementations of CLT in instructed language revitalization contexts can make creating new community spaces for language use the central aspect of the program, equally as important as instructional design. In Indigenous language teaching, reclaiming the value of Indigenous knowledge may be just as important as learners' acquisition of new knowledge, and CLT may offer strategies that are useful for this valorization process (Riestenberg & Sherris 2018). Analysis of these issues within the community can be incorporated into lesson planning. While language teachers may have little control over how wider social factors do or do not align with Indigenous language use, they may be able to support students' opportunities to gain proficiency in the language, and a CLT approach may be exploited to further these efforts.

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The *Online Terminology Forum* for East Cree and Innu: A collaborative approach to multi-format terminology development

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For Indigenous languages to thrive, it is essential for speakers to be able to talk about their present reality in relevant and meaningful ways. In this paper, we report on our work in terminology development through workshops and the creation and use of modern digital tools including online dictionaries and terminology forums, and by working with speakers in the creation and ongoing discussion of new words. We describe the technology required to make this possible and the necessity of producing various formats, such as interactive images, booklets, and multimedia apps. We discuss the tools we have developed with and for East Cree and Innu speakers, translators, and linguists and the challenges of quality terminology creation, including context, clarity, dialectal variation, multiple submissions, and the specificity of the structure of Algonquian languages. We explain how videos can complement and support terminology development and diffusion and the importance of providing searchable, translated texts for models and context. We stress the importance of allowing oral, visual, and written submissions to interactive terminology databases. We also report on two Online Terminology Forum training workshops with Innu translators. We demonstrate the advantages of building a pan-Algonquian terminology database to combine, strengthen, and expand communities' (re)vitalization efforts across thematic domains such as health, justice, environment, education, and technology.

1. INTRODUCTION. For Indigenous languages to thrive, it is essential for speakers to be able to talk about their present reality in relevant and meaningful ways. In this paper, we report on our work in terminology development through workshops and the creation and use of modern digital tools, including online dictionaries and a terminology forum, and by involving speakers in the creation and ongoing discussion of new words. After situating the social and linguistic context of our terminology work, we describe the technology developed and the necessity of producing various formats, such as interactive images, booklets, and multimedia apps. We then discuss the tools we have developed with and for Innu and East Cree speakers, translators, and linguists, illustrating two domains: legal and medical terminology. We discuss the challenges of quality terminology creation, including context, clarity, dialectal variation, multiple submissions, and the specificity of the structure of Algonquian languages. We then illustrate the use of the Online Terminology Forum (terminology.atlas-ling.ca) in workshop settings. We demonstrate the advantages of building a pan-Algonquian terminology database to combine, strengthen, and expand communities' (re)vitalization efforts across thematic domains such as health, justice, environment, education, and technology.

1.1 EAST CREE AND INNU. East Cree is spoken by approximately 18,000 people¹ across the large territory of Eeyou Istchee Baie-James (Eastern James Bay, Quebec) and comprises 11 communities. The language is divided into two dialects, Northern and Southern, and the Southern dialect is further divided into two sub-dialects: Coastal and Inland. Innu-aimun (commonly called Innu and formerly known as Montagnais) is spoken by over 11,000 Innu in 12 communities in coastal Quebec and Labrador.² There are three dialects spoken in Quebec (Eastern, Central, Western) and two in Labrador (Sheshatshiu and Mushuau).

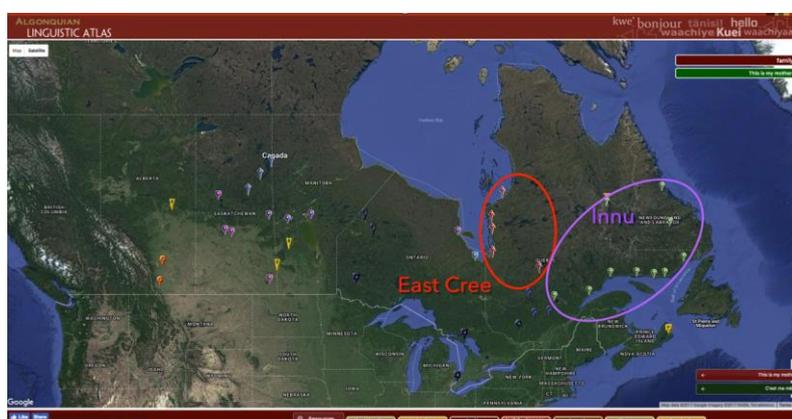


FIGURE 1: Location of East Cree and Innu communities - www.atlas-ling.ca

Both East Cree and Innu are Algonquian languages and part of the Cree-Innu dialect continuum (MacKenzie 1980) that ranges from Labrador to the Rocky Mountains in Canada (see Fig.1). Communities are often hundreds of kilometers apart, some with road access, without, and it is often logistically difficult, time-consuming, and expensive to arrange for speakers to meet in person to work on terminology development.

¹ This is the number of East Cree or “Eeyouch” given in the Cree Nation Government website (<https://www.cngov.ca/community-culture/communities>) most of whom speak their language.

² The number of Innu speakers given by Statistics Canada in the 2016 Census was 11,360.

1.2 ALGONQUIAN LANGUAGE FAMILY. East Cree, Innu, and other languages in the Algonquian language family share a similar structure. They are verb-based, polysynthetic languages and share many grammatical features in common, which means that they have the same ‘building blocks’ when it comes to terminology development. For example, body part terms can appear as incorporated morphemes, as in (1), as dependent nouns that always require a personal prefix, as in (2), or as ‘finals’ of action verbs, as in (3).

(1) Body parts as incorporated morphemes:

nâtwâpituneshin (East Cree)
 nâtwâ-pitun-eshin
 break-arm-horizontal.movement
 ‘s/he has a broken arm from falling’

natuapituneshinu (Innu)
 natua-pitun-eshinu
 break-arm-horizontal.movement
 ‘s/he has a broken arm from falling’

(2) Body parts as dependent nouns:

<i>uspitun</i> (East Cree) u-spitun her/his-arm ‘her/his arm’	<i>chispitun</i> (East Cree) chi-spitun your-arm ‘your arm’	<i>mispitun</i> (East Cree) mi-spitun someone’s-arm ‘an arm’
<i>ushpitun</i> (Innu) u-shpitun her/his-arm ‘her/his arm’	<i>tshishpitun</i> (Innu) tshi-shpitun your-arm ‘your arm’	<i>mishpitun</i> (Innu) mi-shpitun someone’s-arm ‘an arm’

(3) Body parts as verb finals:

îchânim (East Cree)
 îchâ-nim
 move.aside-by.hand
 ‘s/he nudges it aside’

itshenam^u (Innu)
 itshe-nam^u
 move.away-by.hand
 ‘s/he moves it away (by hand)’

From a cultural perspective, speakers of East Cree, Innu, and related languages often share a similar worldview, cultural values, and conceptualization process. These structural and cultural similarities allow for rich, cross-linguistic collaboration, mutual inspiration, and sharing of resources between communities in the wider language family.

1.3 ALGONQUIAN DICTIONARIES PROJECT. The Algonquian Dictionaries Project (resources.atlas-ling.ca) currently includes 12 participating dictionaries, including the East Cree Dictionary (dictionary.eastcree.org) and Pan-Innu Dictionary (dictionary.innu-aimun.ca). The East Cree Dictionary has been online since 2004. The Pan-Innu Dictionary was first published online in 2011 and has been updated annually ever since. Print versions of both dictionaries are available and the Pan-Innu Dictionary is also available as a mobile app.³ For these two online dictionaries, speakers with access can submit commentaries to suggest new words, new definitions, corrections, and so on. These comments are later reviewed by an editorial committee and updates to the dictionaries are made accordingly.

1.4 TERMINOLOGY DEVELOPMENT IN EAST CREE AND INNU. Terminology development as a standardizing practice for Algonquian languages has been happening for several decades to respond to communities' changing communication needs. Some early examples in the medical domain include: Preparing a Medical Glossary (Wolfart & Ahenakew 1987) for Plains Cree; *Lexique montagnais de la santé* (Drapeau 1990) for Innu; Cree Health Lexicon (Council of the Mistissini Band 1991) for East Cree; and English-Cree Medical Glossary (MacKenzie, Spence, & Hall 1997) for Eastern Swampy Cree.

Some best practices have emerged since the early days, such as collaboration between different entities and sharing of resources. Good terminology development in specific domains involves a collaboration between language specialists who are fluent speakers, linguists, and experts in the relevant field who can explain in plain language the concepts considered. It also requires experience in the domain from an Indigenous person's perspective, whether it be going through the medical system and justice systems or working in a mine. Challenges are numerous: for many communities, there are very few fluent speakers with mastery of standard orthography (if a standard orthography even exists for the language) or with training in word formation and morphology for terminology development. Even where such people do exist, they seldom have experience in the domain considered. When a language is thriving, neologisms are created naturally. However, they often remain confined to a small circle or a specific community's oral language, without having a chance to be disseminated to others who might need them. Experts in a specific domain, when mandated by government agencies for terminology development, often lack awareness of cultural and linguistic differences.

One solution, explored in both the Innu Language Project (directed by MacKenzie) and the eastcree.org project (directed by Junker),⁴ has been to combine linguistic training of speakers and translators with cultural awareness training of non-Indigenous domain experts. Using this method, specialized vocabularies have been created with the Innu from Labrador in the fields of health, justice, environment, and education and with the East Cree in the fields of health and justice.

Sharing of resources is an important dimension of successful terminology development. For the Innu Medical Glossary (MacKenzie et al. 2014), the Innu Language Project received permission from the hospital in Sioux Lookout, Ontario, to use the list and diagrams from their medical glossary. We also received permission to use the English terms and definitions from the Inuit glossary, Tukittangit kiansait uKausittangita &

³ The Innu Dictionary app for iOS devices was updated in December 2018 and is available on iTunes. An older version of the app for Android is available on Google Play.

⁴ See Junker (dir.) 2000-present: www.eastcree.org

taijaugusingit timimmiutait – Cancer Terminology & Body Part Diagrams, for our recent Labrador Innu Cancer Care and Body Part Terminology book (MacKenzie et al. 2017a, 2017b). When the Cree Health Board launched its East Cree cancer terminology project with us at eastcree.org, we had access to the work done for the Innu dialects in Labrador, a related language. Thus, much of the terminology that exists for Innu and East Cree is the result of a history of shared resources and mutual inspiration between the various dialects of the languages.

1.5 MULTI-FORMAT RESOURCES. Through our work in terminology development for Innu and East Cree, we have learned that there continues to be a need for multi-format resources. Due to factors including the remoteness of communities, varying degrees of access to the internet, and differences in age and technological literacy among speakers, it is important that we make our resources available to speakers in a wide range of formats, both online and offline, including books, apps, websites, and online forums.

For situations when internet access is unreliable or even non-existent (commonly the case in remote communities) or when access is restricted (for example, in the courtroom, in hospitals) resources in the form of books or mobile apps are essential tools for interpreters and translators. We have found that glossary apps have become a particularly useful offline format for interpreters and translators since they are portable and can include audio recordings and interactive images. The *Innu Medical Lexicon* app, for example, includes over 1200 medical entries in the Labrador dialects of Innu, and has over 1500 accompanying sound files as well as 32 labeled diagrams of body parts and systems.⁵

When access to the internet is readily available, online resources offer exciting opportunities for collaborative vocabulary development even when translators are not able to meet in person. Working in groups is ideal, but funding does not always allow for this type of collaboration. For these situations, the *Online Terminology Forum* offers the opportunity of building on the work of collaborative terminology development between dialects and related languages across large distances. From their individual communities, translators can review and question existing terms, suggest corrections or improvements, add new propositions and recordings, and offer additional information, including example sentences, context, dialect information, and so on.

1.6 HISTORY OF THE ONLINE TERMINOLOGY FORUM. Languages are living entities that grow and change as people use new words and stop using older ones. This is one of the reasons that print dictionaries and other books become outdated. In 2003, in order to allow and encourage an active process of creating and disseminating neologisms across the Cree dialectal continuum, Junker created an online discussion forum and e-mail list, guided by a Participatory Action Research (PAR) model (Junker 2018).⁶

In its first incarnation, the PAR model included many people who now participate in the Algonquian Dictionaries Project and Algonquian Linguistic Atlas, from Plains Cree to East Cree.⁷ However, as is often the case with unmoderated public forums, some inappropriate use of the *Forum* occurred, so eventually we decided to shut

⁵ The Innu Medical Lexicon app is available as a free download from iTunes or Google Play.

⁶ In PAR, the process of the research matters as much as the goals. PAR seeks to understand the world by changing it (Chevalier & Buckles 2013a, 2013b).

⁷ See Junker (dir.). 2005-present: www.atlas-ling.ca

it down and to create a new version to focus on the two dialects of East Cree with a multilingual platform that included French. This time we added a database to the e-mail list, a moderator, and, following recommendations from our language partners from the Indigenous organizations we work with, screening of subscribers within the east-cree.org project. This became the first version of the *Online Terminology Forum* for East Cree. It included the results of our terminology workshops as well as occasional ongoing contributions.

Only much more recently, however, have funding and technology made collaborative terminology development with online tools really possible. Funding from the Cree Health Board (based in Quebec) allowed us to reprogram and update the Forum in 2016-17 and make it accessible to all interested language groups. The sharing of terminology development work described above, together with our established history for collaborative dictionary development,⁸ led naturally to an expansion of the technological resources beyond East Cree. The funding and sharing of resources resulted in an updated and expanded version of what is now the *Algonquian Terminology Forum*.

Unlike our main Innu, East Cree, and Atikamekw dictionaries,⁹ where it is only possible to access a term for one language or dialect at a time, in the Forum all terms (including those for different languages and dialects) are presented in the same place in order to facilitate the editing process. Speakers of a particular language or dialect can easily review how speakers from related dialects and languages have translated a term, and can use these terms as inspiration for adapting or creating new terms in their own dialect. This type of collaboration is also a way to continually strengthen the quality and precision of existing terms as speakers can review terms and suggest corrections and improvements.

To date, the Forum comprises 6,694 terms in domains including grammar, environment, justice, health, sports, technology, education, and more, with translations into East Cree, Innu, and, most recently, Atikamekw as well. In the following sections, after we present the technology behind the current Forum, we discuss in more detail how the Forum is being used for terminology development and diffusion and we examine two projects/languages that have contributed to the development of the Forum and made extensive use of this tool.

2. BUILDING THE TERMINOLOGY FORUM PLATFORM. In order to build the Online Terminology Forum platform, we needed to define our core requirements. We chose a centralized database approach, i.e., one master database to hold the latest version of the data, thereby eliminating synchronization issues. We also needed the platform to accommodate multiple users, where each user would be given a predetermined degree of control over the data. Finally, we needed the platform to accommodate ‘live data’, where a contributor would always be able to access the latest submitted (and approved) term. To guide our technical choices in the design process of the platform, we needed to answer questions about the users’ skills, access, literacy, and so on. These questions included:

- What computer skills will the contributors have?
- What devices will they have access to?
- What level of literacy will they have?

⁸ See dictionaries.atlas-ling.ca.

⁹ In addition to our three main dictionaries, work is moving forward on 9 additional Algonquian dictionaries, see dictionaries.atlas-ling.ca.

- Will they be able to read the standard orthography?
- Will they understand specialized terms?
- When, where, and how will they be accessing the *Forum*?
- Will contributors work in a room together or from their respective communities?

Since our hope was that we would be able to foster strong engagement with the platform as well as avoid duplicate terminology creation, the platform had to be engineered in order to allow the import of large volumes of data from other sources and in diverse formats.

2.1 TECHNOLOGY. The architecture of the web end of the platform is optimized to reduce traffic between the browser and the server. The data is loaded in small chunks with the client's browser doing most of the heavy work of displaying the data. This allows the server to accommodate multiple users without being bogged down by traffic and to be accessible in remote areas with high latency internet.

The technology we use for the *Forum* is open source. We host via a shared service platform and scripting and data conversion (for import) is done with Python and Visual Basic. The *Forum* was built as part of a SSHRC-funded project at Carleton University by hired programmers. It is maintained by the current project but with additional funding from participating Indigenous organizations, when funding is available. Long-term institutional (federal) support will be necessary for hosting and tech support for the coding. However, the fact that it is open source should ensure some longevity.

In order to accommodate for the fact that not all users are literate in the standard orthography of their language, it was imperative that the platform have a multimedia approach to data (see Figure 2). At the core of the platform is the ability to host and manage massive amounts of media. Users can upload media in audio, picture, and video formats. As web technology advances, we are leveraging new audio and image capture techniques in order to allow users to directly record audio and create images on their devices and to upload them to the site without relying on their devices' permanent storage. We envision scenarios where a contributor can record new terminology in their dialect and upload it to the platform without specialized audio recording equipment, software, or training. However, it is important to balance this capability with the need for high quality multimedia. This gives users the experience of being able to access carefully curated, high fidelity multimedia content produced by professional audio, graphic, and video artists/recorders, editors, and curators, as well as multimedia content made by 'do-it-yourself' users.

