

**Developing Indigenous language materials for schools and land-based documentation:**

**Gwa'sala-'Nak'waxda'xw Nation and Kwakwala (ISO: kwk)**

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## Abstract

This study examines school-based and land-based language materials for Kwakwaka'wakw (ISO, kwk) developed during a three-year investigation (2016-2019). The materials focussed on three requirements: first, supporting teachers and researchers who are learning the language, second, ensuring that documentation is accurate and conforms to curriculum and guidelines from Elders, and third, integrating Indigenous language and knowledge throughout school activities and revitalization of traditional homelands.

I address the above requirements using a Transdisciplinary model to approach the complex multi-disciplinary needs of the school and land-based activities. These require Indigenous knowledge and expertise from numerous disciplines. In this study, similar to Mark and Turk (2021), various disciplines (Indigenous and Western-based) are unified through an overarching theory. Situated Learning is the unifying theory to ensure language, social, cultural, and locational contexts are authentic and situated in Indigenous settings. Evidence-based analysis is the over-arching method used to examine the materials. Together, these frame Situated Documentation, a method used in this study to situate community-based documentation in authentic locations. Participatory Action Research integrates the expertise of school staff, researchers, experts, Chiefs and Elders with the researcher.

Transdisciplinary highlights include Word Paradigm corpus-based concordance analysis to compare Kwakwala inflections in materials with curriculum expectations, multimodal ethnographic coding of print and multimedia materials to examine the situational accuracy and consistency of language and social conventions, and comparative analysis to determine the communicative competence in narratives. In addition, analyses include comparison with earlier materials, attention to ethnophysiology, and examination of the study-developed computer-based parser to correct difficulties with written documentation.

In conclusion, the materials developed during the study assist the community and the school to achieve their goals to revitalize their homelands and language. The materials meet curriculum expectations, represent language and Indigenous themes, conform to Indigenous social values and dialect variation, and demonstrate authentic and accurate land-based documentation.

Results from computer-based parsing demonstrate improved documentation of written language. Recommendations indicate that non-fluent teachers benefit from grammatical-functional materials and links between curriculum expectations and language structures, while both teachers and land-based researchers benefit from situating documentation activities in authentic locations.

Dedication:

This work is dedicated to the memory of Indigenous educators and researchers whose dedication to language revitalization is an ongoing inspiration.

Lillian Johnny

Alice Peters

Chief James Wallas

Dr. Ellen White

Chief John Thomas

James Henderson

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Ǵelakasxdaǵw'la. Thanks to all. Ǵelakasxda'xw'la.



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## **1. Foreword**

There is a growing demand for Indigenous language curriculum and documentation strategies to support teachers, researchers, and administrators who are not fluent speakers, as noted in Hinton (2003) and Hall, Smith, & Wicaksono (2011). Non-fluent individuals face challenges developing and implementing language curriculum and language-based documentation. Difficulties include ensuring that community and curriculum goals are met, using authentic and accurate language, integrating traditional social and cultural knowledge, and providing dialect variation in documentation. Land-based research, similarly, requires language knowledge of the land to provide an Indigenous understanding of territories. Difficulties arise in part due to the decline in the number of speakers and lack of fulsome Indigenous language materials compared to those available for National languages (Wilson & Hemphill, 2017; Hall, Smith, & Wicaksono, 2011; Hinton, 2003). In British Columbia, curriculum guides are based on a framework document that expects teachers to be fluent and trained to develop language materials in collaboration with Elders (BCED, 2003).

In addition to the growing number of teachers who are not fluent speakers, there is a need to provide detailed expectations to connect language structures to curriculum expectations to provide guidance for teachers and researchers (BCED, 2016c). In

summary, current research concludes that language support materials and processes are needed to assist the growing number of teachers, researchers, and administrators who are not fluent, to improve programming (Hinton, 2003; Hall, Smith, & Wicaksono, 2011; BCED, 2016c).

### **1.1. Research questions**

The study seeks to answer two questions: first, how do we develop Indigenous language materials that provide detailed information to support teachers and researchers who are learning the language, and second, how do we know if the materials are accurate, accessible, and meet the goals of the community and the curriculum, as well as the needs of teachers and researchers? In this study, I address these two questions by developing materials with non-fluent teachers and researchers in collaboration with fluent speaking Elders — the treatment — and then examining the materials — the analysis.

### **1.2. Foundational knowledge claim**

The foundational knowledge claim in this study is that non-native speakers (NNS) who are not fluent (NF) are able to provide successful learning activities for students, research the language, develop materials, and document the language.<sup>1</sup>

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<sup>1</sup> Although there are studies based on English that support such a claim (Moussu & Llurda, 2008), there is no research that addresses this claim for Kwakwala.

### 1.3. Kwakwala Language Overview

Kwakwala (ISO:kwk) is a Wakashan language located on North and East Vancouver Island from Johnstone Strait to Smith Inlet on the British Columbia Mainland watershed areas of the numerous inlets, and the islands between Vancouver Island and the mainland (see Map 1 below). The Wakashan Language Family includes a North and South Division. Kwakwala is the Southernmost of the North languages, which, from South to North are: Kwakwala, Heiltsuk, and Haisla (Eberhard, Simons, & Fenning, 2021).

Kwakwala is written using two different community-based orthographies, various linguistic IPA-based orthographic conventions, various versions of Boas-Hunt orthographies (cf., Boas, 1897; 1947), English-based approximations of the language, as well as a number of legacy orthographies that are not phonologically accurate.<sup>2</sup> The divergence among written representations of Kwakwala and creates barriers for teachers and researchers engaged in revitalizing languages (Williams, 2013).

In this study, Kwakwala words are written in either the U'mista or NAPA community orthographies for language examples. In addition, the English spellings of words are used in paragraphs depending on context. For example, the official name of a Nation is often spelled using only English-based characters. For example, the name of the Nation in

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<sup>2</sup> See, for example, the updates to original Anglican Church of Canada publications to comply with accurate U'mista community orthography (Anglican Church of Canada, 2021).

which this study takes place is written in English as Gwa'sala - 'Nak'waxda'xw. When I use Kwakwala words in dissertation paragraphs that are written in one of the two community orthographies, I enclosed them in the "pipe" symbol, for example, U'mista orthography, |Gwa's̩ala-'Nak'waxda'x̩w| and NAPA orthography, |G<sup>w</sup>aʔsəla-ŋak'waxdaʔx̩<sup>w</sup>|. U'mista is written using the Aboriginal Sans font and NAPA is written using the Dulous SIL Font. English and other orthographic conventions are written in Times New Roman. Unless otherwise noted, words in the U'mista orthography are examples from Eke Me Xi data, and words written in NAPA are from the University of Victoria Native Indian Language Diploma Program, Canada Works program data, or my research notes from 1974-1986. See 17 for additional information on orthographies used in Kwakwala.

Ethnologue classifies Kwakwala as 8a (Moribund) and provides an estimate of 170 speakers of Kwakwala, 500 semi-speakers, and an ethnic population of 7,310 (Eberhard, Simons, & Fenning, 2021).

The Kwakwala speaking people are known as the |Kwakw̩ak̩a'wakw|. They were originally organized into a number of Nations in areas on North and East Vancouver Island (Johnston Strait, Broughton Strait, Queen Charlotte Strait), on the islands between Vancouver Island the mainland of British Columbia, and in the Inlets on the mainland of

British Columbia from Johnston Strait to Smith Inlet (see Map 1).<sup>3</sup> Since 1775, many of the settlements and Nations have relocated and amalgamated. For example, the Nations in Quatsino Sound including the |Gop̓inuḡw| (Koprino) and |Gwaṭ̓sinuḡw| (Winter Harbour) moved and amalgamated with the |Gusgimuḡw| (located near Coal Harbour in Quatsino Sound).<sup>4</sup> The curriculum guide for the North Island (SD85, 2010) lists the following First Nations and Councils as participants in the development of the curriculum guide "Kwakwala Integrated Resource Package."

Table 1 Contributors to the Kwakwala IRP (SD85, 2010)<sup>5</sup>

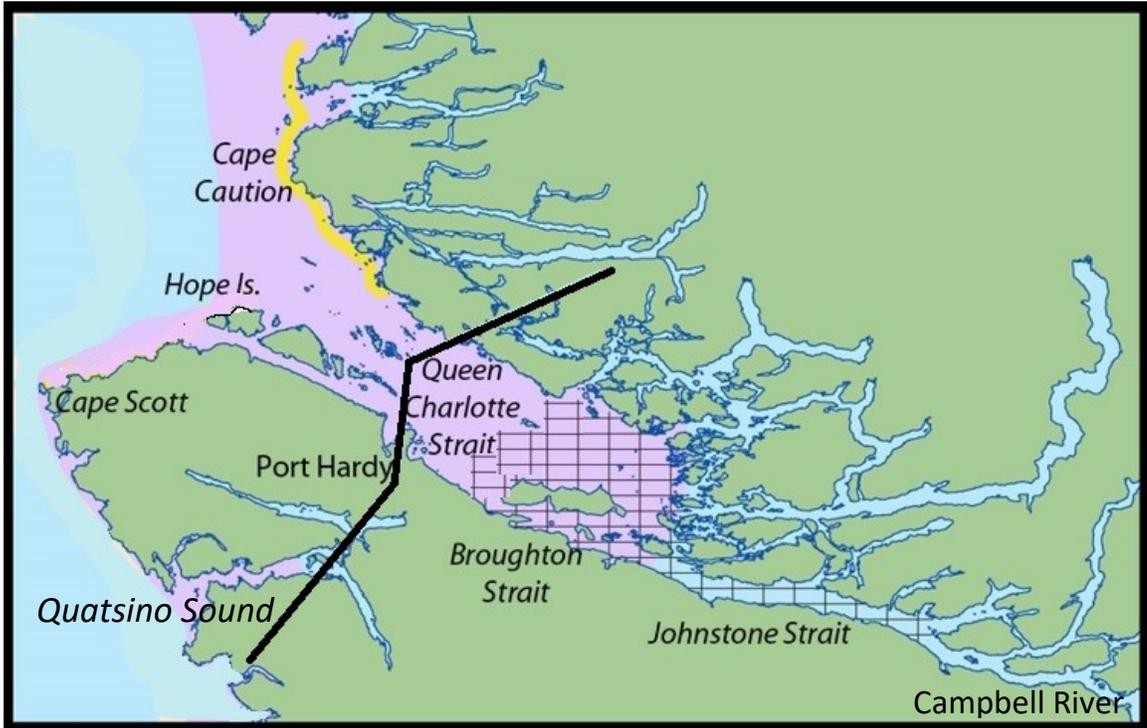
Kwaguṭ  Band Council
Whe-la-la-u Area Council
Mam̓lilk̓ala  First Nation
ḷawit̓sis  First Nation
ṭṭat̓ṭasikw̓ala  First Nation
Da'naxda'ḡw  First Nation
Musgamagw-Tsawataineuk Tribal Council
Kwikwasutinuxw-Haxwa'mis  First Nation,
'Namgis  First Nation
Dzawada'enuḡw  First Nation
Gwa'sala-'Nakwaxda'ḡw  First Nation
G̓usgimuḡw  First Nation

<sup>3</sup> See Galois (1994) for a detailed examination regarding |Kwakwaka'wakw| Settlements from 1775 to 1920.

<sup>4</sup> These examples are from personal communication with Chief James Wallas of the |G̓usgimuḡw| Nation (circa 1979)

<sup>5</sup> Names of First Nations have been transcribed using U'mista when known and enclosed in the "pipe" symbols.

Map 1



Map Adapted from Pacific Wildlife Foundation (2021)

**Legend:**

- Pink areas: Schools in the North Island Area (School Board 85):
  - Pink: Port Hardy area,
  - Pink grid: Schools in Port McNeal, Alert Bay, and Sointula.
- Blue area (Johnstone Strait): Campbell River area schools (School Board 72)
- Black Line: Division between Northern and Southern Dialects
- Yellow outline on mainland: |Gwa'sala-'Naḵwaxda'xw| coastline.

#### 1.4. Kwakwala and Dialects

Kwakwala is the term used in English to describe the language spoken by the |Kwakwaka'wakw|. Traditionally, however, the Indigenous peoples who speak Kwakwala refer to their language based on the name of their Nation. For example, the |Kwaguł| Nation speaks |Kwak'wala| "language of the |Kwaguł|" and the |Gwa'sala| Nation speaks |Gwa'sala| "language of the |Gwa'sala|." The derivational morpheme suffix |-ala| adds the meaning "language or sound of" to the stem word to which it is attached. If the suffix is added to the name of a Nation, the interpretation is that it refers to the language of the Nation. If it is added to a common noun e.g., "man" as in |Bagwanamk'ala| it would be interpreted as "sound of a man." There is no word in the language that refers to the whole grouping of mutually intelligible languages. More recently, the Nations are collectively known as the |Kwakwaka'wakw|, however, the language continues to be known as Kwakwala.<sup>6</sup>

#### 1.5. Language variation

Linguistic analyses of Kwakwala dialects divide the language into Northern and Southern dialects (Boas, 1947, pp. 295-296). Boas provides evidence to support this division based on phonological and morphological variation. I supported Boas' analysis (Wilson P. ,

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<sup>6</sup> Boas includes |Kwakwaka'wakw| in his Kwakiutl Dictionary and indicates that the term refers to the four tribes of the |Kwaguł| (1948, p. 300).

1990) based on information comparing morphology and lexicon from school-based narratives. The division between Northern and Southern is indicated in Map 1 with a black line. In contrast to the Boas analysis, Ethnologue follows the practice of listing the names of Nations as dialects (Eberhard, Simons, & Fenning, 2021).

The concept of language variation in Kwakwala is recognized by speakers. This is particularly true for the Elders with whom I worked in the 70's and 80's. James Henderson, Lillian Johnny, and Harry Walkas (|Gwa's̱ala-'Naḵwaxda'x̱w|) and James Wallas and Alice Peters (|Gusgimuḵw|) provided examples between dialects based on lexical items. In addition, Harry Walkas was able to identify differences between words used by |Gwa's̱ala| and those by the |'Naḵwaxda'x̱w|. <sup>7</sup> During the current study, in contrast, the Elders were less familiar with the details of these differences. The Elders requested that I keep track of variations in language so that the differences can be known and preserved (which I have done in my Access Database (see Section 21.1). The development of a full understanding of the dialects is a work in progress.

The language examples in this dissertation and accessible through the study website (Wilson P. , Our Voices Our Stories, 2020e) include entries in |Kwaḵwala|, |Guts̱ala|, and |Baḵwamḵala|. |Baḵwamḵala| is used to refer to the language of the

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<sup>77</sup> Harry Walkas also provided history narratives for both the |Gwa's̱ala| from |'Naḵwaxda'x̱w| in Galois (1994, pp. 326-339)

|Gwa'sala- 'Nakwaxda'xw| Nation. There are language differences between these two Nations, and the dialects of the language are known respectively as |Gwatsala| and |'Nakwala| (Wilson P. , Our Voices Our Stories, 2020e). Colleen Hemphill reports that the Elders chose to use the term |Bakwamkala| "the language of Indigenous people" to name their language during language revitalization meetings in the 1980's (personal communication, Colleen Hemphill). I am currently working on a method to include a process to differentiate |Gwatsala| and |'Nakwala| on the website search engine while supporting the Elders practice of referring to the two dialects with the term |Bakwamkala|.

In this study, I focus on the dialects represented by the three Nations that collaborated to develop Eke Me Xi Learning Centre. See Table 2.