2.2 DATA DISSEMINATION AND MULTI-FORMATS. We decided that it was important for us to be able to disseminate the information in our database in a variety of formats in order to make the information easily accessible to as many people as possible. We therefore needed to design the platform in a way that would make it easy for us to display the information in a website or export it to create books, mobile apps, posters, and other print materials. We export the data through a custom-made script in the web application (PHP), which then converts the data into XML (eXtensible Markup Language, WordML) format for books and JSON (Java Script Object Notation) format for apps.

The screenshot shows the Algonquian Terminology Forum interface. At the top, there is a search bar with 'asthma' entered and buttons for 'Sign in', 'EN', and 'FR'. Below the search bar, there are filters for 'Filter Languages' with options for 'FRA', 'EC-N', 'EC-S', 'Innu', and 'Atikamekw'. The main content area displays the term 'asthma' (In Contagious) with a video player for each language. The languages shown are EC-S (mishimitāmūwāshpinewin), EC-N (yāhyāwāspināwin), English (asthma), English (reactive airway disease), SHE Innu (apu tshi minu-nenet), and MUS Innu (ama minutam^u e net). Each video player has a progress bar and a play button. A sidebar on the left lists various categories like Grammar, Environment, Justice, Health, etc., with 'Diseases' selected.

FIGURE 2. Terminology Forum entry with audio - terminology.atlas-ling.ca

3. INNU TERMINOLOGY DEVELOPMENT IN THE LEGAL CONTEXT. We now turn to the data itself, examining two projects/languages that have contributed to the development of the Forum and made extensive use of this tool. Creating new terminology in domains where language is growing and changing is an important part of language revitalization. Even when we speak a second language fluently, we still feel more comfortable communicating with our doctor or lawyer in our mother tongue. As for cancer patients navigating their journey through the health system, which we will discuss in Section 4, it is important for any individual who comes in contact with the court system to feel comfortable and to have a clear understanding of their situation. For this to occur, it is crucial that legal translators and interpreters have a strong grasp of the terminology they are interpreting.

For years, however, Innu translators and interpreters in Labrador's justice system were being given no training in legal terminology or translation/interpretation practices. While they were fluent speakers of Innu, they were being put in a position where they were being asked to translate technical terminology they did not understand. It is not difficult to imagine the extremely serious consequences this type of breakdown in communication may create. In Ontario, poor interpretation has been a cause for mistrials and has even been alleged to be responsible for wrongful convictions.¹⁰ We do not know whether incorrect verdicts may have resulted from poorly trained interpreters in Labrador as well.

¹⁰ See for example Joseph Brean's article in the *National Post* in 2011 "Translation derails sex assault trial": <https://nationalpost.com/news/canada/translation-derails-sex-assault-trial> (Date accessed: January 10, 2020).

3.1 TERMINOLOGY DEVELOPMENT AS TRAINING. To address the problem of untrained translators and interpreters, the Newfoundland and Labrador Department of Justice provided funding in 2007 for the *Innu Language Project* to run workshops with Innu interpreters and non-Innu legal experts to create glossaries of Innu legal terminology for Labrador interpreters. Three workshops were held in 2007 to develop terminology for criminal law, followed by two workshops in 2008 for family law terminology. This project thus took place before the creation of the *Online Terminology Forum* but later informed its development.

The first step was to create easy-to-understand explanations of the terms in English. Secondly, interpreters, linguists, and legal experts collaborated to create clear equivalents in Innu. It is important to note that the Innu equivalents of legal terms are more often translations of English explanations rather than direct translations of the terms themselves. This is significant because, for translators and interpreters with limited training in terminology, access to clear and descriptive explanations or definitions plays an important role in translator and interpreter training. While there is rarely only one correct way to create an equivalent translation of a term, it is always important to ensure translations are accurate, easy to understand, and suitable for the target audience. This is the type of direction that linguists and experts were able to offer in the collaborative process, alongside Innu translators.

The process of developing the English definitions for each technical term was valuable training for the interpreters. In fact, we found that the process of creating the terminology was as important as the resulting glossaries. In many cases, due to a lack of previous training, the interpreters did not understand the English terms and it was extremely helpful for them to be able to ask experts in the legal field for clear explanations and answers to their questions.

3.2 DIALECTAL VARIATION. The two Labrador dialects of Innu have considerable differences in both vocabulary and grammatical structure and, for the Mushuau Innu in particular, it was important to have a separate glossary for each dialect. Despite these differences, it was helpful for speakers from both dialects to work collaboratively during the workshops. Similarities in their dialects allowed the translators to share ideas and to work together towards deciding on final translations for each term. In some cases, the agreed upon translations were similar or even identical for both Mushuau and Sheshatshiu terms; in others, they were quite different.

We decided to use the format of a double-sided “flip book”, with both glossaries appearing back to back in a single book. We felt it was important that neither dialect be given prominence over the other and that interpreters have access to translations in both dialects. Because the communities are so small and there is such a limited pool of Innu interpreters, it is inevitable that an interpreter will at some point be called on to interpret for a speaker of the other dialect. In addition to the legal glossaries, the *Innu Language Project* created glossaries in both Labrador dialects for the fields of health, environment, and education (MacKenzie & O’Keefe 2007, 2009; MacKenzie 2010, MacKenzie & Hendriks 2009).

4. EAST CREE TERMINOLOGY DEVELOPMENT IN THE MEDICAL CONTEXT. We now turn to an example of terminology development in the medical context. Three or four years ago, there was a lack of vocabulary in the Eastern James Bay Cree dialects to talk about specialized medical treatment such as cancer care. The *Cree Board of Health and Social Services of James Bay (Cree Health Board)* has the mandate to

provide health care services in the East Cree language and, because the fluency rate is very high, this is a priority.

The *Cree Health Board* approached the *Algonquian Dictionaries Project* (east-cree.org) team to help develop cancer-specific vocabulary. Iiyiyiu (East Cree) medical terminology, in this case for cancer treatment, had to be created for both dialects (Northern and Southern) of the language. The *Online Terminology Forum* has been an essential tool for the process of creating the East Cree medical terms and has been used both to create and house this glossary, which can be consulted by Iiyiyiu interpreters and health care providers when interpreting for patients in their own language.

4.1 LANGUAGE FOR HEALING. Language plays an important role in healing and health (Chandler & Lalonde 1998; Kirmayer et al. 2000; Oster et al. 2014). When people are feeling very ill, hearing their own language can bring great comfort and a sense of security. It is also an issue of safety when a patient is unable to communicate with caregivers. With this in mind, a working group was set up to hold terminology workshops with two groups: Northern dialect speakers and Southern dialect speakers. Both groups consisted of speakers with different experiences and professional backgrounds. Each group included speakers who had experience in medical interpretation or who worked with interpreters, such as community health representatives and Cree nurses. We also held consultation sessions with medical doctors to help provide valuable insight into the English terms and definitions. Once the initial terms were created, linguists and language specialists who knew the standardized orthography and syllabics were able to transcribe the terminology produced during the workshops.

4.2 DIALECTAL VARIATION. Over the course of the workshops, which were held between 2014 and 2017, we found that the two groups of speakers worked very well together. Some knew each other already and were often able to feed off of and inspire one another in the creation of neologisms for their individual dialects. For example, similar new terms were created for the Northern (4a) and Southern (4b) dialects for ‘medical history.’

(4) East Cree neologisms for ‘medical history’¹¹

(a) EC-Southern:

pechi	utâhch	awen	utatâspinewinh
pechi	utâhch	awen	u-tatâspine-win-h
to.here	in.the.past	someone	his/her-certain.illness-NOM-PL
a person’s past illnesses ‘medical history’			

(b) EC-Northern:

pâchi	utâhch	itâspinâusinihîkin
pâchi	utâhch	itâspinâu-sinihîkin
to.here	in.the.past	s/he.has.a.certain.illness-book
past illness file ‘medical history’		

¹¹ Abbreviations: EC ‘East Cree’, NOM ‘nominalizer’, PL ‘plural’

In some cases, however, it was a challenge to remember to respect each other's dialects, not only in terms of orthography but in terms of how certain concepts might be expressed differently. Some neologisms suited one dialect but just did not work for the other. An example of this type of difference was with the terms for 'vaccine therapy', shown in (5). The word *chîsh̄tihwâu* means 'to prick someone' and is related to the grammatically inanimate form *chîsh̄tahâm* 'to prick something' or 'to roast meat on a stick'. The inanimate form does not specifically refer to roasting, but to the preparatory step of piercing meat (an inanimate noun) with a stick in order to set it by the fire to roast. Nevertheless, Southern speakers associated the use of the inanimate term (for the whole procedure of piercing meat on a stick and then roasting it) with the animate one, which can refer to pricking or piercing a person, and were unwilling to use the latter to refer to a medical procedure. Instead, Southern speakers preferred to use a lengthy explanation. For Northern speakers, in addition to the meaning 'to prick someone', there was already an established use of the term *chîsh̄tihwâu* to also refer to the medical procedure of giving a needle/vaccine.¹²

(5) East Cree expressions for 'vaccine therapy'

(a) EC-Southern:

<i>pachiskâhîkanâpûh</i>	<i>e</i>	<i>wîchihîkuyan</i>	<i>ekâ</i>	<i>che chî</i>	<i>âhkusiyan</i>
<i>pachiskâhîkan-âpûh</i>	<i>e</i>	<i>wîchihîkuyan</i>	<i>ekâ</i>	<i>che chî</i>	<i>âhkusiyan</i>
needle-liquid	that	helps	to.not	become	you.be.sick
injection medicine that can help to prevent you from getting sick					
'vaccine therapy'					

(b) EC-Northern:

<i>chîsh̄tihwâu</i>	<i>wîchihîkusîwin</i>
<i>chîsh̄tihwâu</i>	<i>wîchihîkusî-win</i>
s/he.pokes.him/her	it.helps-NOM
injection therapy	
'vaccine therapy'	

4.3 MULTIPLE SUBMISSIONS. For the purposes of the *Online Terminology Forum*, we decided that having more than one proposition for a particular term was more of a benefit than an encumbrance for a number of reasons:

1. The creation of more than one term or expression allows for different ways of explaining a particular concept to a speaker.
2. The main goal of terminology development (in this case, cancer vocabulary) is to help interpreters express and explain medical procedures; this way, an interpreter will have various options for explaining to a Cree patient what the doctors or specialists are saying.

¹² As a note of interest, in Innu there are two separate meanings for *tshishtaueu*: 's/he cooks it (anim) over the fire stuck on a stick' and 's/he gives him/her an injection, a vaccine or s/he takes blood from him/her'.

3. Allowing multiple submissions encourages creativity in neologisms; when coming up with a new term in any language there is trial and error, where a mutually agreed upon translation results only after many suggestions, collaboration, and the passage of time.

Currently, multiple submissions are not a problem for the *Forum* because there are rarely more than five neologisms per English or French equivalent. However, as people get more engaged with the *Forum* and as additional languages and dialects are included, it is possible that we will have to revisit this in the future if we find that the number of submissions becomes unmanageable.

4.4 LANGUAGE CHANGE. Because language changes over time, younger and older speakers may not use—or sometimes even understand—the same vocabulary. For this reason, we also took into consideration the level of speaker comprehension when creating new terms. It was important, for example, to always keep in mind whether the terminology proposed would be understood by speakers of all ages and to ask ourselves questions such as: Will an elder (over 60 years of age) understand? Will a 20-year-old understand? For example, two speakers of the Northern dialect of East Cree offered the following two expressions for ‘swollen veins,’ shown in (6). The first term illustrates the traditional polysynthetic approach of older speakers to use incorporated morphemes. The second expression illustrates a separate-word, English/French-driven approach, which younger, bilingual speakers are more likely to use.

(6) ‘Swollen veins’: *pâchimihkwâyâpîwâpiyiu* vs. *â pâchipyit umihkwâyâpîh*

pâchimihkwâyâpîwâpiyiu (incorporated morpheme)

pâchi-mihkw-âyâpî-wâpiyiu

swollen-blood-vessel-become

‘his/her veins are swelling, are swollen’

â *pâchipyit* *umihkwâyâpîh*

â pâchi-piyit u-mihkw-âyâpîh

when swollen-become her/his-blood-vessel

‘when his/her veins become swollen’

4.5 PROVIDING CONTEXT WITH VIDEOS. In addition to creating terms for cancer care, it is also very important to provide context. In Eastern James Bay communities, as in many Indigenous communities across Canada, the health care structure process for specialized care requires that patients be flown south to cities with major hospitals. This means that patients are often far away from their loved ones while they receive care. For these reasons, we decided to create videos to illustrate the journey of a Cree cancer patient. The videos show a patient interacting with a health care professional discussing topics including exam results, further testing, procedures, and much more. These videos serve as crucial training for Cree health care workers and interpreters¹³ and also help patients prepare for their cancer care journey.

¹³ Interpreters usually have no formal training, but some have a wealth of experience in having accompanied patients over the years. For our cancer project, we selected reputable people, using an appreciative

5. TERMINOLOGY FORUM IN ACTION. In February and May of 2018, we were invited by the *Institut Tshakapesh*, an organisation devoted to the preservation of Innu language and culture in Quebec, to hold two workshops in the Innu community of Uashat with teachers and interpreters from Innu communities across the province. These workshops marked the first opportunity we had to show speakers (besides those who had been involved in its development) how to use the *Forum*. The main goal of the workshops was to offer speakers training in how to use the interface itself. This included instruction on how to add new terms and explanations as well as how to upload sound files and images. Most importantly, we wanted speakers to feel comfortable using the interface to search, add, or suggest changes to existing terms on an ongoing basis, after the workshops.

The workshops also offered an excellent opportunity for us to elicit feedback from participants about their user experience as they worked with the interface for the first time. Based on this feedback, in the three months between the workshops, we were able to make substantial improvements to the interface. We fixed the bugs identified and improved aspects of the interface design that users found challenging. For example, during the first workshop it became apparent that it was too complicated for users to make their own recordings, edit them, and upload them to the website. While they could easily make recordings on their smartphones, there was no easy way to upload the recordings to the website in an appropriate (open source) sound format. Since we knew how important it was for speakers to be able to contribute audio recordings easily, we added a feature to the web interface of the *Forum* where a recording could be made directly in the user's browser and attached to an entry. Finally, based on users' experiences with the interface, we created a list of steps for users to follow when adding or editing terms and translations.

Over the course of the workshops, we were able to make numerous additions and improvements to the database. As a group, we reviewed existing terms and added new ones. Before the first workshop, we asked translators what terminology they were interested in creating. They had an interest in legal terminology, as some of the translators were currently working on neologisms in this field. Since we already had a wealth of legal translations for the Labrador dialects of Innu in the *Forum*, this gave us the perfect opportunity to review some of these together. In some cases, the group decided that the Labrador translations worked for their dialects too, or that it could be adapted for their dialects with a bit of tweaking. In other cases, the group didn't like the existing translations and suggested completely new ones for their own dialects. The group also identified a number of mistakes in the earlier translations. Since the *Forum* is a work in progress, it allows for this type of collaboration and feedback directly in the interface itself.

5.1 TALKING ABOUT TECHNOLOGY IN INNU. Prior to the first workshop, we asked participants to pick a new domain, an area in which they felt that Innu vocabulary was lacking. The teachers expressed to us how important it is for them to be able to talk with their children and students about new technology in their own language. While domains like health and justice often get funding for terminology development, there is rarely funding for domains like technology, so another benefit of the *Forum* is that it allows translators to have greater control over the types of new vocabulary they create.

enquiry perspective to focus on what works, and model best existing practices (Cooperrider & Whitney 2001).

The following list includes an example of some of the neologisms created in the field of technology over the course of the workshop. The terms are in French, English, and Innu because the Innu from Quebec speak French as their second language, while the Innu from Labrador speak English as their second language. In order to collaborate with the Innu from both provinces, it is necessary for us to work in both languages and to provide terms in both French and English as often as possible.

(7) Innu terms suggested or created for technology (elicited from French)

réseaux sociaux / social networks

petatshimuna (pl.)

petatshimun (sg.)