Table 2 Dialects represented at Eke Me Xi

Dialect Name	Location	Nation	Division
Bakwamkala	T'salgwadi	Gwa'sala-'Nakwaxda'xw	Northern
1. Gwatsala	Smith Inlet	Gwa'sala	
2. 'Nakwala	Seymore Inlet	'Nakwaxda'xw	
Gutsala	Quatsino Sound	Gusgimuxw	Northern
Kwakwala	Fort Rupert	Kwaguł	Southern

## 1.6. Kwakwala and schools

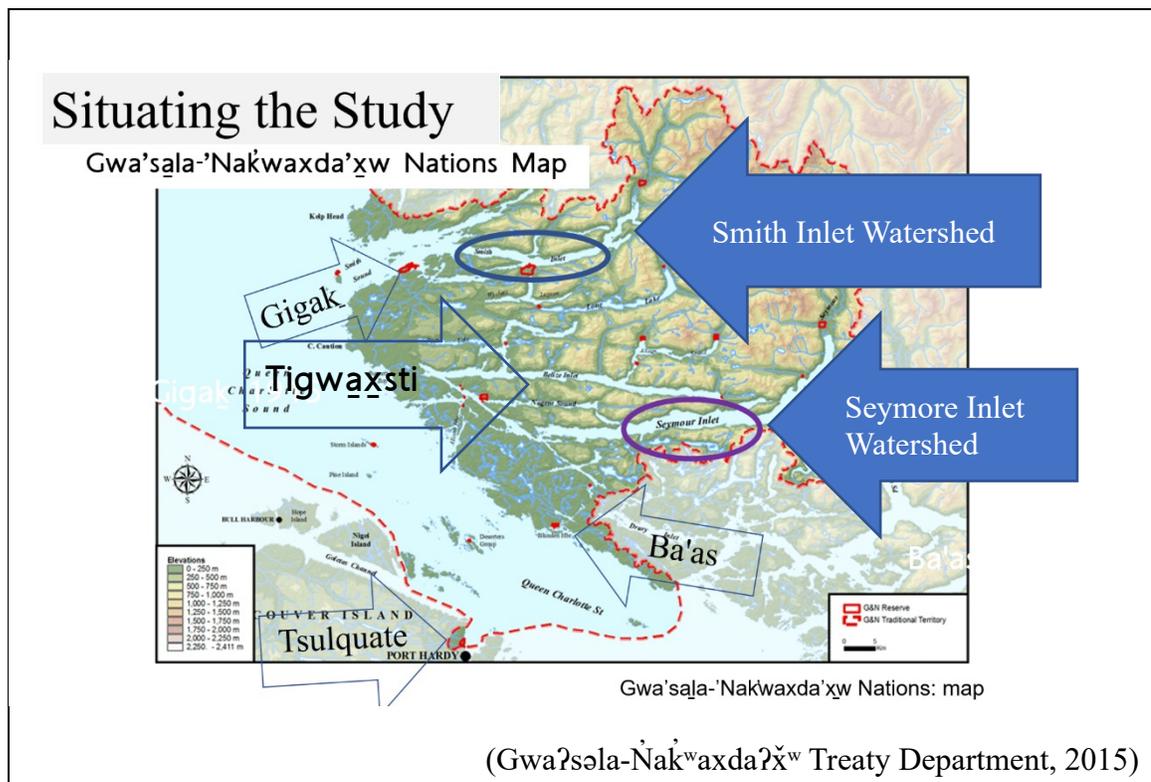
The Kwakwala language Nations are divided between two school districts, School District 85 in the North, and School District 72 in the area around Campbell River, as noted in Map 1. Both public and First Nations Schools in the North Island (School District 85) and Campbell River (School District 72) include language and cultural activities for students and have developed curriculum guides from grades 5 to 12, see, e.g., SD85 (2010). These are based on the framework for language from the Ministry of Education (BCED, 2003). Implementation of the courses is hindered due to lack of fluent certified language teachers, support materials, and connections between curriculum expectations and Kwakwala structures (BCED, 2016c).

The Kwakwala language is difficult for learners and non-fluent teachers whose first language is English (personal observation). For example, Kwakwala is a verb first language (VSO) (verb-subject-object) |*Latʔan laʔa kaʔwilas.*| "go I to the store" and contains many non-English sounds (see Section 17.3). The combinations of morphemes (word parts) also present challenges for English learners. Kwakwala is a polysynthetic language with a large derivational morphology and complex morphophonemic processes. In addition, the morphophonemic processes often result in fused (or portmanteau) forms that may result in words that do not contain evidence of the component morphemes. For an overview of the grammatical properties of Kwakwala see Sections 18, 19 and 20.

## 1.7. Situating the study

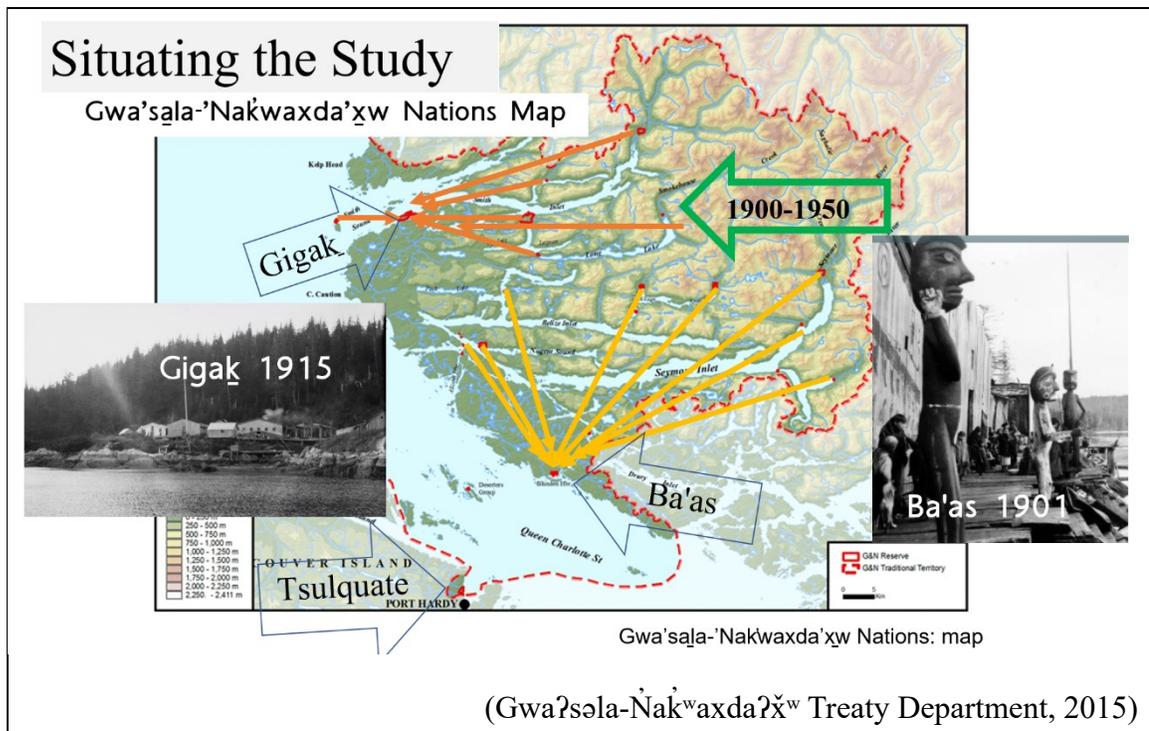
Map 2 depicts that the |Gwa'sala| lived in the Smith Inlet watershed (blue oval), and the |'Na'kwaxda'xw| lived in the Seymour Inlet watershed (purple oval). Traditionally, families lived in settlements throughout the watershed areas. The red dots-outlines on the map are the current reserves and represent some of the pre-contact settlements used by the |Gwa'sala| and |'Na'kwaxda'xw|.

Map 2



During the wintertime, families would come together during winter for feasts and ritual activities. The |'Nakwaxda'xw|, for example, congregated at |Tigwaxsti|, a settlement located just inside the entrance to Seymore Inlet (personal communication, Chief Tom Henderson).