Noun made from the verb *petashimu* ‘s/he bring.news’

téléphone cellulaire (un) / cell phone

kaiminanut ka pami-takunakanit

conversation that walk.around-hold.in.hand

brancher (se) sur l’internet / connect to the internet

tapishinu

fit.into.another

chargeur / charger

ishkuteu-miutiss

fire-little.box

carte mémoire / memory card

tshissiupaniu-kanu

remember (‘to have a fact come to mind’)-card

5.2 PROVIDING TRANSLATED TEXTS FOR CONTEXT. We are currently in the process of adding existing, high quality translated texts to the *Forum*. These texts, originally written in French or English and translated into the various Algonquian languages, show how a particular term can be used in various contexts. Our goal is to include as many model multilingual texts from as many domains as possible as they become available. For each text, equivalent paragraphs are displayed side by side and words or expressions can be searched in either language (see Fig. 3). For example, we currently have a text in French and Innu that gives information on cigarettes and smoking. A word like *dépendance* (addiction) can be searched and all paragraphs containing the term are displayed next to their corresponding Innu version. Similarly, the Innu texts can be searched to verify the contexts in which a particular Innu term is used. Skilled translators requested to be identified, and users agreed that knowing the translator would help them choose the best model, given differences in context, translator age and style, dialect, and so on. Our hope is that providing context for terms will be helpful to translators and interpreters, who can consult how a particular term has been expressed or used in various contexts and choose which one best suits their current needs. The texts will also allow us to track future terminology development and model how creative people can be in their translations.

The screenshot shows the website 'Forum terminologique algonquien'. At the top, there is a search bar with the word 'dépendance' entered. Below the search bar, there is a navigation menu with 'Vidéos', 'Diagrammes', and 'Textes traduits'. A 'Connectez-vous' button and language selection buttons for 'EN' and 'FR' are also visible. The main content area is titled 'Textes traduits' with a blue box containing the number '8'. Below this, there is a table with four columns: 'Traduction', 'Texte', 'Langue', and 'Source'. The table contains three rows of parallel translated texts. Each row shows an Innu translation on the left and a French source text on the right. The French source text in the first row is about smoking and addiction, with the word 'dépendance' highlighted in yellow. The second row is about mental health issues, and the third row is about addiction to substances. Each row also includes a small note about the source and the translator, Yvette Mollen.

Traduction	Texte	Langue	Source
Ka takushiniht Tshishe-mishtikushuat ute, ne tshishtemau shash ait itapatshiakanipan. Anitshenat tshiashinnuat tshitshipanapanat e pituauatsheht kie shash matenitamapanat eka shuk ^o menuinniuh, eka menushiniti. Peikuan tshissenimakui ne tshishtemau eka katshi puniakaniht mak mitshet auenitshenat nepaikuht nenua tshishtemau, 57 % itashuat innuat patuauht eshakumitshishikua kie ma nanikutini. Mishta-mitshet an.	À l'arrivée des Européens, le tabac est devenu un produit de consommation. Nos ancêtres commencèrent donc à le fumer et à ressentir peu à peu ses effets nocifs sur leur santé. Même si nous savons tous que la cigarette entraîne une dépendance des plus puissantes et qu'elle tue chaque année des milliers de personnes, 57 % des adultes des Premières Nations fument quotidiennement ou occasionnellement. C'est énorme	Innu	Uauitshitun – Tshishtemau, vol. 1, no. 1 Translated by: Yvette Mollen
Uitshiakanuat innuat ka animuht, ka kutunnuepipuneshiht ashu nishuaush kie ushte ka animinikuht tshekuannu (kamatshikaut, ka kutshipanaitaht tshetshi shaputueht auennua katshi uniataui, eka katshi punitaht tshekuannu ka animinikuht, ka mashinapeueht kie ma ka mashishkueueht, ka animuht utinniunuat) kie ma auen ka matauakuannit tshekuannu ka apashtat.	Aide aux personnes âgées de 18 ans et plus présentant différentes problématiques (toxicomanie, deuil, dépendance , violence conjugale, situation de crise...) ou ayant des besoins spéciaux.	Innu	Uauitshitun utaimun – automne 2013 Translated by: Yvette Mollen
Uitshiakanuat auenitshenat ka animinikuht kamatshikaunit kie ma eka katshi punitaht tshekuannu.	Aide aux personnes aux prises avec des problèmes de toxicomanie ou de dépendance .	Innu	Uauitshitun utaimun – automne 2013 Translated by: Yvette Mollen

FIGURE 3: Parallel translated texts - terminology.atlas-ling.ca

5.3 WORKSHOP OUTCOMES. During the workshops, new Innu terms for the Quebec dialects in the fields of technology, justice, environment, and health were created and added to the database. Participants received training in the methods of terminology development and translation, as well as in how to use the *Online Terminology Forum*. We also provided some training in various methods of audio recording and in the importance of the use of texts for context in word creation and translation. Finally, the workshops gave us valuable information on how to improve the interface and engendered a renewed excitement about the *Terminology Forum* and the role we hope it will play in language (re)vitalization not only for Innu and Cree, but for other Algonquian languages, as well.

The Atikamekw, hearing about the Innu workshop, recently expressed interest in having their language included in the *Forum* as well. We have charged one of our students with the task of adding some existing Atikamekw legal vocabulary¹⁴ they provided us, before we begin offering a workshop for this language. The *Institut Tshakapesh* is interested in holding further workshops so that more Innu speakers can receive training and keep momentum going with terminology development in their dialects.

6. CONCLUSIONS. We have shown that a collaborative approach to multi-format terminology development is an effective, realistic, and constructive way to support and maintain Indigenous languages that are not yet severely endangered. Time will tell if the technology and methods we have developed will have a real impact in sustaining East Cree, Innu, and other Indigenous languages well into the future, especially if the pressure of the dominant official language keeps increasing. The domains in which Indigenous languages will be spoken and used in the future depends, in part, on the avail-

¹⁴ From the *Lexique Juridique Atikamekw*, 2008.

ability of tools to support speakers in creating and disseminating new words and expressions. It also depends on the availability of communication technologies for the language to strive with new cultural practices.

Current and future work include developing communication protocols (Application Programming Interfaces) between our online dictionaries and the *Terminology Forum* to allow extended searches from the dictionary of a particular language to the *Forum* and vice versa, as well as increasing the database of translated texts and interpretation videos. We are also planning capacity building efforts that will allow for workshop facilitation and *Forum* training by Indigenous speakers. The method and technology described here are applicable to any minority language with a significant number of speakers, although the implementation details would have to be sensitive to the particular language ecology.

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Keeping Haida alive through film and drama

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The Haida language, of the northwest coast of Canada and Southern Alaska, has been endangered for most of the 20th century. Historically, orthography has been a difficult issue for anyone studying the language, since no standardized orthography existed. In spite of the orthographical issues, current efforts in Canada at revitalizing Haida language and culture have culminated in the theatrical production of *Sinxii'gangu*, a traditional Haida story dramatized and performed completely in Haida. The most recent effort is *Edge of the Knife*, a film about a Haida man transforming into a *gaagiid* (wild man) as a result of losing a child. The story line addresses his restoration back into the community, and as a result, affords not just a resource for two Haida dialects, but also for history and culture. With regards to language, actors participated in two weeks of immersion to prepare and struggled through issues with Haida pronunciation during filming. Using the Haida language exclusively, not just in oral narratives (though there are some in the drama and the film) but in actual dialogue, provides learners with great context for developing strategies for pronunciation and conversation rather than only learning and hearing lexical items and short phrases. Capturing the storyline on film not only supports efforts at revitalization, but provides tangible documentation of both Canadian dialects of the Haida language.

1. INTRODUCTION¹. Since Franz Boas began his salvific efforts among Indigenous languages of the Americas (Rosenblum & Berez 2010)², efforts to conserve, revive, renew, and document the Haida language have largely been sporadic, but recent efforts have been more sustained and have branched out into the fields of film and drama. The Haida nation along the northwestern coast of Canada and the southwestern coast of Alaska are innovators. They excel in wood, silver, gold and argillite carving, and north-west coast designs. They have led the way in land reclamation struggles, repatriation efforts, and cultural renewal. Now, in regards to the Haida language, the Haida Nation has led the way in documenting their own language using drama and film.

¹ I am greatly indebted to the English Department's Sabbatical committee, the Chair of the English Department, the Dean of College of Liberal Arts, the Campus-Wide Sabbatical Committee, and the President of Slippery Rock University for approval of my sabbatical application which was essential in the opportunity to pursue this research.

² The salvific nature of Franz Boas' work ultimately reflected his notion, and a common one at the time, that the languages and cultures of the Indigenous population, if not the people themselves, would soon disappear. As a result, he trained linguists to learn, record, and classify as many North American Indigenous languages as possible. These efforts culminated in the publication of 1911 *Handbook of American Indian Languages* (Bureau of American Ethnology, Bulletin 40, Part 1. and 1922, *Handbook of American Indian Languages*, (Bureau of American Ethnology), Bulletin 40, Part 2.

A brief history of the nation reveals that in the 1800s, the Haida population reached nearly 12,000 inhabitants of Haida Gwaii, Canada (Belshaw 2009). There were also about 1,000 Haidas in Alaska. As the century began its final quarter, small pox started to afflict the Canadian Haidas. As the disease decimated the population, by 1905, there were only 900 Haidas that survived the epidemic. With the loss of such a large percentage of the population, much of the culture was also lost. With the concurrent ban of the potlatch in 1884, the encroaching Euro-Canadian society slowly replaced Haida culture, especially in regards to the English language of wider communication. All of the Haidas at the beginning of the 20th century were native speakers of Haida, but as the decades ensued, the shift to English became the norm for the families. With the advent of the residential schools, the shift to English only was exacerbated by the numerous experiences of Haida children in the schools. Upon returning to their homes, many of the students' fluent Haida parents shifted to English, which had been occurring since the end of the small pox epidemic. While a few children were still learning Haida in the 1940s, by the 1950s, even those who learned Haida, when they became parents they also shifted to only English by the mid-1950s.

The result of this shift became apparent in the 1970s when those under 30 were fluent only in English, and very few understood any Haida, or at best, could say basic Haida terms for numbers, places, people or actions. The Kaigani Haida dialect in Alaska began a concerted effort to compile introductory Haida lessons, and eventually compiled the first Haida Dictionary.³ There were sporadic recordings of events and narratives for all three dialects by various individuals, but nothing was concerted or systematic. There also were plenty of academic articles, and a few dissertations addressing various aspects of the Haida language, but these were largely for the academy.⁴ Very little of the research had any value for the community itself since the audience for the research was rarely the Haida community.

Film has also played a large role in salvaging the Haida culture. The earliest known film occurred in the early 1900s when a silent film captured some Haida men maneuvering their canoes in the water. The purpose of the filming was to capture the skill and speed of the Haidas but also the stealth with which they executed their skills. A number of documentaries have also been made dealing with various aspects of Haida culture as well as legal issues they have been addressing at both the provincial and national levels. Still, capturing the Haida language on film has been a recent phenomenon. Film as a medium for capturing Indigenous cultures has been around since the inception of moving pictures. While Indigenous cultures have been part of those "documentive" efforts, Hollywood itself has eclipsed those efforts with its stereotyping of American Indigenous nations, along with their history, culture, and language. Suffice to say that reclaiming this medium has been a difficult enterprise, but there are many excellent examples of enduring achievements.⁵

The Haida have been dealing with land rights for a number of decades, and quite often, that has included issues with fishing rights, mineral rights, and other important

³ Originally published in 1977 as the *Haida Dictionary*, Jordan Lachler recently updated the contents and republished it in 2010 *Dictionary of Alaskan Haida*.

⁴ I have argued elsewhere that much of the earliest research on the Haida language did not benefit the Haida community as much as it benefited academia, see White (2014).

⁵ Michael Diamond's documentary *Reel Injun* (2009), captures the nature of Hollywood's negative impact on stereotyping, but also observes how Indigenous directors and producers have reclaimed the medium for positive portrayals of Indigenous peoples, cultures, and stories.

cultural aspects but did not include revitalizing their language.⁶ Historically, addressing the number of Haida speakers has been a difficult issue given the three dialects—two in Canada: Massett, Skidegate; and one in Alaska, Kaigani, also referred to as Hydaburg—mainly because knowing who among the population was fluent has mostly been guess work. In the following section, I will expound upon the Haida language research and the efforts at revitalizing the language.

2. HAIDA LANGUAGE, EARLY DOCUMENTATION, AND REVITALIZATION EFFORTS. The Haida language is an isolate, unrelated to any other language in the world. It also has a very unique basic word order: object, subject, verb (OSV), shared with less than .01 percent of the languages of the world (Dryer 2013). According to Eastman and Edwards (1983:58), the sentence in (1) exemplifies this order:

- (1) *chiin* *iiwaandaa* *l* *guulaagan*
 fish big she likes
 ‘She likes big fish.’

But other scholars suggest that basic word order is SOV as the sentence in (2) from Swanton (1905:283) illustrates:

- (2) *Wa'Lui* *hit!A'n* *L!* *stAñ* *tcin* *tc!a'anue* *djIngu* *isdai'an*
 At that time then them two of salmon the fire near had put
 ‘Then two of them put salmon near the fire.’

In terms of the phonology of the language, different researchers have proposed various numbers of consonant and vowels, but the Haida have adopted a phonemic inventory that represents 40 consonants and 5 vowels plus 3 diphthongs.⁷

The Haida have inhabited the islands of Haida Gwaii for over 10,000 years. In the last 150 years, the impact of disease and colonization has devastated the Haida Nation and nearly destroyed the nation completely. Two cycles of smallpox occurred, the first within 15 years of the first contact with Europeans, which claimed two thirds of the population (Boyd 1999:26). In the 1850s when the second small pox plague began, the population on Haida Gwaii was just over 10,000 people. By the turn of the century, there were less than 900 people that survived (Boyd 1994:33). With the ensuing colonization, Canadian Government intervention in interposition of laws that forbid the potlatch celebration, as well as the advent of Residential Schools,⁸ English became the dominant language. By the end of the 1920s, monolingual Haida speakers were rare, and within one generation, by the 1950s, parents no longer taught their children Haida. The shift to English as the language of wider communication culminated in the 1970s, but at that time a cultural renewal also began to focus on reviving the Haida language.

While the potlatch was eventually decriminalized 71 years after the Canadian Government assimilation policies made it illegal, this ban—not just on the Haidas, but

⁶ Two important books on the subject of Haida Sovereignty include, Ian Gill, *All That We Say Is Ours: Guujaaw and the Reawakening of the Haida Nation*, Vancouver: Douglas and MacIntyre, (2009) and Mark Dowie, *The Haida Gwaii Lesson: A Strategic Playbook for Indigenous Sovereignty*. San Francisco: Ink Shares, 2017

⁷ I will discuss the orthography issue in detail henceforth.

⁸ For a comprehensive treatment of First Nations experiences and history with residential schools, see Miller (2017).

all the coastal nations that observed this celebration—immediately and forever impacted the community.⁹ While it is difficult to gauge which was worse, the residential schools were a much more concerted effort at cultural assimilation. The residential schools were relentless in removing all vestiges of Haida culture and language, and the atrocities suffered by the students in these schools have been formally addressed by the Canadian Government with a complete apology and monies for redressing the psychological impact on the students. The Truth and Reconciliation Commission of Canada summarized the impact of residential schools on the students and their families in their report, “The Commission is convinced that genuine reconciliation will not be possible until the complex legacy of the schools is understood, acknowledged, and addressed” (2015:136). That process of reconciliation began on June 11, 2008 when Stephen Harper, Prime Minister of Canada, offered these words, “The Government of Canada sincerely apologizes and asks the forgiveness of the Aboriginal peoples of this country for failing them so profoundly. *Nous le regrettons. We are sorry.*” The address included apologies in three First Nations languages as well: *Nimitataynan* (Cree), *Niminchinow-esamin* (Anishinaabe), *Mamiattugut* (Inuktitut) (Cohen 2017:46).

The residential school approach (Armitage 1995:110; Benyon 2008:55; Herрман & Burnaby 1996:211; Patrick 2003:40) was driven by General Richard Henry Pratt, founder of the Carlisle Indian School. He was integral in addressing a systematic effort to affect a national attitude against Indigenous culture. Pratt, who in 1892 spoke at a conference, proclaimed (Barrows 1892:46):

A great general has said that the only good Indian is a dead one, and that high sanction of his destruction has been an enormous factor in promoting Indian massacres. In a sense, I agree with the sentiment, but only in this: that all the Indian there is in the race should be dead. Kill the Indian in him, and save the man.

Both these sentiments, “the only good Indian” and “kill the Indian in him,” continue to haunt First Nations and Native Americans students and their families to this day.¹⁰ The Canadian government pursued the sentiment of “kill the Indian in him, and save the man” relentlessly and mercilessly among all the residential schools. Most notably, speaking the Indigenous language was forbidden, and often, when the first students returned to their communities, they could no longer communicate with their parents or grandparents since the students could only speak English and their parents or grandparents spoke only Haida. Those students who did remember Haida were too emotionally scarred to speak Haida anymore because their language was denigrated so much that if they did speak it, they felt dehumanized.