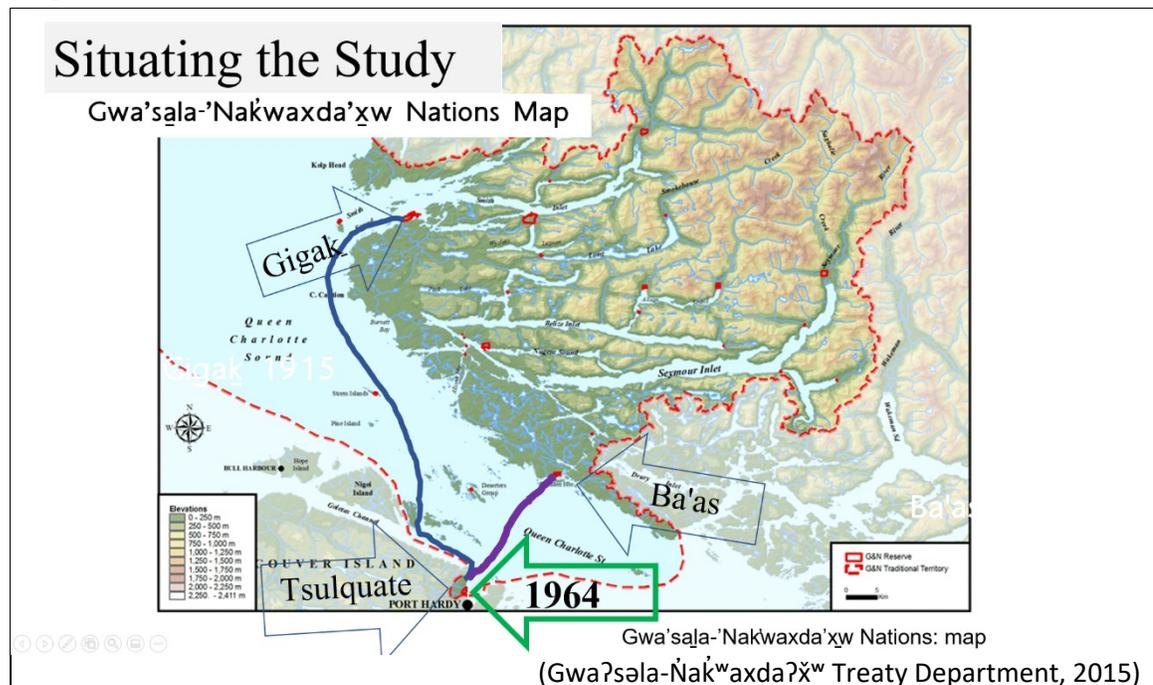
Map 3



Starting in the early 1900's, people began to congregate at |Gigak| and |Ba'as|. These two settlements are located in sheltered areas but are close to open waterways (personal observation). These locations offered easier access to services and jobs. This centralization occurred as colonization occurred. During this time, both the |Gwa'sala|

and |'Nakwaxda'xw| continued to utilize their traditional settlements in the inlets. This included food gathering in spring and summer as well as trapping activities in the winter (personal communication, Lillian Johnnie, |'Nakwaxda'xw| Elder).

Map 4



In 1964, the federal government amalgamated these two Nations into a band, a political unit that wasn't their own, and relocated the people at Tsulquate, originally a village site of the |Kwagwul|. <sup>8</sup>

<sup>8</sup> Chief Ross Hunt of the Kwagwul Nation explained that the Department of Indian Affairs compensated the loss of Tsulgwadi with another area of land located in Hardy Bay (personal communication, Chief Hunt).

When the Gwa'sala-'Nak'waxda'xw Nation first arrived at Tsulquate Reserve, there were only five houses, no running water, and no toilets. The film "How a People Live" (Jackson L. , 2014) details the move and the traumatic effect it had on the Gwa'sala-'Nak'waxda'xw Nation. In the film, Colleen Hemphill, the Chief Negotiator for the Gwa'sala-'Nak'waxda'xw Nation, explains that the people were disconnected from their traditional home and unfamiliar with this territory. For example, they did not know the locations for food gathering. Sally Bruce, a Gwa'sala-'Nak'waxda'xw Elder, describes that she slept with her sisters in an abandoned boat as there was no room in a house. During the first years of relocation, some of the Gwa'sala-'Nak'waxda'xw people relocated to other communities due to the housing shortage. These locations include Campbell River, Vancouver, and Victoria (personal communication, James Henderson, and personal observations).

I arrived at Tsulquate for the first time in 1977, 12 years after the move. The community was still in need of housing and supports. At the time, I was engaged in developing language materials for North Island communities and School District 85 funded through Canada Works. I worked with Lillian Johnny and Harry Walkus (Gwa'sala-'Nak'waxda'xw Elders) documenting a children's dictionary and fishing terms and phrases. In addition to my work at |Ṭṣaḷgwadi|, I worked with Gwa'sala-'Nak'waxda'xw speakers who had re-located to Campbell River from 1978-1985.

Today, there are approximately 1000 people living on-reserve. Current estimates are that 20 members are first language |Bakwamkala| speakers, their dialect of Kwakwala. These individuals are Elders and spent their formative years at either |Gigak| or |Ba'as| (personal communication with Elders).

Today, there are two schools on the Reserve, an elementary school run by the Nation and Eke Me Xi Learning Centre, a high school. Eke Me Xi is a collaboration between the |Gwa'sala-'Nakwaxda'xw|, the |Kwaguł|, the |Gusgimuxw|, and School District 85 (North Island). Eke Me Xi |Ix'maxi| translates as "getting better now."

I reconnected with the community in 2014 following my retirement. My goal was to find out whether the community might be interested in having me assist with language activities once again. The result of the meetings led me to return to the community and enrol in a doctoral program in Applied Linguistics at Carleton University.

### **1.8. Researcher Background**

I am a non-native, non-fluent speaker of Kwakwala with previous experience as a language teacher, curriculum developer, and linguistics student working on Kwakwala from 1974-1985. During those times I lived in Alert Bay and Campbell River while collaborating with Elders to develop language activities for School Board 85 schools

(Quatsino, Tsulquate, and Port Hardy). I am honoured to have had the opportunity to collaborate with many families over the years and am proud to be associated with the Henderson family. James Henderson conferred the name |Tsup'alagilakw| to me.

|Tsup'alagilakw| was an uncle and mentor of James.

At the start of this study (2015), I had not worked directly or spoken the language for 30 years. As such, my fluency in the language was reduced. In addition, I am hearing impaired and have required hearing aids since 2010. My hearing is particularly affected in social gatherings and settings with background noise, or when communicating in a second language.

Despite the limitations noted above, my previous experiences with Kwakwala and the Gwa'sala-'Nak'waxdaxw community provided the background to conduct this study. This includes, first and foremost, my close association with community members and previous pedagogical activities, which provided a bridge from my earlier activities to the ones in this study. Second, my previous work documenting |Bakwamk'ala|, the dialect spoken by the Gwa'sala-'Nak'waxdaxw. Third, my association with School District 85 where the current study takes place, and fourth, my earlier work, which focussed on developing language materials and documenting Kwakwala for community and educational use.

In the current study, I draw on my previous experiences with the language that included training fluent speaking teachers and collaborating with fluent Elders to acquire and analyze the language, creating materials for classroom activities, and documenting the language. This earlier work included work on Kwakwala dialects, developing lessons, language analysis, and documenting word lists, maps, and cultural materials. The work also included recording and archiving Kwakwala audio in both Northern and Southern dialects and developing computer-based documentation in collaboration with the Computer Science department at the University of Victoria.<sup>9</sup>

In addition to my work on Kwakwala, I bring my work on the language<sup>10</sup> that occurred in the intervening years as well as my interest in updating previous educational materials to current standards.<sup>11</sup> Earlier activities were developed before the Province of British Columbia published a curriculum framework for Indigenous language education (BCED, 2003) and School District 85 developed a Kwakwala curriculum guide (SD85, 2010).

As well as my experience with Kwakwala, I bring my background in education that includes ESL, special education, computer technology, and administration. Leadership experiences include board-wide curriculum and school-improvement initiatives with the

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<sup>9</sup> |Kwakwala| and |Gut'sala| audio recording originals are housed in the archive at the Royal British Columbia Provincial Museum.

<sup>10</sup> See, for example, Wilson, 1990; 1993; 2011; 2013; and 2014.

<sup>11</sup> See, for example, Wilson, 1990; 1993; 2011; 2013; and 2014.

Ottawa-Carleton District School Board as a centrally assigned teacher (2001-2003) and Vice-Principal at Nepean High School (2003-2013). Examples of these activities include participation in a board-wide review of programming for gifted students, leading a curriculum project designing locally developed courses for special needs students in technical high schools,<sup>12</sup> and leading a school-based initiative to update assessment and evaluation to meet changes in Provincial regulations. I am a member of the Ontario College of Teachers and hold principal qualifications, specialist qualifications in ESL and special education, and certification from elementary to secondary.

### **1.9. Researcher Positionality, Gwa'sala-'Nakwaxda'xw, and Kwakwala**

My role in the earlier work on Kwakwala (1974-1984) differs from my current role. The earlier activities included linguistic research on Kwakwala (1974-1985), work as a sessional lecturer in the Native Indian Language Diploma Program (NILDP) training teachers and researchers for School Districts 72 and 85 (1979-1982), and leading curriculum development activities with Kwakwala speakers (1978-1982). In summary, I brought the NILDP program to the community.

In contrast, my role in the current study developed from my reconnection with the |Gwa'sala-'Nakwaxda'xw| community and developed based on the community needs.

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<sup>12</sup> Locally Developed Courses (LDC) are the Ontario equivalent of the British Columbia local Integrated Resource Package Courses (IRP).

The needs were identified through meetings with Elders, Chiefs, administrators and staff in the Nation and at Eke Me Xi school. Following the initial meetings at Tsulquate, I enrolled in the Applied Linguistics program at Carleton as I recognized the need to update my practice and connect with current trends in applied linguistic research. The current study brings together the needs of the community with Applied Linguistic research, my background as a language teacher and administrator in schools, my training in Linguistics at McGill and the University of Victoria, and my experience developing materials for Kwakwala from 1975 to 1985.

At school, I collaborate with all staff to develop Kwakwala materials that relate to school courses and activities. I also taught Kwakwala to two groups of students during the development phase of the study: Junior (grades 8-10) and Senior (grades 11-12). For the land-based project I assist with the documentation of place names in the |Gwa'sala-'Na'kwaxda'xw| homelands. This includes primary research on the territories to ensure that documentation is situated.

### **1.10. Study Background**

As noted above, the two activities at the center of this study are the revitalization of the

traditional homelands for the Gwa'sala-'Nak'waxdaxw Nation<sup>13</sup> and improvement of Kwakwala programming at Eke Me Xi Learning Centre. Both improvement initiatives are located on the Tsulquate Reserve, North Vancouver Island, and were already in progress when this study began. The study included two stages: in the first stage, I developed materials and taught Kwakwala at Eke Me Xi and assisted the researchers documenting the Gwa'sala - 'Nak'waxda'xw homelands. The two projects intersected to include activities that enabled land-based researchers, school staff, and students to interact during field trips to the homelands. Both activities included fluent speaking Elders on our development teams as language and knowledge experts. In the second stage, I examined the materials that resulted determine whether the materials meet the expectations of the curriculum and community goals.

I use a transdisciplinary approach to develop and analyze materials. This approach enables the researcher to draw from a range of theories, methods, and practices to meet the complex research requirements of a study and engage with collaborative research teams (Hiver, Larsen-Freeman, & Al-Hoorie, 2021; Mark & Turk, 2021). In order to conduct the study, I needed to collaborate with fluent speaking community Elders for

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<sup>13</sup> Gwa'sala - 'Nak'waxda'xw is the spelling used in English. This document also includes Kwakwala words in the U'mista and NAPA community orthographies. In paragraphs, Kwakwala words are enclosed in the "pipe" symbol when they are written in either community orthography. Unless otherwise noted, words in the U'mista orthography are examples from Eke Me Xi data, and words written in NAPA are from the University of Victoria Native Indian Language Diploma Program, Canada Works program data, or research notes from 1974-1986.

language and knowledge. I also collaborated with staff at the school and the land-based research team of the Treaty Department of the Gwa'sala-'Nak'waxdaxw Nation. In addition, I needed to access expertise in linguistics, learning theory, applied linguistics-discourse studies, education, ethnography, and ethnophysiology, and drew from my experiences developing materials and assisting Kwakwala language instructors from 1974 to 1985, and my experiences as a language teacher, Vice-Principal, and school board curriculum consultant.

During the school-based study, materials development was based on the "Introduction to Kwakwala 11" course in the "Kwakwala Integrated Resource Package" curriculum guide (SD85, 2010). This guide was developed by and for the Indigenous communities on Northern Vancouver Island. I also followed the school improvement enquiry practices in British Columbia (NOIIE, 2020) during these activities. I collaborated with school staff to develop language materials that integrated with school activities and the school improvement plan (Eke Me Xi, 2016). In addition, I met regularly with community Elders who provided translation, suggestions, language, and social and cultural knowledge for the lessons. Together, I worked in conjunction with the school staff and Elders in a professional learning community developing materials that promote Indigenous language and knowledge.

In the land-based study, I assisted the Treaty Department with the verification, re-transcription, and description of place names and landforms on the territories of the |Gwa'sála-'Nakwaxda'xw| Nation. My previous experience included work on place names with James Henderson, a |'Nakwaxda'xw| Elder. This work included the development of a map of place names for school and community use (Wilson & Henderson, 1980c), a group of nautical charts of the area with placenames (Wilson & Henderson, 1983), as well as a listing of placenames in the word list (Wilson & Henderson, 1982b). In addition, I have lived in Kwakwala speaking areas including Campbell River and Alert Bay and am acquainted with both land and water areas of the territories. My activities in the current study included primary research and review of secondary documents to update transcription, glosses, and coding of place name data and to check that the |Bakwámkala| dialect of Kwakwala spoken by the |Gwa'sála-'Nakwaxda'xw| was represented.

In addition to utilizing the place name documentation for developing materials at school, I supervised the development of computer-based programs to correct keying errors, transliterate among the orthographies used for Kwakwala, and create an alternate ASCII-only character coding for Kwakwala to use for Web-based applications that are not able to display extended character sets. The research questions, analytic approach, and comments are summarized in Table 3.

Table 3. Research questions

Question	Approach
Do the materials contain the range of grammatical structures in Kwakwala required in the curriculum expectations?	Word Paradigm corpus-based concordance analysis to compare Kwakwala inflections in materials with curriculum expectations.
<ul style="list-style-type: none"> <li>The analysis examined inflectional markers. These are productive and required in language activities to meet curriculum expectations, such as asking and responding to questions and presenting information (SD85, 2010, pp. 104-107).</li> </ul>	
Do the materials situate the language in a way that's consistent with the communicative activity and that provides contextual support?	Multimodal ethnographic coding of print and multimedia materials examining situational accuracy, language and social conventions.
<ul style="list-style-type: none"> <li>Printed visuals and multimedia materials are examined for evidence that supports traditional knowledge and locations.</li> </ul>	
Do the materials reflect  Gwa'sala-'Nakwaxda'xw  style, pragmatics, social context and cognition?	Comparative analysis to determine the communicative competence in narratives.
<ul style="list-style-type: none"> <li>Two sets of narratives are compared: a NILDP story (Wilson &amp; Henderson, 1981b) is contrasted with an Eke Me Xi story (Wilson &amp; Henderson, 2016), and a traditional deer creation story elicited by Boas (1910) is compared to one documented by George Hunt (Boas &amp; Hunt, 1906).</li> </ul>	

Do the materials improve the documentation for school and place names?	Error analysis and development of a computer-based parser to correct difficulties with written documentation and convert between orthographies.
<ul style="list-style-type: none"> <li>• Error analysis examines school-based and land-based documentation. The computer-based parser is used to convert from one orthography to another, correct keying errors, and identify problems in orthographic representation.</li> </ul>	

Analyses also include comparison with earlier materials and attention to ethnophysiology in the land-based study.