Rosa Bell (1995:10) captures this shift to English in her narrative about her residential school experience:

The government wanted to turn us into white people. Our cultural family units were broken apart. Also, part of becoming ‘white’ was to speak English. Because my parents also attended residential school, they didn’t see the value in

⁹ For more detailed information about the potlatch, see Cole and Chaikin (1990).

¹⁰ Much has been written about the Native American/First Nation student transition to formal schooling, see (Whyte 1986; Sindell 1974; Plank 1994; Philips 1983; and White 2008) for more discussion concerning Indigenous experiences of learning and participation in the classroom.

teaching us our language. The Indian Agent told them not to speak to their children in Haida because it would not help them in school. My parents spoke Haida with other adults but didn't make much effort to teach me. My grandma always spoke Haida to me and I tried hard to understand but it was foreign.

Thus, by the 1950s, the transition to English only was not simply a residential school effort, but also became a reality at home on the reserve as well, often as a result of the impact of the residential schools on children and their parents, as well as when those children eventually became parents themselves. By the 1960s in all three Haida communities, only some parents and most grandparents were bilingual, but children were largely monolingual English speakers.

From the 1880s to the 1990s, there were many different researchers working with the Haida language, documenting the phonology, morphology, syntax, and semantics, often for the academic community. Rarely did the linguistic research ever have any benefit for the Haida community since the audience for the research was not the Haida people.¹¹ But this research culminated in a vast body of Haida language documentation, largely because the nature of the research was salvific. Beginning with Franz Boas (Rosenblum & Berez 2010) in the 1880s, the evaluation of the perpetuity of Native Americans was very bleak, so much so that Boas determined that it would be important to capture as much as possible from Indigenous languages before those who spoke it would become extinct. Boelscher (1989:4) explained:

Unlike British Social Anthropology, which in the early part of this century studied cultures functioning largely within their Indigenous context, American cultural anthropology from its beginning took salvage ethnography, recording what was left of traditional systems of ideas and values of North American Indians as they were being physically exterminated and socially assimilated by Whites.

While the linguistic salvage efforts were monumental—and the Haida language was definitely a target of those efforts—the approach and motivation were once again not necessarily benefiting the Indigenous communities. Instead, the efforts culminated in securing cultural and linguistic content, though ostensibly solely for the academic community.

While the Boasian efforts to salvage Indigenous languages did benefit the Haida language, one factor that still remains unresolved is the issue of orthography. At the turn of the 20th century, and subsequently into the early part of the 1910s, John Swanton began his effort to learn and record the Haida language (Swanton 1905; 1911).¹² Swanton was trained by Franz Boas and as part of the Jesup North Pacific Expedition, he learned all three dialects of Haida in four years by spending two years on Haida Gwaii for the Massett and Skidegate dialects, then two years in Alaska with the Kaigani dialect. All the previous research that had been done—whether by missionaries (Keen 1906) or geological surveyors (Tolmie & Dawson 1884)—was overshadowed by the sheer volume that Swanton produced. Edward Sapir (1923) also offered his opinion of the Haida phonemic inventory concurrent to Swanton's work.

¹¹ I have addressed this issue of relevance in detail in White (2014).

¹² John Swanton was trained by Franz Boas and as part of the Jesup North Pacific Expedition, he learned all three dialects of Haida in four years by spending two years on Haida Gwaii for the Massett and Skidegate dialects, then two years in Alaska with the Kaigani dialect.

Many subsequent researchers have modified Swanton's orthography, or Sapir's, or used a combination of both, or just developed their own. Most recently, John Enrico's research (Enrico 1980; 2005), which now rivals Swanton's grammatical and vocabulary collection, also adopted his own orthography, and with the publication of his two-volume dictionary, he is unequaled in contemporary efforts to document the Haida language. Officially, all three dialects have acknowledged the problematic issue of adopting orthography. Most recently, in anticipation of the 2009 Haida Language Conference, Kwiaahwah Jones commented on this quandary (2009:1):

A big *and* sensitive topic to tackle is the need for a common orthography. This discussion has been ongoing between Massett, Skidegate and Hydaburg for a few years, and the language conference hopes to take this topic a few steps along the path. As it stands today, there are at least three systems being used to spell and teach Haida.

Though the conference tried to resolve the issue, as of yet, there is no official orthography for the Haida language, each dialect unofficially adopting and utilizing an orthography to their liking.

As the 1970s ensued, there were sporadic community efforts at recording events where Haida discourse and narratives were occurring, but nothing systematic until the Kaigani Haidas in Alaska began compiling lessons plans and eventually a Haida dictionary. There were some people learning Haida songs and traditional dances, but since they did not know much, if any, of the language, the significance of the songs or dances remained obscured. In the 1980s, efforts in Canada began and culminated in having Haida taught in school, in both the Skidegate and Massett dialects, from Kindergarten to 8th grade. Lesson plans, K-8 Haida curricula, and concerted efforts at recording fluent speakers ensued in both communities, but by then, the average age of the fluent speakers was late 50s or early 60s.

Once the 1990s arrived, most Haida language revitalization work relied on formal instruction in schools. Though there were also occasional immersion camps for second language learners, there was not much follow up for those who attended the camps. My own involvement began during this time and culminated in my dissertation addressing Haida student learning and participation styles in the classroom.¹³ There were also a few linguists working with the language during this time, including the great accomplishment of John Enrico's eventual two-volume dictionary (Enrico 2005) which contains all three dialects. However, at the price of \$279.00 (US), the cost is prohibitive for the general Haida population to purchase.

3. CURRENT STATE OF THE HAIDA LANGUAGE. The history of documenting the number of Haida speakers has largely been a feat in guesswork since there has not been a consistent survey to record the number of speakers. Documentation that does exist often reflects only Haida speakers on Haida Gwaii. For some reason, Haida speakers living somewhere else other than Haida Gwaii seem to be inexplicably and consistently ignored. At the beginning of the 20th century, with a population of about 1,000, all were fluent in Haida, including a small number of monolingual Haida speakers. In 1962, with the total population less than 4,000, Chafe (1962) estimated that there were 700 fluent Haida speakers, and of these he surmised that less than 100 were of the

¹³ I eventually published the dissertation in 2008.

Skidegate dialect, the majority being over 50 years old. Fourteen years later, in 1976, Michael Krauss estimated the total number of Haida speakers, Massett and Skidegate dialects, was under 50 (Krauss 1976:317). The 2006 Statistics Canada Census recorded 125 Haida speakers, but did not delineate the dialects. But again, while the Statistics Canada Census numbers are higher than the 1976 Krauss estimation, it is still difficult to determine how many of the 125 Haida speakers are Massett or Skidegate.

Table 1 shows the most recent population numbers reported for the three dialects. The numbers for Massett and Skidegate speakers represent data from the First People’s Language Map (2018) and Gilpin (2018). The Alaska population numbers are based on Krauss (2007:408), mainly from Hydaburg, and the Kaigani language data is from Lachler’s (2010:7) most recent update of the Kaigani Haida Dictionary. In Alaska there are no reservations due to the Alaska Native Claims settlement of 1971 and in Canada, the ‘accepted’ term is not reservation, but ‘reserve.’¹⁴ The number of those whose first language is Haida represented by FS, and the number of those speaking Haida as a second language is represented by 2LS.

TABLE 1: Numbers of Haida speakers

	On reserve	Off reserve	FS	2LS
Massett (Haida Gwaii, Canada)	751	2192	4	22
Skidegate (Haida Gwaii, Canada)	740	869	18	40
Kaigani (Alaska)	~650	5	7	-

While it seems logical that the number of Haida speakers would reflect only on-reserve data—since both Skidegate and Massett serve as the loci for the language reclamation efforts—there are many speakers that live in Prince Rupert, Terrace, Vancouver, and Seattle. However, the number of people living ‘off island’ is hard to determine,¹⁵ and therefore ascertaining the number of first language Haida speakers not living on Haida Gwaii is even more difficult.

4. UPDATED REVITALIZATION EFFORTS. The recent Haida efforts seem to be more unified than in the past. By the start of the new millennium, Haida efforts had closely followed the four major documentative periods noted by Henke and Berez-Kroeker (2016:412):

- An early period, lasting from before the time of Boas and Sapir until the early the 1990s, in which analog materials—everything from paper documents and wax cylinders to magnetic audio tapes—were collected and deposited by researchers into physical repositories that were not easily accessible to other researchers or speaker communities;

¹⁴ The settlement essentially was a buyout of any further land claims from any of the Indigenous population in Alaska, each group receiving a share of the settlement, and ostensibly foregoing any rights to their traditional land or a reservation. For more information about the Alaska Native claims, visit, http://www.alaskool.org/projects/ancsa/reports/rsjones1981/ancsa_history71.htm

¹⁵ “Off island” is a local term that refers to Haidas that do not live on Haida Gwaii, the politics of which are not conducive for discussion here.

- A second period, beginning in the 1990s, in which increased attention to language endangerment and language documentation brought about a redefined focus on the preservation of languages and language data;
- A third period, starting in the early twenty-first century, in which technological advancements, concerted efforts to develop standards of practice, and largescale financial support of language documentation projects made archiving a core component of the documentation workflow;
- The current period, in which conversations have arisen toward expanding audiences for archives and breaking traditional boundaries between depositors, users, and archivists.

In 1998, some of the Skidegate elders serendipitously began an immersion program for preschool students with fluent elders. More focused efforts then began to record elders in conversation and narratives in all three dialect communities, as well as transcribing the recordings and compiling a database of spoken and written materials. Academic research among the Haida at this time began with stipulations that the results had to benefit the communities first and foremost, not just the researcher. Henke and Berez-Kroeker also observe that, “Indigenous communities in the United States, Canada, and Australia have been taking much more active roles in archiving their cultural heritage” (2016:424), and we have seen such active roles instantiated with the recent Haida efforts concerning their language.

Language nests have also become part of the Haida language revitalization efforts, where fluent speakers intentionally meet with infants and children and interact only in Haida (Daniels 2017). The Haida language nests try to pair both children and their parents with fluent speakers. Lockyer (2009:4) explains:

The Language Nest is open to all parents and their young children; it is designed to help the parent learn alongside their children so that our language can be used more at home and in the community. A learner needs to practice the language with another speaker and so the practice of teaching parents and children is a good way to begin, as parents and children can use their new words in a variety of settings.

Thus, the nests have become intergenerational, not just with elder and child, but with the child’s parents as well. Concomitant with the language nests, linguistic ideologies also “envision and enact links of language to group and personal identity, to aesthetics, to morality, and to epistemology” (Woolard and Schieffelin 1994:55–6). So while learning the Haida language in the language nest setting, participants develop bonds not only to the language, but to their identity and history as well.

There have also been sporadic elder/learner mentorships for younger and even older adult Haida language learners to meet with fluent elders for Haida language instruction (Lockyer 2009; Daniels 2017). With the whole island community so interested in the Haida language, a concerted community effort has made all the signs on Haida Gwaii bilingual, English and Haida. Current signs, whether a street sign, highway sign, or points of interest, have both Haida and English. This, along with the name of the islands, Haida Gwaii, is part of the reclamation of cultural ownership of the land and a reversion to the original names for islands, mountains, rivers, creeks, valleys, and well-

known tourist sites, such as *hlGaa K'aayhlina* 'sitting rock,' formerly known as 'balance rock.' The Haida Gwaii newsletter, *Haida Laas*,¹⁶ has had issues dedicated to the Haida language revitalization efforts, and regularly features language snippets in both Massett and Skidegate dialects.

Since the early 1990s, well into the digital age, technology has increasingly affected documentation efforts for the Haida as well as many other endangered languages. There are some basic considerations and responsibilities that Fenyevesi (2014:261) observes:

The basic realm where responsibility lies is the creation and/or strengthening of the digital presence of endangered languages, that is, the creation of digital content available in the endangered languages. This is, of course, highly dependent on the endangered language speakers and their willingness and opportunity to create and support the digital presence of their own language.

Most important is the comment concerning willingness, and right now, the Haida fluent speakers are most willing to participate in efforts to bring Haida back into use, even if as a second language. The Haida elders' willingness is seemingly only limited to the innovations and enthusiasm of those who want to learn, document, or teach the Haida language. The elders are showing greater enthusiasm as they interact with linguists and also greater prestige in learning and speaking Haida within their communities.

Technology has overall been favorable in the Haida efforts to document and revitalize their language.¹⁷ Since the arrival of personal computers, and the subsequent introduction of audio programs, individual efforts to record Haida terms, phrases, and narratives have captured all aspects of Haida language, though not necessarily systematically, nor contained within a singular location as an archival depository. An example of this current technology, as Ramsey (2017: 9) notes, is "iPods and iPads, with 2,000 Haida words and phrases written and paired with audio recordings of elders speaking the word." The use of computers and various programs has allowed recording and manipulation of data in ways that simply having a hard copy via typewriters could not do, even programs such as Microsoft Word or the newly developed "XK App" which is short for *Xaad Kil* 'Speak Haida.'

5. THE RISE OF HAIDA FILM AND DRAMA. In 2008, drama began as a medium to reclaim the language when the brothers and Haida artists (wood carving, print, and silver and gold jewelry), Jaalen Edenshaw and Gwaii Edenshaw co-wrote a play entitled *Sinxii'gangu* 'Sounding Gambling Sticks.' Their father, Guujaaw, is a Haida elder, former president of the Council of the Haida Nation, and also an artist who worked with Bill Reid, the world-renown Haida carver and artist. Guujaaw's leadership as president of the Council of the Haida Nation afforded Jaalen and Gwaii opportunities to observe their father instantiate efforts to prioritize Haida language and culture, as well as to watch and learn carving from him. Jaalen had been studying political science at the University of Victoria when a professor approached him with the proposal to write a play, including some funding. Given the unique opportunity, he assented to the idea of writing a play in Haida, even though he had never written any play before.

¹⁶ The archives for *Haida Laas* are available at http://www.haidanation.ca/?page_id=66.

¹⁷ See White (2014:141-151) for a more detailed discussion of technology and Haida language documentation and revitalization efforts.

The Edenshaw brothers chose to dramatize a legend recorded by John Swanton about a young man who had lost his village and family in a gambling wage. The story took place when supernatural beings commonly interacted with humans. The didactic storyline highlighted the hubris of the young man who had gambled away his family and community and his transformation to humility and subsequent journey to win his family back from the supernatural beings. As he was writing the play, Jaalen had three questions that motivated him (Davies 2008:8): How do you make people aware of the language? How do people become more interested in learning it? How can you bring the language into use in different ways? These questions then guided his, and his brother's writing process.

He originally began writing the play in English and then garnered the help of three Massett elders, Mary Swanson, Stephen Brown and Norma Adams, to translate the script into Haida. The process began to weary him, so he invited his brother to help him complete the task. Jaalen Edenshaw reported, "the toughest thing about putting on *Sinxii'gangu* was keeping it going over many years—five to be precise" (Davies 2008:13). When they had the first draft completed in both English and then Haida, they translated the Haida back into English, and then began the process again to refine the dialogue and the final Haida version. When the play premiered on Haida Gwaii, in a personal communication to me, Jaalen indicated that both Haida communities received the play very well and that students were reciting lines from the play months after they had seen it. A DVD version was also made available for the community after they premiered the play in Massett and Skidegate.

Film has also become a major vehicle in language documentation and efforts to revitalize the Haida language. The technological environment we inhabit now forces new perspectives on documenting endangered languages, and though not limited only to language and cultural renewal, some film documentaries specifically address issues of Haida sovereignty and issues of land, air, and sea rights.¹⁸ As part of the effort to record traditional oral and contemporary narratives, some of that energy has been applied to stop motion films. For the stop motion film topics, often there are two versions, one in Haida with Haida subtitles, and others provide English subtitles. The films are available on YouTube.com under the user channel of Haidawood.¹⁹

Another unique opportunity arose for the Edenshaw brothers in 2015 when they began working on a movie script completely in Haida, both Massett and Skidegate dialects. They found a story situated in the nineteenth century that they wanted to capture on film, and they envisioned its positive, long term impact on the Haida community. Based on a Haida proverb, "The world is as sharp as the edge of a knife," the movie is called *SGaawaay K'uuna Edge of the Knife*. The story concerns *Adiits'ii*, who, as the lone survivor of a disaster at sea, transforms into *gaagiiid* (Massett dialect) / *gaagiixid* (Skidegate dialect)—a wild man. After losing everything, he makes it to shore and survives wildly for a year. The impact of his tragedy affects the whole Haida community and when his community returns to the site of the disaster, a range of emotions affect them until they realize he may still be alive and that he might

¹⁸ Titles such as *Haida Gwaii: Damned If We Don't*, 2012, directed by Lynda Dixon; *Haida Gwaii: On the Edge of the World*, 2015, directed by Charles Wilkinson; *Haida Gwaii: Restoring the Balance*, 2015, directed by Bruce Marchfelder, all offer insight to cultural issues that the Haida have to live with and deal with on a daily basis, including land claims, logging, fishing, and mineral rights, and even reclaiming past Haida traditions.

¹⁹ The stop motion video titles include *Golden Spruce*, *Nuu Story*, *Taaw story*, *Haida Raid* series (four different episodes), and *Yaani K'uuka*.

be *gaagiiid/gaagiiid*. They then plan to capture him and begin his restoration back into the community. Since the wild man's trial encompassed experiences with both Massett and Skidegate communities, the script contained both dialects.

5. REFLECTIONS ON HAIDA DRAMA AND FILM. The history of drama and film on Haida Gwaii reveals a very important aspect of language revitalization and documentation, and that is the impact of restoring prestige in the language. Interestingly, restoring prestige in the Haida language was not a goal for the Edenshaw brothers, but that restoration of prestige was an integral component that accompanied both the drama and film production and performances. Mufwene (2003:343) suggested that such restoration is an integral step for endangered language revitalization, and this has been confirmed with the Haida community. Drama and film have positively affected documentation efforts for all those involved but have also inspired the rest of the community as a result of the excitement of seeing and hearing the Haida language beyond typical settings of official community meetings or schools.

With the positive impact on prestige for the Haida language, both the drama and movie offer other very practical opportunities for practicing the Haida language. Typical language learning scenarios usually offer the language in school settings, and often dialogue is not a focus as much as learning narratives, often traditional. While oral narration provides language practice, dialogue provides authentic elements of conversation including turn taking and even interruption, as well as intergenerational interaction with others who are practicing and learning the language.

Drama and film thus offer Haida language learning and use beyond the school classroom. Too often, the bulk of revitalization efforts remain in the classroom as the younger community members learn the language. The drama and film have taken the Haida language out of the classroom and brought it back into the community. These drama and film efforts, which also have documented the Haida language in two completely new venues, have also renewed interest in the Haida culture, not just the Haida language. The play addressed a favorite pass time—that of playing gambling games—but it also brought in Haida cosmology and human interaction with supernatural beings.

Both the performance and screening of the drama and film offered new media for transmitting not only the Haida language to the greater community, but also capturing and revisiting culturally significant material such as local history, mythology, and cultural norms. For both the play and the film, much of the language material was new, as were the history and mythology, and the fluent elders guided the writers, actors, and producers through both the Haida language and cultural materials. The elders' guidance often was one-on-one, from script-writing, to the learning of the lines, to the final product of performance for the play or the film.

What the movie includes, besides the storyline, is often not part of most efforts at documenting a language—conversation. What usually happens in most typical language documentation scenarios is an elder agrees to tell stories and is then video/audio recorded. The structure, then, of the language is in narrative form with reported speech throughout the story.²⁰ While this type of documentation—recording one person speaking, usually an elder—has been the *modus operandi* since audio documentation began, it does not capture the nuances of language interaction between individuals in authentic conversation, especially in regards to suprasegmentals—prosody, intonation, and even

²⁰ I have dealt with this issue of recording narrative versus conversation extensively in other publications, including White 2014, White 2008, and White 2006.

stress. The movie provides that basis for both types of language use—stories and conversation. Brandon Kallio, the movie’s main character, captures the nuances his own language learning effort as a result of participation in the film, “It opened my eyes to think that there’s hope that even older guys can start to learn this stuff, and that’s a big thing” (Stewart 2017:6). The movie also incorporates other elements important in capturing Haida culture, and these include traditional ways of travelling, gathering food, diet, tattoos, singing, and dancing.

One challenge of the script process was getting the nuances of Haida language, in both dialects, and then having the actors portray those elements in their delivery of the lines. Another problem was that of all 41 actors, directors, and writers participating in the movie, only two actually were fluent. A two-week Haida language boot camp was set apart for the actors to practice and learn Haida and memorize their lines. The actors had access to elders to guide and offer assistance in the efforts to produce the Haida sounds and words accurately. Some actors admitted to needing not only linguistic tutoring, but emotional nurturing as well since many of the actors were struggling with the psychosocial factors of trying to speak a language they had never learned, and then coming to terms with the history of why they never learned the language in the first place (Lederman 2017). The process—both of the immersion camp and acting in the movie—birthed emotions that many of the actors had never experienced, thus affecting not only their delivery of the lines, but the very process of learning them as well. Some of the props had to be collected rather than made from scratch, which also provided more practice with the Haida language in traditional settings. In a report on the Council of the Haida Nation website, Graham Richard noted that a large team of craftspeople had been integral in securing, “*k’ay* (crab apples), *hlGaajuu* (drying racks), *ts’iihlintsaaw* (devil’s club)... Additional team-members are digging *k’yuu* (clams), gathering *sGyuu* (red laver seaweed), and catching *chiina* (fish)” (Richard 2017: para. 7) Procuring these items further emphasized Haida language use in specific contexts and for specific purposes.

The field of language documentation has grown immensely since Boas undertook the salvific efforts in the late 1890s well into the 1930s, especially now with the focus on video recordings. Tagliamonte (2017:28) explains the importance of both single speaker recordings and recorded conversational interactions:

Conversational interactions, storytelling and life stories are insightful for tapping linguistic features that may not arise other than in usage. Single speakers can exhibit variation that they, themselves, are entirely unaware of and would not admit to using. Spoken language contains discourse-pragmatic phenomena and other features not found in any other register of language. Finally, vernacular language offers unique insights into history, culture, identity and other social and psychological characteristics.

The writing process and the performances of the play and film offered practice in Haida language variation and discourse-pragmatic phenomena that do not occur in simple narratives. These aspects also provided opportunities for cultural insights to history and identity because of the sustained engagement with the Haida language.

The following points summarize the direct impacts the drama and film projects have had on both Haida documentation and Haida language revitalization efforts:

- Restoring prestige for the Haida language

- Providing practice with the Haida language
- Offering language of Haida conversation
- Providing intergenerational Haida language interaction
- Offering Haida language use beyond the school classroom
- Providing a useful media for capturing, using, and transmitting Haida language to the community
- Capturing culturally significant content as the writers research their topics with close interaction and verification with fluent elders

The impact of the first point—restoring prestige—is quite likely to be the most profound in its impact, since without this important psychological factor, restoration efforts would be in vain because they would lack the community support and interest. From the restoration of prestige, the rest of the benefits follow naturally, but not necessarily without some pain. The Haida community, as a whole, has to be supportive of the reclamation, documentation, and revitalization efforts, otherwise it would simply be pockets of disunified efforts amounting to marginal impact on the community.

The efforts at revitalizing any language have to be broad and innovative (Fenyvesi 2014; Henke & Berez-Kroeker 2016; Nagy 2017; Stewart 2017). What works best for any particular language may be unique to that language and community, and with the Haida, the most recent efforts of drama and film are having great impact on both documentation and revitalization. With the status of the Haida language essentially transitioning to a second language for its speakers, contemporary efforts—unified and focused as well as innovative—not only document the language, but encourage its learners as they learn, use, and transmit the language to others.

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A language vitality survey of Macuxi, Wapichana and English in Serra da Lua, Roraima (Brazil)

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Serra da Lua is a multilingual region in the state of Roraima (Brazil) where Macuxi (Carib), Wapichana (Arawak), Brazilian Portuguese and Guyanese English are all spoken. Based on a self-reported language survey, we present an assessment of the vitality of the languages spoken in this region and the attitudes of the speakers towards these languages. While previous literature has reported the existence of English speakers in this region, the literature does not provide more details about domains of use or the attitudes towards the English language in contrast with Portuguese and the Indigenous languages. This paper helps to address this gap. In sum, the goals of this paper are twofold: first, in light of the results of the survey, to discuss the vitality of the Macuxi and Wapichana languages in the Serra da Lua communities according to the criteria set out by UNESCO's "Nine Factors" for assessing language vitality; and second, to provide insight about the use of English in this region.

1. INTRODUCTION.¹ This paper summarizes and discusses the results of a language vitality survey conducted in Serra da Lua, Roraima state, Brazil in September 2017. The survey was conducted in three mixed Wapichana (Arawak) and Macuxi (Carib) Indigenous communities located on the Brazil-Guyana border. Due to the demographics of the communities as well as the proximity to the Guyanese border, Wapichana, Macuxi, English, and Brazilian Portuguese are spoken in each community. The survey focused on factors of language vitality such as intergenerational transmission, domains of language use, and language attitudes toward each language used in the community, as well as more qualitative questions regarding ethnic identity and urban

¹ We would like to thank the communities of Alto Arraia, Pium, and Manoá in Serra da Lua for their openness and hospitality, as well as Geraldo Douglas and Celino Raposo for their support and guidance. The authors are also grateful for the institutional support of the State University of Roraima (UERR), and the support of the Faculty of Arts & Sciences Undergraduate Research Fund at the University of Toronto. We also thank João Carneiro for allowing us to reproduce maps from his master's thesis.

migration. Thirty participants were surveyed. The paper's main goals are firstly, to discuss the vitality of Macuxi and Wapichana under UNESCO's (2003) "Nine Factors" tool of language vitality; and secondly, to provide a preliminary overview of the use of English in these communities.

1.1 THE MACUXI AND WAPICHANA IN RORAIMA. Macuxi (ISO 639-1: mbc; Cariban) and Wapichana (ISO 639-1: wap; Arawakan) are spoken in the Brazilian state of Roraima as well as the Rupununi region of Guyana, with small numbers of speakers in Venezuela. (According to the 2011 Venezuelan census, there are 89 Macuxi and 37 Wapichana people in the country (INE 2015: 30-31)). The state of Roraima, where this study took place, is located in Northern Brazil, sharing borders with Guyana and Venezuela, as well as with the Brazilian states of Amazonas and Pará (see Figure 1).

Roraima's population was estimated to be 520,000 in 2017 (IBGE 2017), approximately 50,000 of which is Indigenous (IBGE 2012: 11), representing the largest proportion of Indigenous people of all Brazilian states (IBGE 2012: 10). This population comprises several Cariban groups (Ingarikó, Taurepang, Macuxi, among others),² Yanomaman groups (Yanomama, Yanomae, Sanöma, Ninam, Yaroamä, and Yãnoma), and one Arawakan group, the Wapichana. The state encompasses the basin of the Rio Branco, a large Amazonian tributary. The north and northeast of the state is covered by a savannah (*lavrado* in Portuguese), while the northwest and south are forested (Hemming 1990: 1). In the savannah, the largest and more prominent Indigenous groups in the state are the Macuxi and the Wapichana, numbering approximately 30,000 and 10,000, respectively (Santilli 2004). The number of speakers for each language is estimated to be much lower; Crevels (2011) lists 15,000 speakers for Macuxi and 4,000 for Wapichana. The most recent Brazilian census provides a similar figure for Wapichana but a drastically lower figure for Macuxi (5,806 speakers) (IBGE 2010: Table 1.15).³ While the Wapichana tend to live in the southeast of the savannah, the territorial divisions are not strict, and there are several mixed villages where both Macuxi and Wapichana people live (Ferri 1990: 18).

In the context of Brazilian Indigenous languages, the number of speakers and the population of ethnic Macuxi and Wapichana are quite large). Of the 160-180 extant languages of Brazil, nearly a third are spoken by less than 100 speakers (Rodrigues



FIGURE 1: Roraima and Indigenous Territory Serra da Lua (Carneiro 2007: 18).

² The Macuxi and their immediate Cariban neighbours, including the Taurepang and Arekuna, constitute the broader grouping of Pemón. This grouping contrasts with that of Kapon, a grouping consisting of the Ingarikó and Patamona (Santilli 2004).

³ It is unclear why the IBGE figure for Macuxi speakers is so much lower than the one provided in Crevels (2011), though it includes only speakers above the age of 5 in Indigenous territories who speak the language at home.

TABLE 1: Population of fieldwork sites

Community	Total population (Source: Prefeitura Municipal de Bonfim) ⁶
Alto Arraia	306
Pium	579
Manoá	1096

In this paper, we report the data of 30 interviews: 22 with Wapichana participants and 8 with Macuxi participants. Demographic information of the 30 participants is shown in Table 2.

TABLE 2: Participants by ethnicity, age, and community

Community	Macuxi participants by age		Wapichana participants by age			Total
	< 45	46+	< 18	18-45	46+	
Alto Arraia	0	1	0	1	2	4
Pium	0	0	2	2	6	10
Manoá	1	6	0	5	4	16
Total	8		22			30

We spoke to far more Wapichana people, reflecting that fact that our main connection to the communities in Serra da Lua, Geraldo Douglas, is a Wapichana teacher from Manoá. Most participants were also older than 45, as many younger adults were occupied with work during the day and did not have time to participate in the survey.

Serra da Lua is located less than 100 km to the east of Boa Vista, though some communities are more accessible than others.⁷ As a result of this proximity, there is frequent contact and migration to the city. All three communities are also just west of the Tacutu, a river which partially forms the Brazilian-Guyanese border. Approximately half of the interviewees were born in Guyana, and many still have relatives living on the Guyanese side. While this is not the first language vitality survey done in the region (see Franchetto 1988, as cited by Pearson & Amaral 2014; MacDonell 2003; van Diermen 2015), this survey had a special focus on English speakers, migration, and the social significance of each language spoken in these highly multilingual communities.

1.3 METHODOLOGY. The research team had the assistance of two Indigenous teachers, Geraldo Douglas (Wapichana), and Celino Raposo (Macuxi) when conducting the sociolinguistic interviews. We conducted the interviews in the three communities over two and a half days in September 2017. Geraldo Douglas resides in Manoá, so many of our interview participants were his relatives or friends. Interviews were conducted in English with those who spoke English. The Indigenous teachers conducted interviews in their Indigenous languages (Wapichana or Macuxi) and in Portuguese. Half of the interviews were conducted in Portuguese.

⁶ Prefeitura Municipal de Bonfim http://bonfim.rr.gov.br/pagina/192_Historia-da-Cidade.html (Date visited: February 10, 2020).

⁷ Leandro (2017: 14) notes that Jacamim, the most remote Indigenous territory in Serra da Lua, is 4–5 hours from Boa Vista and inaccessible in the rainy season due to flooding.

The survey had six sections covering the following: (1) basic information (age, gender, place of birth, level of education, marital status); (2) self-reported proficiency in each language, and domains of usage (cf. Fishman 1965); (3) literacy and experiences with education; (4) experiences living outside of the Indigenous community; (5) language and ethnic identity; and, (6) language use with new media (e.g., the Internet, television, radio). The analysis focuses mainly on information collected from sections 2, 3, 5, and 6 of the survey. Question (7) in section 2 was excluded from analysis (see Appendix A for full questionnaire).

The questionnaire is partially based on language vitality surveys used for other languages in Brazil (for example, MacDonell 2003). However, in our survey, we paid particular attention to attitudes toward languages spoken in the community (see section 4 of the questionnaire). In addition, while past surveys had established that there is language shift towards Portuguese, little mention was made of English and its role in these communities. Multilingualism in more than one Indigenous languages was also not discussed. Thus, in this survey, we also included questions related to the status and function of *each* language in this multilingual context, paying particular attention to Indigenous Guyanese migrants whose use of English has not been well studied. Section 5 in the survey also focuses on migration and its effects on ethnic identity and language proficiency, following Ferri's (1990) study of Indigenous migrants in Boa Vista, as rural-urban migration is a common occurrence in this region.

Most of the interviews were audio recorded. However, there were six interviews in which audio recording did not occur due to lack of equipment or lack of consent from the participant. Sections 4 and 5 were video recorded, except in nine interviews in which either the equipment malfunctioned or was unavailable, or the participants did not consent to being video-recorded. With the authorization of the interviewees, these videos are being used to create a short film about community members' feelings towards their language and identity. A total of 31 interviews were conducted, but one interview was excluded from analysis due to incomplete notes and a lack of audio recording.

In the next section of the paper, we will assess the survey data collected during fieldwork under UNESCO's "Nine Factors," a tool developed to assess language vitality in small-scale communities. We first provide an overview of four influential tools for assessing vitality and the rationale for using UNESCO's method. We examine Factors 1, 4, 5, 6, and 8 for Wapichana and Macuxi in light of the survey data (Sections 2.2–2.5 of this paper), and then the remaining factors (2, 3, 7, and 9) using census data and previous literature, particularly van Diermen (2015) (Section 2.6).