### 1.11. Dissertation Structure

Sections 1 through 8 of this dissertation introduce and provide an overview of the study. Section 1 includes background, motivation, introduction to the analysis, study overview and activities undertaken. Section 2 presents the school improvement model utilized by School District 85 and Eke Me Xi Learning Centre. Sections 3 and 4 detail the theory, unit of analysis, and study method. Section 5 is an overview and justification of the data sources and Section 6 examines previous research. Sections 7 and 8 summarize research activities and present examples of study materials. Section 9 introduces the analysis and Sections 10 through 13 cover the four detailed analyses. Section 14 summarizes and concludes the analysis with recommendations.

Appendix Sections 15-17 include background information regarding the codes and abbreviations used in the document, an overview of Word Paradigm analysis, and information regarding Kwakwala orthographies. Sections 18, 19 and 20 provide analysis of Kwakwala inflections and educational materials relating to the teaching of grammar. Section 21 is an overview of the word lists and databases developed and used in the study. Section 22 includes information on the Parser programs and includes the source code for the NAPA Parser. Sections 23 and 24 provide information on the graphics used in the materials as well as samples from the materials developed at Eke Me Xi. Section 25 is an overview of the website developed during the study where materials are housed. Section 26 provides background information on resources, the Native Indian Language Program at the University of Victoria, and the requirements of the Province of British Columbia Toponymy program. Section 29 is an index of definitions related to the theories and methods used in the study. Sections 30 to 32 provide indexes to maps, words lists, and examples. Section 33 provides copyright information and permissions for materials used in this document. Section 34 provides information regarding the production of this document, citation methods regarding field notes, and external factors affecting the study. Section 35 lists the references cited in the dissertation.

The reader is advised that in some cases information regarding study procedures and methods is repeated from section to section. This was done based on the expectation that

some readers will utilize this document as a resource and, thereby, may read only sections pertinent to their interests. In addition, terms defined in the text are also included in the Index of Definitions.

### **1.12. Background**

The revitalization of Indigenous languages worldwide is in crisis. School-based programs and community projects designed to maintain and improve language capacity are not reversing the trend of impending language loss, despite the efforts of communities, academic researchers, and innovations by educators. Kwakwala (ISO kwk), the British Columbia Indigenous language examined in this study, appears to be progressing well. There are curriculum guides, linguistic descriptions of various aspects of the language, numerous written texts, language lessons, teacher training, and materials to integrate Indigenously themed content across the curriculum. See, for example, Boas (1947), Powell, Jensen, Cranmer, & Cook (1981), SD85 (2010), and Williams & Snively (2016). Beneath the surface, however, everything is not fine for Kwakwala, nor for the other British Columbia Indigenous Languages. Reports over the past twenty years indicate that programming in British Columbia has not improved since the 1970s, the time when Indigenous language school programs were first introduced in schools. Anecdotal observations from Levine (1978), which were republished in Levine (2009), classroom observations from Anthony, Davis, & Powell (2003), school improvement plans (Eke Me

Xi, 2016), and Ministry review (BCED, 2016c) tell similar stories. These point to the lack of effective language programming, the need for trained fluent speakers, and the need for language supports and materials. The Ministry report (BCED, 2016c) also identified the lack of clearly defined and delineated language specific goals in the curriculum guides, which are written in, and structured predominantly through, the English language. The number of speakers is in decline and there are fewer and fewer language teachers who are fluent as the years pass. As a result, language experiences in schools have not been effective at meeting the goals of situational fluency, where students gain the capacity of communicating in the language relative to a variety of experiences.

In order for students to gain situational fluency in Kwakwala, teachers need fulsome examples of contextualized language use and opportunities to collaborate with language experts. In the context of this study, experts are community Elders who collaborate with staff as a professional learning community to develop and implement contextual and locational authentic language activities and communicative experiences. This is recognized in the curriculum guide for Kwakwala (SD85, 2010), the Ministry review of Indigenous language education in British Columbia (BCED, 2016c), and observations of Indigenous and marginalized languages world wide (Hall, Smith, & Wicaksono, 2011; Hinton, 2003). What is not clear, however, is how to make this happen.

Previous studies on Kwakwala education and revitalization have not directly examined the detailed aspects of the language in lessons and support materials, and whether the technologies designed to assist teachers and researchers are effective. There are no data-driven analyses that examine whether Kwakwala activities meet required expectations and teaching methods. There are no studies that examine the effect that the English focussed curriculum expectations have on language materials, or whether the curriculum documents provide sufficient examples and interconnections between the materials and the curriculum. There are no studies that examine whether curriculum guides, lesson activities, or support materials provide effective resources for staff who are learning the language, a factor that is becoming more and more common in Kwakwala programs. Hinton, Huss, & Roche (2018) have noted a lack of involvement from applied linguistics to assist in the efforts to revitalize Indigenous languages. In summary, the 2016 Ministry report concludes that language programming is not meeting expectations (BCED, 2016c), however, like other previous studies, the report does not provide a detailed analysis of the language in materials and resources, and whether these meet the goals of the curriculum, teacher and researcher needs, and community language revitalization activities.

What is missing from current Kwakwala research and improvement initiatives are the evidence-based practices that are common in educational and applied linguistic contexts in language education for national languages. Such practices would require an

examination of the materials and the results from learning activities as part of the general improvement process. These practices also include the development of professional learning communities to engage in improvement initiatives, such as those common in Canadian schools (Kaser & Halibert, 2013; NOIIE, 2020; Hulley & Dier, 2008; O'Neill & Conzemius, 2005). A professional learning community (PLC) is a working group of practitioners and experts who collaborate to identify problems, share expertise, and work to develop improvements. What is also missing are administrators with the Kwakwala expertise to assist with research-based improvement planning, program supervision, and development activities for materials such as textbooks, workbooks, word lists, unit plans, benchmarks, and exemplars.

This dissertation is based on four research reports on the activities and analyses undertaken during the study. The first paper, (Wilson P. , 2017b), reports on the use of Situated Learning to frame the investigation. Situated learning claims that learning is enhanced through connections and context of social and cultural settings (Lave & Wenger, 1991; Rogoff, 2003; Vygotsky, 1986). The second paper, (Wilson & Hemphill, 2017), reports on the activities and preliminary findings. The third paper, (Wilson P. , 2019), provides a detailed report on the concordance between the inflectional markers in the course materials and the expectations of the curriculum, and the fourth paper, (Wilson & Wilson, 2020a), examines the difficulties developing written materials, updating legacy

written documents for use in schools and community research, and the development of a parser to correct keying errors, convert orthographies, and analyze documentation.

### **1.13. The need for applied tools for improvement**

Ongoing reflection and examination of classroom activities and materials is a current practice in education for school improvement (Hulley & Dier, 2008). At Eke Me Xi, this includes ensuring that the goals of the Indigenous communities are addressed. The goals from |Gwa'sala-Nakwaxda'xw| community Elders and noted in the curriculum indicate that language materials need to be accurate and reflect the Indigenous values, social norms, cultural activities, dialect, and knowledge (personal communication at Elder's Council, (SD85, 2010)). Other examples of teacher activities include gathering language evidence to improve initiatives and examine whether the language materials meet the expectations of the curriculum.

In addition to the educational practices noted above, Indigenous language teachers who are not fluent face the more difficult task of engaging in primary research with Elders to develop lessons and activities. Teachers are required to conduct primary research when they do not know, or have documentation regarding, the specific language needed to conduct a lesson. When this study was just starting, for example, students were working in small groups developing board games to encourage respectful behaviour. To integrate

this activity with the Kwakwala program, it was necessary to research the terms and phrases to use in game play. I worked with Elders to elicit the language. In some instances, I worked one on one with an Elder, and on other occasions I worked in the classroom with Elders while students were playing the games. Both methods of elicitation provided opportunities to acquire, document, and check the language for the games being developed. Although the documentation of game playing language can be undertaken in classroom settings with Elders, it might pose difficulties for non-fluent teachers. In addition, conducting primary research with Elders for each new language activity poses challenges and adds to teacher workload.