In Section 3, we focus on English speaking members of the communities. Since both Macuxi and Wapichana people live on both sides of the Brazil-Guyana border, there is considerable migration between the two countries. Due to the relative economic prosperity of Brazil in relation to Guyana, many Indigenous people born in Guyana have settled in Brazil. While past literature (MacDonell 2003, Pearson & Amaral 2014; Carson 1982; Carvalho 2015; Leandro 2017) does mention these speakers, they do not comment much further on the use of English in the communities. Therefore a main focus of this paper is to describe the status of English in these Indigenous communities, both in terms of domains of use and the attitudes towards English in contrast with Portuguese, Macuxi, and Wapichana.

2. LANGUAGE VITALITY IN SERRA DA LUA. Situations of language shift, whereby a speech community begins to use the majority language rather than the traditional language, are common in minority and Indigenous communities. Communities may have only shifted to the majority language in some domains (such as education or religious worship) or may have stopped using the language in all but symbolic contexts. In the context of Serra da Lua, Macuxi, Wapichana, and English are languages which are undergoing language shift (though of course, shift away from English is not necessarily concerning for the Indigenous communities).

In order to determine the degree of language shift and thus, the vitality of the language, it is important to consider “a range of largely quantifiable sociolinguistic factors” (Dwyer 2011: 1). Assessing language vitality is a crucial preliminary step in developing strategies to reverse language shift (Dwyer 2011: 11). Several tools have been developed to assess language vitality in communities; for example, the Graded Intergenerational Disruption Scale (GIDS; Fishman 1991, as cited in Dwyer 2011: 1); the Extended Graded Intergenerational Disruption Scale (EGIDS; Lewis & Simons 2010, as cited in Dwyer 2011: 9); UNESCO’s (2003) “Nine Factors” language assessment tool (cf. Dwyer 2011); and the Catalogue of Endangered Languages’ (ELCat’s) Language Endangerment Index (LEI; Lee & Van Way 2016).

The GIDS provides a scale with eight levels which emphasize intergenerational transmission (as per the scale’s title), language domains, and literacy. EGIDS extends Fishman’s scale, adding two new levels to the scale, thus enabling a more fine grained analysis than GIDS, though it does retain Fishman’s attention to intergenerational transmission, domains, and literacy. UNESCO’s (2003) tool provides nine factors for assessing language vitality, including factors which GIDS and EGIDS do not consider, such as the amount and quality of documentation and the absolute number of speakers. All factors (excluding the absolute number of speakers) are assessed on a scale of 0-5, where 5 represents the most favorable or “safe” situation. The factors are:

1. Intergenerational Language Transmission
2. Absolute Number of Speakers
3. Proportion of Speakers within the Total Population
4. Trends in Existing Language Domains
5. Responses to New Domains and Media
6. Materials for Language Education and Literacy
7. Governmental and Institutional Language Attitudes and Policies, including Official Status & Use
8. Community Members’ Attitudes toward their Own Languages
9. Amount and Quality of Documentation

LEI is a newer tool that was created to support The Endangered Language Catalogue, which “aims to provide reliable and up-to date information on the endangered languages of the world” (Lee & Van Way 2016: 272). In contrast to the aforementioned tools, LEI takes a quantitative approach to assessing language endangerment (Grenoble 2016: 293). Each language is given an overall vitality score based on four factors: intergenerational transmission, absolute number of speakers, speaker number trends, and domains of use, allowing it to be used even if particular information about the language is missing (Lee & Van Way 2016: 272).

LEI differs from UNESCO’s approach, as it leaves out factors such as type and quality of documentation, which Lee & Van Way consider to not directly affect language vitality (2016: 277). UNESCO’s tool also only allows users to consider each of the nine factors individually, since there is no overall quantified score as with LEI. While Lee and Van Way assert several advantages to quantification including gaining “a bird’s-eye view” of language endangerment, it has been criticized, particularly by Grenoble who levels criticism at the use of aggregate data, arguing that “the benefit of a bird’s eye view comes at the cost of detailed analysis and differences between communities are hidden in the aggregate” (2016: 33).

In an area like Serra da Lua, where different communities may have different “language ecologies” (Haugen 1972, as cited in Grenoble 2012) due to factors like their proximity to the border and differing proportions of Macuxi and Wapichana people, a more comprehensive tool was necessary. UNESCO’s tool emphasizes factors like language attitudes and documentation in addition to absolute numbers, intergenerational transmission, and domains, allowing us to better understand the role and social meanings of each language in the communities. In the remainder of this section, we address the vitality of Macuxi and Wapichana in Serra da Lua based on Factors 1, 4, 5, 6, and 8, which were addressed by our questionnaire. We will also comment on Factors 2, 3, 7, and 9 based on previous work (particularly, van Diermen 2015), census data and available materials in the literature. Although English is also a minority language in the context of these communities, we will focus on its use separately in Section 3.

2.1 INTERGENERATIONAL LANGUAGE TRANSMISSION. Intergenerational language transmission is generally measured by examining whether all age groups in a particular community use the language, as well as the domains in which the language is used. Several researchers who have worked with the Macuxi or Wapichana have noted situations of weak intergenerational transmission, especially in communities close to Boa Vista (Carson 1982; Franchetto 1988, as cited in Pearson & Amaral 2014; MacDonell 2003; Pearson & Amaral 2014). Tables 3 and 4 show the languages which individuals are fluent in by age-group. Each table includes only individuals who identified as Wapichana (Table 3) or Macuxi (Table 4), as multilingualism in both languages was not frequent in our sample.

TABLE 3: Self-reported language fluency (Wapichana participants)

Language(s)	Age < 18	Age 18-45	Age 46+	Total
Wapichana, English, Portuguese	0	3	10	13
Wapichana, Portuguese	1	4	2	7
Wapichana, Macuxi, Portuguese	1	0	0	1
Portuguese	0	1	0	1
Total	2	8	12	22

Nearly all Wapichana participants reported that they are able to speak Wapichana fluently (twenty out of twenty-two). The one participant who reported being non-fluent in Wapichana is younger (aged 38) and spent considerable time away from Indigenous communities. He is, however, able to understand Wapichana and noted that he is trying to learn, speaking it occasionally with his wife and friends. Notably, all fluent Wapichana speakers are fluent in Portuguese, and many are also fluent in English, es-

pecially older speakers. Indeed, it appears that older people tend to be more multilingual, with ten out of twelve adults over 46 being fluent in English in addition to Portuguese and Wapichana. There were no Wapichana monolinguals surveyed.

TABLE 4: Self-reported language fluency (Macuxi participants)

Language(s)	Age 18-45	Age 46+	Total
Macuxi, Portuguese	0	6	6
Macuxi, Wapichana, English	0	1	1
Portuguese	1	0	0
Total	1	7	8

Table 4 shows that seven out of eight Macuxi reported speaking Macuxi fluently, though all of these speakers were older adults. The one speaker that was under 45 (aged 28) is monolingual in Portuguese, with some understanding of Macuxi. As with the Wapichana, there were no monolingual Macuxi speakers in these communities and older speakers seem to be quite multilingual.⁸

It is important to note that we focused on the adult population. Information regarding children comes from the responses of their parents and grandparents except for two children (aged 11 and 12) who were interviewed directly. Both of the children are fluent in Wapichana as well as Portuguese. One of them is also fluent in Macuxi as one of his parents is Macuxi. Both children report using the Indigenous language both in more formal contexts such as at school with friends or teachers, as well as in some home and traditional contexts such as speaking to grandparents or elders and at village meetings. It does seem, however, that Portuguese tends to be used as the default with most interlocutors. For example, one of the children reported using both Wapichana and Portuguese with friends, though they used Wapichana less frequently than Portuguese.

Interestingly, both children reported that they used Portuguese with their parents. Indeed, the responses of parents show that younger parents tend to use Portuguese more frequently with their children. Of the seven parents under 45 who were surveyed (all of whom were Wapichana), three reported speaking only Portuguese, and one parent reported speaking only Wapichana. An additional three reported speaking Portuguese and Wapichana with their children (one parent used English as well), and two of these parents reported that they tended to speak Portuguese more, as their children respond in Portuguese. By contrast, all eighteen parents older than 45 reported using the Indigenous language (either Macuxi or Wapichana) with their children exclusively or in conjunction with Portuguese, English, or both. Only two noted that they used English or Portuguese more frequently than the Indigenous language.

Although most of the younger parents speak Wapichana fluently (six out of seven), and use it in other domains, it appears that they prefer to speak to their children in the dominant language. This suggests that the use of Wapichana is less robust in

⁸ Though our sample for Macuxi participants is very small, we cannot use other sources such as census data to supplement it. While IBGE (2010) presents the number of Macuxi speakers broken down by age, it does not provide the total number of Macuxi people by age group. No conclusions regarding intergenerational language transmission can be drawn from the absolute number of speakers by age.

home domains with young children, weakening intergenerational transmission. The situation of these communities, which are in close proximity to the capital city, but not immediately outside it, is more favorable than communities on the periphery of Boa Vista. Several authors (Carson 1982; Pearson & Amaral 2014) have noted that language shift is quite dramatic in such communities, and that children have extremely limited receptive competency in the Indigenous language.⁹

Yet, from these admittedly limited survey results, we learned that there are some children learning the Indigenous language from other family members and in the community. Thus, according to UNESCO's scale for this factor, we would assess the situation for both languages as between "Definitively Endangered" and "Unsafe". This scale characterizes a "Definitively Endangered" language as "no longer being learned as the mother tongue by children in the home. The youngest speakers are thus of the *parental generation*." (UNESCO 2003: 8). An "Unsafe" language is characterized as being spoken by "most, but not all children or families as their first language" (UNESCO 2003: 7).

With Wapichana, it is clear that many parents speak the language, but do not necessarily use it with their children. However, the youngest speakers of Wapichana are still children, at least some of whom are acquiring the language in the home as an L1. These speakers are *not* in the parental generation— an important criterion for a language being "Definitively endangered". Yet, based on the answers obtained in this questionnaire, we can hypothesize that it is unlikely that most children or families use Wapichana as their first language— a criterion of a language being "Unsafe"—since so many young parents reported using mostly Portuguese.

Van Diermen (2015: 22) discusses the transmission of Wapichana across generations based on Franchetto's (2008) description of the language in the 1980s and personal communications with specialists on the language in 2015. In the 1980s, Franchetto (2008) observed "a generational rupture between grandparents who spoke Wapichana fluently, bilingual parents, and a youngest generation practically monolingual in Portuguese" (Franchetto 2008: 34 as quoted by van Diermen 2015: 22). In more recent years, van Diermen (2015: 22) reports personal communications with a specialist in the area that suggests that the situation has improved. Our interviewees mentioned the use of Wapichana in the school environment, but we have also learned that the use of Wapichana does not seem to be restricted to this environment. To determine the amount of families and children using the language in their home, more robust surveying would be needed and would also require observation of children's interaction with other children and adults; the same holds for the Macuxi families.

2.2 TRENDS IN EXISTING LANGUAGE DOMAINS. Within existing language domains, both Macuxi and Wapichana are frequently used alongside Portuguese. We asked each participant about the languages they use with specific interlocutors, such as parents, grandparents, spouses, and children, as well as their language use in specific situations such as day-to-day work, village meetings, and leisure (see Section 2 of the questionnaire).¹⁰ Unfortunately, we did not ask about language use in traditional ceremonies or in religious practices. However, following the tendency to use Indigenous

⁹ It is interesting to note that the pattern for intergenerational transmission is different on the Guyanese side of the border, according to Pearson & Amaral (2014), who note that the level of intergenerational transmission is quite high in Guyanese Wapichana communities.

¹⁰ Examples of leisure activities that we suggested to the consultants were: playing games with the kids, playing traditional games, playing sports, watching TV, or just talking among one another.

languages with older speakers and in educational contexts (see Section 2.1), we would expect a stronger presence of the Indigenous languages in such situations (and also in traditional ceremonies).

Of the eight Macuxi people interviewed, seven were older than 45. All fluent speakers stated that they used Macuxi in the home and community domains, and many noted that they would speak Macuxi with interlocutors who were able to and Portuguese with others. The youngest Macuxi participant, aged 28, could not speak the language. One of the Wapichana-identified participants spoke Macuxi fluently (aged 10) and noted using it with his grandparents, his Macuxi-language teacher at school¹¹, with some friends, and at village meetings. In most other domains, like working or during leisure activities, he reported using Portuguese. Unfortunately, more robust data on specific domains is not available given the small number of speakers interviewed, as most of the Macuxi participants answered all questions regarding domains with the same answer—that they “would speak Macuxi with those who can, and Portuguese with those who cannot.” There is also little data on how younger Macuxi people who are fluent in the language use it.

With Wapichana, our findings were more substantive, owing to the higher number of speakers interviewed. Wapichana is spoken within the community alongside Portuguese and English in all domains listed in the questionnaire. As an example, Tables 5 and 6 show the responses of all Wapichana participants for two specific domains: work and leisure.

TABLE 5: Languages used while working (Wapichana participants)

Language(s)	Age < 18	Age 18-45	Age 46+	Total
Wapichana	1 (4.5%)	3 (13.6 %)	7 (31.8%)	11 (50.0%)
Portuguese	1 (4.5%)	3 (13.6 %)		4 (18.2%)
English		1 (4.5%)		1 (4.5%)
English and Wapichana		1 (4.5%)	4 (18.1%)	5 (22.7%)
Portuguese and Wapichana			1 (4.5%)	1 (4.5%)
Total				22 (100%)

As Table 5 shows, half of the participants (n=11) reported using exclusively Wapichana, while just five reported using exclusively English or Portuguese. Half of the speakers younger than 45 reported using Wapichana in this domain as well (either exclusively or with English or Portuguese). By contrast, more speakers overall report using Portuguese exclusively in leisure activities (42.9%; shown in Table 6), and seven out of ten younger participants exclusively used Portuguese. English is also more often used (either by itself or with Wapichana) during work. It seems that there is a slight

¹¹ Indigenous schools in Roraima offer a “mother language” class, and, depending on the village, students can be taught by a Macuxi or a Wapichana native speaker teacher.

preference for Portuguese in leisure activities and more of a preference for Wapichana while doing traditional work. Speakers also reported using Wapichana more often with interlocutors who were older than them (i.e. parents, grandparents). Portuguese was reported as being used more often with spouses and children (especially among younger adults).

TABLE 6: Languages used during leisure activities (Wapichana participants)¹²

Language(s)	Age < 18	Age 18-45	Age 46+	Total
Wapichana		3 (14.3%)	4 (19%)	7 (33.3%)
Portuguese	2 (9.5%)	5 (23.8%)	2 (9.5%)	9 (42.9%)
English			1 (4.8%)	1 (4.8%)
English and Wapichana			1 (4.8%)	1 (4.8%)
Portuguese and Wapichana			3 (14.3%)	3 (14.3%)
Total				21 (100%)

Of course, it is difficult to say whether these discrepancies are significant, due to the small sample size. In addition, as this is self-reported data, we do not have a clear picture of actual language use (see Section 2.7). With such a multilingual population, it is doubtful that anyone uses exclusively one language in most domains. However, this data does demonstrate that Wapichana is spoken in existing domains within the communities, though in constant negotiation with Portuguese (and English, to a lesser extent). To turn to the UNESCO scale, both Wapichana and Macuxi seem to fit under the classification of “Dwindling Domains” (Grade 3), that is, “the language[s] [are] in home domains and for many functions, but the dominant language begins to penetrate even home domains” (UNESCO 2003: 10).

2.3 RESPONSES TO NEW DOMAINS AND MEDIA. Both Macuxi and Wapichana are not used robustly in new domains and media. Specifically, we examined Indigenous language education in schools, broadcast media, and the Internet. In the domain of education, Indigenous schools exist in all three communities.¹³ According to the responses of participants who had recently been schooled in their community, Macuxi and Wapichana are taught in the schools two or three times a week, for one hour, but the medium of education for non-language subjects is Portuguese. We did not observe classes, thus we cannot say whether the Indigenous languages are ever informally used for instruction beyond designated language classes or used amongst students themselves. Just two of the eight participants who had been schooled recently in an Indigenous

¹² There was no data for one participant.

¹³ Indigenous bilingual education has been present in Roraima since the late 1980s (Franchetto 2008).

community reported using the Indigenous language informally with friends at school, suggesting that schools in Indigenous communities are a domain of Portuguese.

In the domain of broadcast media, two participants reported the existence of radio shows in Macuxi and Wapichana, though many participants did not seem to know about them; to our knowledge, these shows are no longer available. The Internet is not widely used in the communities. Only seven out of thirty participants reported that they use the Internet; some mentioned that they only use it when they are in the city. Those who do use the Internet said that they exclusively used English or Portuguese in computer-moderated conversation, though they might use Wapichana or Macuxi in real life. One of the communities, Manoá, has bilingual Macuxi-Portuguese official documents but official documents for the other communities are written solely in Portuguese.

We can characterize the response to new domains as “coping” (Grade 2) under UNESCO’s scale for this factor—that is, “[Macuxi and Wapichana] [are] used in some new domains” (UNESCO 2006: 11). While there is laudable expansion into the domain of schooling and broadcast media, the time available is limited, and the use of the Indigenous languages on the Internet and in community governance is quite minimal. It is important to highlight, however, that an increase in the use of Macuxi and Wapichana in governmental documents (a new domain) might occur, given that these languages have been recently made co-official in the Bonfim and Cantá municipalities of Roraima. The co-officialization of Macuxi and Wapichana has had a positive effect in the domain of education, as it generated demand for Indigenous teachers who could teach these languages in municipal schools rather than just in state schools, as was previously the case (Machado 2016: 59). As such, we might expect the use of Macuxi and Wapichana to be further elaborated in new domains in the near future.

2.4 MATERIALS FOR LANGUAGE EDUCATION AND LITERACY. The existing literacy resources which exist currently do not seem to be accessible within the communities in Serra da Lua. Geraldo Douglas, the Wapichana teacher with whom we worked, stressed the need for more materials in his community (Manoá). Freitas (2003) discusses how Indigenous organizations in Roraima, such as Conselho Indígena de Roraima (CIR) and the Inskiran Institute (an institute for Indigenous higher education affiliated with the Federal University of Roraima) have worked with local Indigenous teachers to create classroom materials for Macuxi and Wapichana. In 2013, a pedagogical grammar for Macuxi, and a Wapichana-Portuguese dictionary was created through this program (Juvencio 2013; Silva et al. 2013). A Wapichana pedagogical grammar was also created by Luiz Amaral and Wendy Leandro in collaboration with several Indigenous teachers through ProDocLin (Amaral et al. 2017), as well as another one edited by the Museu do Índio (Oliveira et al. 2015).

Pedagogical materials in subjects other than language (i.e. mathematics, science) seem to be nonexistent, and most classes are held in Brazilian Portuguese.¹⁴ Thus, under UNESCO’s criteria, we would classify the communities in Serra da Lua at Grade 3: “Written materials exist and children may be exposed to the written form at school. Literacy is not promoted through print media” (UNESCO 2003: 12). While written ma-

¹⁴ Freitas notes in her thesis on bilingual Macuxi schools that the lack of Macuxi lexicon for other subjects makes it impossible for teachers to use the Indigenous language (2003: 140).

materials exist, and children do become literate at school, materials are not always accessible and lacking are “books and materials on all topics for various ages and language abilities” (UNESCO 2003: 12).¹⁵

2.5 COMMUNITY MEMBERS’ LANGUAGE ATTITUDES. Community members showed an overwhelmingly positive attitude towards their languages and Indigenous languages in general. Nearly all participants said that they enjoyed speaking Macuxi or Wapichana. All participants said that Macuxi and Wapichana should continue to be taught in schools and learned by children, often citing an essential link between language, ethnicity, and culture as illustrated in the following quotations:

(1) “What [Wapichana] means to me, is that it’s my origin, no? My word is Wapichana in my heart” [... *significa pra mim que é a minha origem, né ...minha palavra é Wapichana no meu coração.*]

(2) “For me Wapichana is a type of fruit that my grandfather gave to me [...] I can’t forget Wapichana” [*Pra mim Wapichana é tipo uma fruta que meu avô assim deu pra mim ...Eu não posso esquecer de Wapichana.*]

(3) “[Wapichana]’s ... my ID card. I talk Wapichana and I would never [leave] it, because it is my ID card”

Language, here, is linked inherently to ethnic identity (Wapichana as “ID card”) and past and future generations (Wapichana as a fruit from ancestors). Macuxi and Wapichana, thus, are valued as “key symbol[s] of group identity” for many members of the community (UNESCO, 2006314). Participants also highlighted the importance of reading and writing, and nearly all expressed an interest in the development of online materials in Indigenous languages, suggesting that there is a strong desire to further elaborate the use of Macuxi and Wapichana in newer domains. One participant explicitly noted that the language should be valued in “all spaces,” not just at home. We believe this vigorous support by community members towards Macuxi and Wapichana characterizes the communities at Grade 4 under UNESCO’s criteria, that is, “most members value their language and wish to see it promoted” (UNESCO 2003: 14). Though everyone wished to see children continue to learn their Indigenous language, our sample was small and we cannot be completely sure that this is a unanimous belief.

2.6 OTHER FACTORS. UNESCO’s tool includes four factors that were not explored in our questionnaire. We will briefly comment on them based on previous literature and census data.

Factors 2 and 3 (Absolute Number of Speakers, Proportion of Speakers within the Total Population)

Wapichana. Previous work has examined UNESCO’s factors for the Wapichana language (van Diermen 2015). van Diermen (2015: 22) reports data from the IBGE 2010 census, according to which there were “127 monolingual speakers of Wapichana, 4,956

¹⁵ van Diermen gives this factor a higher score for Wapichana, citing the fact that there are more storybooks written in the language. These storybooks, however, seem to mostly originate from the Guyanese side of the border (OLAC n.d.), and it is unclear if these materials are accessible on the Brazilian side.

monolingual speakers of Portuguese and 3,823 bilinguals within Wapichana communities". According to van Diermen, this would amount to a percentage of 44% of Wapichana speakers (in 2003 the percentage of Wapichana speakers reported was 41%). IBGE counts a speaker as someone who uses the language in their household (van Diermen 2015: 21). We would need more recent data in order to evaluate the current state of the vitality of the language. Based on these numbers alone, we argue that with respect to this factor, Wapichana could be classified in between Grade 2, "severely endangered" ("a minority speak the language") and Grade 3, "definitely endangered" ("a majority speak the language") (UNESCO 2003: 9).¹⁶

Macuxi. According to the IBGE 2010 census, there are 5,806 speakers of Macuxi above the age of 5, comprising 160 monolingual and 5,646 bilingual speakers (IBGE 2010: Table 1.15). Totally, there are 23,998 Macuxi people above the age of 5 (*Ibid.*: Table 1.15, meaning that the percentage of Macuxi speakers is approximately 24% of the total population. This proportion would classify Macuxi as "severely endangered" according to the UNESCO scale (UNESCO 2003: 9). However, as mentioned in Section 1.1, estimates for the number of Macuxi speakers vary. If we use Crevel's (2011) figure of 15,000 Macuxi speakers, and the figures presented in Santilli (2004), which lists 30,000 speakers, 50% of Macuxi people speak the language, suggesting that Macuxi is "definitely endangered". As with Wapichana, more recent data would provide a clearer picture of the current state of vitality, but we argue that Macuxi may be classified between "severely endangered" and "definitely endangered" for Factor 3.

Factor 7 (Governmental and Institutional Language Attitudes and Policies, including Official Status & Use)

Van Diermen (2015) argues that Wapichana can be evaluated under "definitely endangered" ("passive assimilation" under UNESCO's terminology: no explicit policy exists for minority languages; the dominant language prevails in the public domain). However, the co-officialization of Wapichana and Macuxi in the municipality of Bonfim is an important achievement: services are now required to be available in Macuxi and Wapichana, signposts must be translated, and Indigenous language books must be published. As previously discussed in paper, co-officialization can facilitate the demand for hiring speakers of these languages to work as teachers and in other public domains. According to Ananda Machado (p.c.), a professor at the Federal University of Roraima who helped promote officialization, teachers have already been hired to teach Macuxi and Wapichana, and signposts have been translated into the Indigenous languages.

Official language status also might increase the prestige of Macuxi and Wapichana, perhaps elevating their score on UNESCO's scale somewhere above Grade 3 ("passive assimilation") and below Grade 4 ("differentiated support": "Non-dominant languages are explicitly protected by the government, but there are clear differences in the contexts in which the dominant/official language(s) and non-dominant (protected) language(s) are used") (UNESCO 2003: 13). While Portuguese is still the language that prevails in the public domain, the co-officialization provides some measure of official protection.

¹⁶ van Diermen (2015: 22) highlights that "Only 8.133 of the 10.572 Wapichana people mentioned by the IBGE live in the Indigenous territories of Serra da Lua."

Factor 9 (Amount and Quality of Documentation)

Both Macuxi and Wapichana are quite well-documented for Brazilian Indigenous languages. The following two paragraphs outline a non-exhaustive list of linguistic work on each language.

Macuxi. In terms of descriptive linguistics, Macuxi has been written about in grammar sketches (Abbott 1991; Carson 1982; Carson 1983; Williams 1932), more specific linguistic studies in phonology (Hawkins 1950; Kager 1997; Cunha 2004; MacDonell 1994), morphosyntax (Derbyshire 1987; Abbott 1976; Abbott 1985; Gildea 2008; Gouvea 1993), semantics (Hodsdon 1976; Derbyshire 1991; Miguel 2018) and sociolinguistics (MacDonell et al. 2000; MacDonell 2003). Several pedagogical materials have been written about and in Macuxi (Amodio et al. 1996; Abbott 2003; Juvencio 2013). Texts and narratives in Macuxi are also available (Mayer 1951, Scannell 2018) as well as collections of sound recordings (Raposo et al. 1984, George et al. 1965).

Wapichana. Descriptive work on Wapichana includes a grammar of the language (Santos 2006), along with more specific studies on phonology (Santos 1995, Tracy 1972), verbal morphology (Tracy 1974), postpositions (Almeida 2017), negation (Pinho 2019; Amaral 2018; Basso & Giovannetti 2018), and quantification from functionalist (Silva 2018) and formal semantics (Sanchez-Mendes 2016; Giovannetti & Vicente 2016) perspectives. There has also been work written in applied linguistics (Leandro 2017), linguistic anthropology (Farage 1997), and sociolinguistics (van Diermen 2015), as well as Carneiro's (2007) toponymic atlas and Machado's (2016) social history of the language. Some bilingual dictionaries (Wapichana Language Project 2000 [Wapichana-English]; Cadete 1990, Silva et al. 2013 [Wapichana-Portuguese]) and pedagogical grammars (Oliveira et al. 2015; Juvêncio & Camilo n.d, as cited in Basso & Giovanetto 2018; Amaral et al. 2017; The Bilingual Minigrammar of the Serra da Lua Region, as cited in Giovanetti 2017) exist, as well.

van Diermen (2015: 24) classifies Wapichana as “definitely endangered” (“fair”, to use UNESCO's label) according to the following criterion: "There may be an adequate grammar or sufficient numbers of grammars, dictionaries and texts but no everyday media; audio and video recordings of varying quality or degree of annotation may exist" (UNESCO 2003: 16). This assessment seems accurate for Macuxi as well, based on the materials presented above: while there are grammars, dictionaries, non-annotated audio recordings, and much theoretical linguistics work on Macuxi, there seems to be little everyday media.

2.7 INTERIM SUMMARY: MACUXI AND WAPICHANA. A summary of the scores for Macuxi and Wapichana in Serra da Lua according to UNESCO's factors is presented in Table 7. Note that the scores for intergenerational transmission, trends in existing domains, responses to new domains, and proportion of speakers are quite low, corroborating previous reports of language shift for both languages. The constant contact with non-Indigenous culture and proximity to the city makes knowledge of Portuguese essential, and ensures that it will continue to supplant the use of Macuxi and Wapichana without revitalization efforts and the expansion of the languages' use in new domains. Although the languages are taught in schools, language classes are limited in time and do not produce fluent speakers if the child has not acquired it already (Pearson & Amaral 2014). In addition, there are not as many accessible materials for teaching Macuxi and Wapichana, and little print media in either language.

However, there are several positive factors for reversing language shift. Both Macuxi and Wapichana still have a large population of speakers (in the context of Brazilian Indigenous languages) and are fairly well-documented languages, Community members also have positive attitudes towards their language, and vigorously support revitalization and maintenance efforts. In addition, the recent co-officialization of Macuxi and Wapichana suggests that the use of these languages might gain more prestige and continue to expand domains in the future. van Diermen (2015) also suggests that the situation of Wapichana has dramatically improved since the 1980s, in no small part due to the efforts of local activists, especially in the avenue of education, demonstrating that significant progress has already occurred in reversing language shift.

Lastly, we would like to note that a major shortcoming of this study is that it relies entirely on self-reported data. As Rosés Labrada observes, there are differences between speakers' explicit and tacit knowledge of their language use and attitudes (that is, "what people can articulate about themselves with relative ease" versus "what is beyond people's awareness or consciousness" (2017: 36)). Self-reported data, of course, only gets at explicit knowledge and may be skewed by the interviewee's view of the interviewer's expectations. For example, it is possible that participants expected that the researchers, as linguists, would be invested in language preservation and thus answered questions regarding their attitudes toward Indigenous languages more positively. In such a multilingual environment, observational data would get at tacit knowledge and help provide a more robust understanding of which languages are actually used in which domains.

TABLE 7: Summary of UNESCO factors 1, 4, 5, 6, and 8 for Macuxi and Wapichana

Factor	Score	Label ¹⁷
1. Intergenerational Language Transmission	3/4	Definitively endangered / Unsafe
2. Absolute number of speakers	3,950 Wapichana 5,806 Macuxi	-
3. Proportion of speakers in the total population	2/3	Severely endangered / Definitively endangered
4. Trends in Existing Language Domains	3	Dwindling domains
5. Response to New Domains and Media	2	Coping
6. Materials for Language Education and Literacy	3	-
7. Governmental and Institutional Language Attitudes and Policies, including Official Status & Use	3	Passive assimilation
8. Community Members' Attitudes toward Their Own Language	4	-
9. Amount and Quality of Documentation	3	Good

¹⁷ The 'score' and 'label' columns of this table were extracted from UNESCO (2003)'s Language vitality and endangerment report. In cases where the UNESCO report does not provide an endangerment label, we left the 'label' field blank and only reported the endangerment score.

3. THE ROLE OF ENGLISH IN THE COMMUNITIES. Previous linguistic studies done with Macuxi and Wapichana communities on the Brazilian side of the Guyanese border mention the presence English speakers in Serra da Lua and other Macuxi and Wapichana communities in Roraima (Carson 1982; Pearson & Amaral 2014; Mac-Donell 2003). However, little is known about the role of English in these communities. Thus, a primary goal of our survey was to interview the English-speaking population in these communities.

We sought to investigate the domains in which English is spoken and the attitudes towards English. Although English is also a colonizing language with extreme global influence, it is a minority language in Serra da Lua. We were interested in the social significance of English in this context, especially in comparison to the social meanings of Portuguese, Macuxi and Wapichana. We were also interested in how cross-border migration might affect language proficiency (and lack thereof) and thus, participation in the community on the Brazilian side.

3.1 MOVEMENTS BETWEEN THE BRAZIL-GUYANA BORDER. The international border between Brazil and Guyana was created in 1904, splitting the traditional territory of both the Macuxi and Wapichana over two nation states. Indeed, cross-border movements have occurred frequently since the border's imposition, though the direction of migration has changed at various points in time. Before Guyanese independence from Britain in 1966, migration tended to be from Brazil to Guyana. However, after independence, Guyana has seen much political conflict and a weakened economy, leading to migration to Brazil both by Indigenous and non-Indigenous peoples (Baines 2005: 6). In the present day, these migrations are motivated by job opportunities, access to public services and marriage (cf. Carvalho 2015).

Though, as mentioned, there has been little written about the presence of English speakers in Indigenous communities, many anthropologists have written about cultural identity and ethnicity on the border and the sociocultural ramifications of migration for both Indigenous peoples (see Santilli 1994; Baines 2005). Attention has also been given to the diverse, multi-ethnic, multilingual student body of the schools in Bonfim (a border town of about 10,000 and the district in which Serra da Lua is situated), where students “live in tense relationships that express different ethnic and national identities” (Pereira 2007: 1), including indigeneity (Pereira 2007; Santos 2012; Souza & Lima 2014). Our focus on English speakers in Serra da Lua adds to this literature on identities and multilingualism at the border by investigating how English is specifically used in Indigenous communities on the Brazilian side, as well as investigating the social meaning and status which English holds.

3.2 WHO SPEAKS ENGLISH IN THE SERRA DE LUA? Our survey in Serra da Lua shows that twenty out of the total of thirty participants have some level of proficiency in English. Fourteen participants reported to be fluent, and six participants reported to be ‘partially fluent’.¹⁸ The breakdown by age is displayed in Table 8.

¹⁸ Partially fluent is a loosely defined category, ranging from being able to understand but not speak, to being able to speak some of the language. See categories 2-4 in the chart in Section 2, Question 1, in Appendix A.