#### **1.14. Addressing the gaps**

This study addresses the gaps in previous examinations of Kwakwala programming. It does this by focussing on evidence-based analysis of the language and settings in the materials. This addresses the Ministry 2016 report that recommends accommodating the specific structures of the language (BCED, 2016c, p. 32). It also addresses the need to support teachers and researchers who are learning the language, as noted in Hinton (2003). In addition, it challenges the Ministry of Education requirement that communicative-experiential methods for Indigenous language activities are appropriate in settings where a language is taught by non-fluent speakers.

School-based practices stress the importance of supporting and engaging staff and stakeholders as key to improving program implementation and materials development to school improvement initiatives (Hulley & Dier, 2008; NOIIE, 2020) and change (Fullan, 2001). This is especially true for Indigenous language programming, where engagement from community Elders and language experts is key to programming. Together, these "communities of practice" (Lave & Wenger, 1991; Wenger & Wenger-Trayner, 2015), known as "professional learning communities" in education (Hulley & Dier, 2008), provide the capacity to overcome the lack of materials and school-based interface with traditions (NOIIE, 2020; SD85, 2010).

The need for professional learning communities is significant as there are more and more Kwakwala teachers who are not fluent and in need of direct language supports. Gone are the days when curriculum development occurred in the back rooms of top-down programming (Hulley & Dier, 2008). This has been replaced by PLCs (professional learning communities) which engage community Elders, teachers across the curriculum, community researchers, and leaders, as recommended in NOIIE (2020). This is even more important while we still have Elders who grew up speaking Kwakwala as their first language. At present, there are less than 20 fluent speakers in the |Gwa'sála-'Nakwaxda'xw| community where the study takes place, and less than 200 fluent speakers of Kwakwala across communities.

### **1.15. Study Motivation**

The 2016 Eke Me Xi School Plan (Eke Me Xi, 2016) and the 2016 Ministry report (BCED, 2016c) are key motivators for this study. The Eke Me Xi plans seeks to improve Kwakwala language learning, integrate Kwakwala with other subject content, provide professional development, and continue the research basis for school planning (Eke Me Xi, 2016). Key among the recommendations in the Ministry report is the recognition that many language teachers are not fluent teachers and need supports and links between the curriculum expectations and the language through detailed examples and analysis. This is based on the understanding that although it is probable that a fluent speaker would be able to select appropriate language for a lesson without such detail, it is unlikely that a teacher language learner would be able to do so. For example, a fluent speaker would be able to provide examples of language for an expectation that states: "students will demonstrate appropriate language while interacting with Elders using polite requests and responses," whereas a language learner might not know how to frame a polite request. This example illustrates the key role Elders play as language experts in the development and implementation of language activities, as recommended in the curriculum (SD85, 2010) and Ministry report (BCED, 2016c). This is especially true in contexts where teachers and researchers are learning the language, as noted in the curriculum guide (SD85, 2010) and the Ministry report (BCED, 2016c).

In order to provide effective connections between expectations and language, the study integrates Elders into the development and implementation process. Elders provide the expertise to ensure that attention is paid to variations in language structure based on location, such as in the classroom or on the land, and variations based on social activities, such as language used at formal occasions, informal settings, and narratives. Elders also provide expertise to ensure that materials present social and cultural accuracy in the visual and audio media that accompany materials.

#### **1.16. Study Overview**

The study included two stages: development of materials and analysis. The development phase took place over a three-year period. During this stage I taught introductory Kwakwala and assisted with the development of school-based support materials and a community-based project revitalizing traditional place names. This included instructional activities and materials development at school and field trips to traditional territories. These assisted with school activities, curriculum development, and place name revitalization. The second stage of the study, analysis, examined the materials developed in the first phase and other pedagogical materials developed for Kwakwala to link them to the curriculum expectations and assess whether they provide accurate language and supports to assist curriculum and community goals.

### **1.17. Materials Development**

The methodology during stage one was based on participant observation and Participatory Action Research (Junker, 2018), and included collaboration with school-staff, researchers, and Elders. Development and research activities were based on community recommendations (personal communication), the school plan (Eke Me Xi, 2016), and the approved curriculum guide (SD85, 2010). The development and research activities were informed by best practices in education and applied linguistics, ethics clearance, as well as evidence-based research from Indigenous language programming, documentation, and revitalization.

Materials development focussed on developing Kwakwala language materials to address the activity suggestions from teachers and activities of the land-based researchers. In both settings, staff are not fluent in the language. This focus is based on the recognition that Indigenous language programs are more and more reliant on non-fluent teachers and researchers (BCED, 2003). The motivation is based on studies that recommend language supports for these teachers and researchers (Hinton, 2003; 2004; Hall, Smith, & Wicaksono, 2011).

### **1.18. Analysis**

During the second stage of the study, I analyzed the materials using evidence-based

research of materials at Eke Me Xi and the land-based project. The goal of the evidence-based analysis was designed to enable teachers, researchers, and administrators to reflect on the materials. This analysis examines language and knowledge accuracy, whether the materials comply with curriculum goals, and support ongoing improvement initiatives.

The methods used in this study are grounded in applied linguistics and education methods and draw on linguistic research to inform language description. The method includes anecdotal observations made during the development of materials and four formal analyses designed to uncover aspects of the language in the completed materials. The four analytic areas examine whether the range of Kwakwala meets curriculum expectations, whether the range of visual and auditory supports situate language with Indigenous knowledge and settings, whether narratives reflect Indigenous values and social expectations, and the difficulties encountered with written documentation during development activities.

In order to examine the Indigenous language materials developed at Eke Me Xi, this study adopts a transdisciplinary analytical approach. This approach utilizes linguistic, applied linguistic, and educational processes. Linguistic methods focus on acquiring and describing specific aspects of language that are highly focussed and ensure that non-fluent researchers are able to acquire accurate language in collaboration with their language expert colleagues. This includes, for example, methods of conducting semantic

analysis in Kwakwala used in Sardinha (2017) from Matthewson (2004). Applied linguistic examinations address integrated language and settings and provide methods to address whether or not Indigenous content in materials is presented with socially and culturally appropriate settings, such as pictures, video, and audio (Wilson & Hemphill, 2017). Educational examinations include studies that examine compliance between materials and the curriculum by collecting evidence from materials to assist with improvement planning (Hulley & Dier, 2008; Wilson P. , 2019).

In summary, Indigenous second language education and activities involving place names and descriptions of territories need to attend to a much more expansive use of language than those typical in linguistic analysis or geographic surveys. Teachers and community researchers engage in a range of activities from data entry, ensuring that materials reflect Indigenous content and settings in various media (e.g., pictures, music, videos), as well as compliance with the curriculum and assisting with improvement planning. These activities also include review for accuracy in grammar, transcription, social settings, and genre.

### **1.19. Study activities**

During the study I was an active participant in the development of materials and processes to assist the two projects, as well as a researcher engaged in this study. This

method of participant-research enabled me to gain first-hand knowledge of the issues that affect the projects, and work collaboratively with Elders, teachers, and researchers to develop interventions.

This study focusses on the Kwakwala language in the materials in order to address the needs of teachers and researchers who are learning the language. The analysis samples data from the materials developed while assisting the two projects and examines whether the range of language in the materials meets the goals of the communicative-experiential curriculum in the school-based project, and the situational requirements in the land-based project. In addition, the inclusion of the primary and secondary research undertaken in the land-based projects provides opportunities to examine the difficulties encountered in the school and in community research, as well as observe the way in which community research can support school programs. The scope of the analysis then, examines whether the materials provide the range of language required to enable teachers to implement communicative activities with students, and enable land-based researchers to describe and document place names and locational language in the homelands, as well as examines how community research interfaces with schools. In addition, the analysis samples data from language lessons based on grammatical functional methods and Kwakwala word lists used in educational activities. This provides a comparison between these various methods and their capacity to meet curriculum objectives.