TABLE 8: Number of English speakers, by age¹⁹

	Age < 18	Age 18-45	Age 46+
Fluent speakers	0	3	11
Partially-fluent speakers	1	4	1

As the data show, most of the fluent speakers of English are older, Guyanese migrants who were born and educated in Guyana, coming to Brazil and learning Portuguese as adults. Other than one English speaker who reported being able to only speak some Portuguese, every English speaker is also a fluent speaker of both Wapichana and Portuguese. Many participants stressed their multilingualism, noting that the language they use is negotiated according to their interlocutor and the situation.

Based on the responses to questions about domains of language use, it appears that English is used far less frequently than Portuguese or Indigenous languages in these communities.²⁰ Some participants reported that they use English with immediate family members such as parents, grandparents, spouses, and children; in village meetings and during work and leisure activities. However, most of the English-speaking participants do not use English. For example, five out of fourteen fluent English speakers reported using English with their children; and three out of fourteen fluent speakers reported using it during leisure activities. Most who reported using English also reported using Portuguese and/or Wapichana in the same domain (i.e. they reported using English and Portuguese at village meetings, for example).

All six participants who self-identified as “partially fluent” in English either have immediate family (parents, grandparents) who had come from Guyana and learned English with these relatives or lived in Guyana for some period of time. They did not report using English at all, or reported using it in limited domains such as village meetings or with specific interlocutors, like grandparents or elders.

English functions somewhat as a heritage language in this context: Guyanese migrants speak the language fluently but quickly shift from one state language to the other after migration. Their children, who have been exposed to the language at home, only partially acquire English, if at all, and seem unlikely to use the language with their own children. Of course, the loss of English does not have the same implications as shift from Indigenous language—English is not prized as an essential symbol of cultural identity as the Indigenous languages are. While all English speakers valued their linguistic repertoire, only one identified in any way with *being* “English”, saying she felt “more like an English girl” than a Wapichana person. None identified with being Guyanese. However, further research is needed in order to understand how the linguistic repertoire of English might allow English speakers in these communities to perform identities through language practices.

Lastly, it is important to state that we interviewed English speakers who had left Guyana many years ago, and settled in Brazil. This population is multilingual in both Portuguese and the Indigenous languages, and as a result, is not excluded either from community life or from interacting with the Brazilian state due to a lack of proficiency in Portuguese. However, it is not clear what the experiences of Wapichana and Macuxi who have arrived more recently in Brazil are like.

¹⁹ This chart is not broken down by ethnicity, as all of these speakers are Wapichana, except for one Macuxi interviewee (aged 78).

²⁰ From the observations of the first author, Portuguese seemed to be more dominant than English for many of the English speakers; for example, when responding to questions about more abstract topics such as identity, many interviewees switched to Portuguese.

3.3 ATTITUDES TOWARD MULTILINGUALISM AND ENGLISH. Multilingualism is highly valued in Serra da Lua—a recurring statement from survey participants was “it’s important to speak all languages”. The Wapichana and Macuxi languages are valued for their perceived inherent link to ethnic identity and, unsurprisingly, Portuguese is viewed as necessary for interacting with the state and non-Indigenous people. English is also valued for its status as a global language of technology and its utility for communication with people from outside the community and country. Some of the English speakers also wanted their children and grandchildren to learn English because they spoke it themselves. Knowing other Indigenous languages is seen as important for facilitating communication with other Indigenous groups.

When discussing the importance of English and Portuguese, participants often invoked ideas of mobility and migration, noting that Portuguese is necessary when travelling to the city and that English is necessary if one is outside the country. For one participant, for example, English and Portuguese are important “*because no one will stay in a single place. You have to leave. Given the jobs that some people get somewhere, they have to know how to speak all [languages], write and read [them], too.*”

Leaving the community, as mentioned in the participant’s statement, is seen as almost inevitable, an event that will require a robust linguistic repertoire which includes English. Learning “all languages” is a way to prepare for future mobility in the border region, where there is constant movement between Indigenous communities and the city, as well as between the Brazil-Guyana borders. European languages, then, are thought of as “linguistic capital” (Bourdieu 1977; 1991) which can be converted into other forms of capital, in contrast to evaluations of Macuxi and Wapichana, which are valued for their connection to Indigenous culture and identity.

Yet, English proficiency is not maintained in this community; people who have not migrated from Guyana, or do not have immediate family from there, do not speak English. There is little immediate need for English in Brazil, as interaction with the state and non-Indigenous people requires Portuguese. However, while English has little influence on the linguistic repertoire of the community, it is imagined to be a tool in the linguistic repertoire which expands ones range of interlocutors and potential to participate in the market economy.

Portuguese and English are valued as tools of communication that facilitate communication with those outside of the community—Portuguese allows access to non-Indigenous interlocutors, while English allows access to foreigners (including scholars), as well as globalized technology. Further research on the linguistic situation in Serra da Lua might explore how interactions, bounded in language, allow speakers to negotiate their identities—as Macuxi, Wapichana, Brazilian, Guyanese, or other hybrid identities. Research involving participant observation, in particular, would allow more insight into how language and identity may be negotiated in such a multilingual setting.

4. CONCLUSIONS. In conducting this survey, we were interested in the status and vitality of each language (Macuxi, Wapichana, English, and Portuguese) spoken in three communities in the Serra da Lua region of Roraima, Alto Arraia, Pium, and Manoá. Though there have been previous language vitality surveys conducted in this region, our survey was particularly concerned with all languages in context, as well as the role of English in the communities, an area that has not been well studied. We addressed two main topics in this paper: first, drawing on both survey data, census data,

and previous literature, we assessed Macuxi and Wapichana's language vitality according to UNESCO's "Nine Factors" tool. Second, we provided some preliminary observations on the use and status of English in these communities, when compared with the function of Portuguese, Macuxi, and Wapichana.

In our assessment of Macuxi and Wapichana based on the "Nine Factors", we noted that while some factors, particularly intergenerational transmission, proportion of speakers, and domains of use, have low scores, there are many positive factors that may help reverse language shift towards Brazilian Portuguese, namely community members' positive attitudes toward their Indigenous language. In addition, it has been asserted (van Diermen 2015) that the situation in this region has improved significantly since the 1980s, at least for the Wapichana language.

While English is used daily in the communities in Serra da Lua, its influence seems to be limited. From our sample, most of the people who speak it are older members of the community, born in Guyana; coincidentally, these English speakers are highly multilingual, speaking Wapichana and Portuguese in addition to English. After their migration to Brazil, English speakers rapidly shift to using Portuguese and Wapichana. Children born in Brazil to English-speaking parents tend to retain little of the language. English, in this context, patterns almost like a heritage language. Yet, along with Portuguese, English is understood as a useful tool in the linguistic repertoire. In a place where migration is common, knowing "all languages" is extremely valuable.

In multilingual societies such as the ones in Serra da Lua, it is expected that language dominance will shift according to the context. Future language surveys such as the one presented here will allow us to observe how the maintenance of the non-dominant languages of Macuxi, Wapichana, and English will evolve over the years. Language surveys may also bring an important contribution to Indigenous teachers, as they can be used to better understand the profile of the members of their communities and their interest in terms of language education and production of pedagogical resources. For example, Celino Raposo, the Macuxi professor with whom we worked with (p.c.) reported the relevance of the production of materials that might support indigenous immigrants from Guyana who speak neither Portuguese nor one of the Indigenous languages.

Finally, it would be useful to analyze the self-reported data along with ethnographic data since self-reported responses may also be impacted by the speakers' attitudes towards the languages spoken in the community. That is, observational, ethnographic studies, as pointed out by Rosés Labrada (2017), will allow for more robust further inquiry into how Indigenous people in this multilingual community use their linguistic repertoires.

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Appendix A: Questionnaire used in the language vitality survey**SEÇÃO I: INFORMAÇÕES BÁSICAS***SECTION I: BASIC INFORMATION***Nome:**

Name:

Idade:

Age:

Sexo:

Gender:

Etnia:

Ethnicity:

Data de nascimento:

Place of birth:

Há quantos anos moram na aldeia?

How long lived in community:

Estado civil:

Marital Status:

Número de filhos:

Number of children:

Nível de educação (por exemplo, concluiu o primário/ secundário/graduação?)

Level of education (i.e. finished primary/secondary/post-secondary)?

Onde estudou? Dentro ou fora da comunidade?

Where was education completed (i.e. inside or outside the community?)

SEÇÃO II:**AUTO-AVALIAÇÃO LINGÜÍSTICA E DOMÍNIOS DE USO DA LÍNGUA***SECTION II: LANGUAGE SELF-EVALUATION AND USE WITHIN DOMAINS***1. Como você avaliaria o seu conhecimento das seguintes línguas?**

How would you rate your knowledge of the following languages?

	Não entendo e não falo (1)	Entendo mas não falo (2)	Posso entender tudo/quase tudo, mas não falo (3)	Posso entender tudo/falo pouco (4)	Consigo falar sobre alguns aspectos, mas não tudo (5)	Consigo falar fluentemente sobre qualquer coisa.(6)
Macuxi						
Português (Portuguese)						
Wapichana						
Inglês (English)						

1 Cannot understand, or speak

2 Can understand some, but cannot speak.

3 Can understand all/almost all, but not speak.

- 4 Can understand all/almost all, can speak some
 5 Can speak fluently, but on restricted topics
 6 Can speak fluently, on any topic

2. (Caso não sejam faladas pelo entrevistado), as línguas abaixo são faladas na sua comunidade?

(If not spoken by interviewee) are the languages below spoken in your village?

Inglês (English) () Sim [yes] () Não [no].
 Macuxi () Sim [yes] () Não [no].
 Wapichana () Sim [yes] () Não [no].

3. A partir da tabela 1: como você aprendeu cada língua? Quando era criança, com pais e familiares? Na escola? Adulto?

(based on Table 1) How did you learn each language? As a child, with your parents/family members? In school? As an adult?

Macuxi	
Português (Portuguese)	
Wapichana	
Inglês (English)	

4. Em quais línguas você se sente mais confortável?
 Which language(s) are you the most comfortable in?

5. Quais línguas você usa para falar com:
 Which language(s) do you use the most to speak to:

Pais (Parents)	
Avós (Grandparents)	
Pessoas mais velhas (Elders)	
Esposa/Marido (Husband/wife)	
Filhos (Children)	
Amigos (Friends)	

6. Quais línguas você usa mais para falar com:
 Which language(s) do you use **the most** when:

Na escola (se estiver na escolar) com os amigos (At school (if in school) to friends)	
Na escolar com os professores (At school to teachers)	
Em atividades do dia a dia (plantação, pescaria, construção de casas) (While working, doing day-to day activities (such as farming, fishing, building houses etc.)	

Em encontros na comunidade/ atividades culturais At village meetings/cultural activities	
Esportes/Lazer (During sports/leisure activities)	
Com figuras de autoridade (FUNAI) With authority figures (e.g. FUNAI)	

7. **Qual língua(s) você usaria para expressar as seguintes emoções:**
Which languages would you use for expressing the following emotions:

Felicidade (Happiness)	
Tristeza (Sadness)	
Raiva (Anger)	
Contando uma piada (Telling a joke)	
Para ser carinhoso (saying affectionate words)	
Falando de política (talking about politics)	
Falando no trabalho (talking about work)	

SÓ PARA LÍDERES DA COMUNIDADE
FOR COMMUNITY LEADERS

8. **Com qual frequência você usa documentos bilíngues?**
How often do you have bilingual documents?

SEÇÃO III: LÍNGUA E EDUCAÇÃO
SECTION III: LANGUAGE EDUCATION

- Você sabe ler e/ou escrever? Em quais línguas você consegue escrever e ler?**
Do you know how to read/write? In which languages can you read and write?
- Se você frequentou escolas, em qual língua foi ensinado?**
If you went to school, which languages were taught?
- Você aprendeu Macuxi/Wapichana na escola?**
Did you learn Macuxi/Wapichana in school?
- Caso sim, com qual frequência teve aulas de língua indígena? Quantas vezes por semana/dia?**
If so, how often? How many times a week/day?
- Quando você começou a aprender português/inglês?**
When did you start learning Portuguese/English?
- Na escola, quais línguas o seu professor falava? Você se lembra em quais línguas ele falava com você? Quais línguas você usava para falar com os colegas?**
In school, what languages did your teachers speak? Do you remember what languages they spoke to you in? Which languages did they use to speak amongst themselves?
- Se você aprendeu Macuxi/Wapichana na escola, quais materiais estavam disponíveis?**
If you have learned Macuxi/Wapichana in school, what materials were available?

SEÇÃO IV: TEMPO DISTANTE DA COMUNIDADE

SECTION IV: TIME AWAY FROM THE COMMUNITY

NOTE: TO BE FILMED, IF INTERVIEWEE GIVES CONSENT

Você já morou fora da comunidade?

Have you ever lived outside of the community?

Sim

Não

If “yes”, continue to question 1. If “No” go to question 6.

- 1. Por quanto tempo você ficou distante da comunidade (em anos)?**
How much time have you spent away from the community (in years)?
- 2. Por qual razão você saiu (trabalho, estudo)? Qual tipo de trabalho você fazia?**
For what purpose did you leave (work, school)? What type of work did you do?
- 3. Você gostou de passar tempo em outro lugar?**
Did you enjoy your work and your time away from the community?
- 4. Porque decidiu passar um tempo fora da comunidade?**
Why did you leave?
- 5. Você tem amigos que não são indígenas? Com qual frequência fala com eles e em qual língua**
Do you have friends who are non-indigenous? How often do you speak to them? In what language?
- 6. Você se sente Macuxi/Wapichana? O que significa ser macuxi/Wapichana?**
Do you feel very Macuxi/Wapichana? What does it mean to feel Macuxi/Wapichana?
- 7. Quando alguém muda da comunidade, isso afeta se a pessoa é Wapichana/Macuxi?**
Did leaving the community change your opinion of this?
- 8. Se você não nunca morou em outro lugar, teria interesse em fazer isso?**
If you haven't left yet, would you like to study/work in some place else? Where and why?

SEÇÃO V: SENTIMENTOS EM RELAÇÃO ÀS LÍNGUAS INDÍGENAS E NÃO-INDÍGENAS

SECTION V: EVALUATIONS OF INDIGENOUS AND NON-INDIGENOUS LANGUAGES

NOTE: TO BE FILMED, IF INTERVIEWEE HAS GIVEN CONSENT

- 1. Você gosta de falar Macuxi/Wapichana?**
Do you like speaking Macuxi/Wapichana?
- 2. Se você não fala Macuxi/Wapichana, você acha que isso te prejudica de alguma forma?**
If you cannot speak the Macuxi/Wapichana language, do you feel that this limits you in some way? Why and how?
- 3. Você considera importante que as crianças aprendam Wapichana/Macuxi no futuro? Por que?**
Do you think it is important for children in the future to learn the Macuxi/Wapichana language? Why?
- 4. Você acha que Macuxi/Wapichana devem ser ensinadas na escola? Should Macuxi/Wapichana be taught (continue to be taught) in schools)? Why?**
- 5. Você gostaria de ver mais programas focados na preservação da língua e cultura Macuxi/Wapichana?**

Do you want to see more programs devoted to the preservation of Macuxi/Wapichana language and traditions?

6. **Quão importante você julga ser aprender e usar o português? Por que?**
How important is it for you to learn and use Portuguese? Why?
7. **Quão importante você julga ser aprender e usar o inglês? Por que?**
Is it important to learn English? What do you think about English?
8. **Você considera importante aprender línguas indígenas faladas em Roraima (por exemplo, Taurepang, Ye'kwana) que não sejam a sua própria língua?**
Do you think that it's useful to speak other indigenous languages spoken in Roraima (e.g. Taurepang, Ye'kwana) that isn't your mother tongue?

SEÇÃO VI: NOVOS DOMÍNIOS

SECTION VI: NEW DOMAINS

1. **Você usa a internet? Para que usa (trabalho, facebook, etc)?**
Do you use the internet? If so, what do you use it for (work, facebook, etc)?
2. **Se você fala com um(a) amigo(a) Macuxi/Wapichana online, você usa a língua indígena ou outra? Qual língua você usaria com esse mesmo(a) amigo(a) quando o encontra pessoalmente?**
If talking to a Macuxi/Wapichana friend online, do you use Macuxi/Wapichana, or some other language? What language would you use with this person in real life?
3. **Você acha que seria importante o desenvolvimento de materiais online do Macuxi/Wapichana? Qual uso você acha que esses materiais teriam?**
Would you like to see the development of online materials in Macuxi/Wapichana? Do you think you would use it?
4. **Existem jornais/programas de TV/programas de radio em Macuxi/Wapichana?**
Are there newspapers/TV programs/radio programs in Macuxi/Wapichana?
5. **Caso sim, com qual frequência eles são disseminados? Você ouve/lê/vê esses programas?**
If so, how often do they circulate/are they disseminated? Do you read/listen/watch them?