## 1.20. Claims to Originality

The study is motivated by the need to improve Indigenous language materials for communities and schools where language teachers are researchers who are not fluent. The study is transdisciplinary, bringing together approaches from linguistics, applied linguistics, ethnophysiology, learning theory, education, and cultural mediations as a foundation to study the development and examination of Indigenous language materials. In order to provide a unifying approach to the use of these various disciplines, Situated Learning (Vygotsky, 1986; Rogoff, 2003) provides the overarching theoretical framework that ties the disciplines, theories and approaches together.<sup>14</sup> This approach emphasizes the claim that learning and documentation is enhanced through connections and context to social, land-based locations, and cultural settings. Evidence-based analysis provides the overarching framework that guides the examination of the materials that result from development activities (NOIIE, 2020). The research method is Participatory Action Research (PAR), where I adopt the goals of the community and the school, participate in the teaching and development of school materials, and assist researchers documenting placenames for the |Gwa'sala-'Nakwaxda'xw| community (Rust & Hansen, 2013; Chevalier & Buckles, 2013; Junker, 2018).

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<sup>14</sup> This follows the practice adopted in Mark and Turk (2021), which recommends that a central unifying or overarching theoretical model be adopted.

The study addresses the need to change the paradigm of Indigenous language research to adapt research design on issues of pedagogy and documentation, rather than linguistic theory. This is based on the claim that activities that teach and revitalize a language are different from those that are common in linguistic analysis. First, teachers and researchers need to integrate a wide variety of language knowledge to deliver a second language program, whereas linguistic analysis examines much more constrained units of study. Second, pedagogical resources are judged on their capacity to mediate curriculum expectations with student language acquisition, whereas linguistic analyses are judged on their capacity to uncover language universals. Third, Indigenous language educators need language descriptions that are informed by best practices for language learning and verified based on evidence from learning. Linguistic research, in distinction, develops language descriptions that are informed by theories seeking to uncover the universality of language that are verified by distancing the researcher from the language through meta-language. Linguistic descriptions, in summary, consider different questions in their planning, language development, and research.

The development process also addressed the British Columbia method of language education, which is based on communicative-experiential methodology. Such an approach is based on the belief that language activities are best approached from a communicative standpoint, where language activities are natural and not constrained by

complexity of language. Fluent speakers, thereby, are able to utilize their fluency to ensure that language activities match the communicative activities and experiences required in the curriculum. Such a method accommodates for the lack of pedagogical materials and the need to develop language descriptions, by placing the burden of language education on the fluency of its teachers rather than the need for substantial documentation.

Although the communicative-experiential method is used in programs for majority languages, it is based on a number of unproven presuppositions: first, that second language learners (L2) will benefit from an approach that is similar to the ways young children acquire their first language (L1),<sup>15</sup> second, that teachers and researchers are fluent speakers, and third, that there is a wide range of materials and supports for teachers. These three presuppositions are not true in Kwakwala, where learners have little or no exposure to the language as young children and have lost the ability to discriminate Kwakwala sounds not found in English, teachers are learning the language, and the range of pedagogical materials is not well developed, and especially lacking in capacity to assist teacher-learners.

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<sup>15</sup> Research on first language development indicates a "cascading model of development" (Werker & Gervain, 2013, p. 909) where early language learning by newborn infants demonstrates that the capacity to perceive a wide range of speech sounds is replaced by a focus on the sounds of the language they are learning by the age of 12 months.

The disciplinary approaches in this study include linguistic (Blevins, 2016) and applied linguistic (Norris, 2004; Van Leeuwen, 2005) methods for language analysis.

Ethnographic coding is used to document and analyse the materials developed in the study to compare treatments (i.e., the materials) to effects (i.e., whether the materials meet the curriculum and community goals) (Saldaña, *The Coding Manual for Qualitative Researchers*, 2016). Corpus analysis is used to examine the range of language found in the materials at Eke Me Xi. This is a method where a data sample is used "to analyse the systematic patterns of variation" in a sample (Biber, 2012, p. 159). In this study, the range of inflectional marking in the materials is compared with the expectations in the curriculum. Ethnophysiology frames the documentation of place names and landforms with connections to settings, social, and cultural traditions (Mark & Turk, 2021).

Ethnophysiology documents the natural landscape to include language and history, and constructs "ontologies of the geographic domain" (Mark & Turk, 2003, p. 1).

Ethnophysiology also includes the study of toponyms across languages. This is particularly relevant to the land-based work revitalizing the toponyms for the traditional territories. Evidence-based research for school improvement is based on "Spirals of Inquiry" and frames materials development (NOIIE, 2020; Kaser & Halibert, 2013).

Spirals of Inquiry recognizes that improvement initiatives are cyclical and constantly evolving, like a spiral. There are six stages in this method, scanning, focusing, developing a hunch, new professional learning, taking action and checking that a big enough

difference has been made (NOIIE, 2020). Material culture provides the methodology to examine the land-based and school-based materials as "intercultural objects" that researchers use to gain insight into the language as well as social and cultural perspectives (Glass, 2006). Translanguaging is based on the theory that bilinguals have a single, or unitary, linguistic competence, as opposed to a dual or bifurcated one (Garcia & Wei, 2014). In the classroom, Translanguaging makes use of a learners' full linguistic repertoire to make meaning without thinking of the fact that they have one language that is different from the other (Garcia & Wei, 2014). Linguistic Landscape refers to the visibility and salience of languages on public and commercial signs in each territory or region (Landy & Bourhis, 1997; Vessey & Sheyholislami, 2020). By including signage and information in Kwakwala classrooms and the community, school staff and students observe and contribute to language vitality (Gorter, 2017; Valjarvi & Kahn, 2017; Gorter & Cenoz, 2015). The improvement initiative at Eke Me Xi is similar to the Two World View. In the Two World View, the overall expectations of the wider educational system (i.e., state or province) are maintained, while the Indigenous community develops programming in their traditional language and knowledge systems (Wilson & Kamanā, 2014). This promotes the integration of Indigenous language and knowledge throughout school subjects and in the community.

Situated learning and evidence-based analysis provide the basis for the following knowledge claims which recognize that:

- languages are social and situated in social, cultural, and land-based settings (from Hymes (1972))
- language learning is enhanced through connections and context of social and cultural settings following Vygotsky (1986) and Rogoff (2003)
- school-based improvement initiatives are more effective when they include evidence-based analysis based on Spirals of Inquiry, e.g. NOIE (2020), Kaser & Halibert (2013), and adopt a collaborative professional learning community for school improvement, e.g. Kaser & Halibert (2017), Hulley & Dier (2008).

School-based and land-based materials provide data to examine the accuracy of situated and authentic language in language materials |Bak<sup>w</sup>əm<sup>k</sup>ala| and traditional knowledge, as well as connections with the Provincial curriculum (Material Culture: (Glass, 2006)).

These claims guide the unique approach to school-based Indigenous language improvement programming that include:

- extending previous descriptions of |Bak<sup>w</sup>əm<sup>k</sup>ala| to include social and cultural activities, and social cognition
- examining the accuracy of language materials, including connections to social, cultural, and ethnophysiology

- situating language materials in subject content that is adapted to foreground Indigenous knowledge
- examining explicit links between Indigenous language and knowledge and Provincial curriculum expectations
- utilizing Participatory Action Research and evidence-based inquiry including qualitative coding to analyze the accuracy of language and language activities

In summary, if we acknowledge that Indigenous language activities are enhanced through connections with traditional knowledge, settings, pragmatics, and social cognition, then we need to develop language descriptions, materials, and evidence-based improvement procedures that include these systems. This leads to a much more complex unit of analysis than is common in a single discipline. In order to examine the accuracy of materials to meet these demands, the study utilizes a transdisciplinary unit of analysis. This expanded unit provides the means to examine the inflectional system, evidence of authentic settings and locations in materials, authentic pragmatic systems in narratives, and documentation for language learning and ethnophysiology that supports teachers and researchers who are learning the language.

### **1.21. Study Limitations**

This study is limited to developing and analyzing the materials developed and/or used in the production of materials at Eke Me Xi. The study does not evaluate the students, teachers, or community. Eke Me Xi materials were developed for use in the "Introduction to Kwakwala 11" course (SD85, 2010). No activities or materials were developed for special needs students due the small population size at the school and the potential of the information leading to the identification of the student.

Although some field trips included joint activities with the Gwa'sala-'Nak'waxdaxw Elementary School, the activities for elementary school students are not included in this study. Examples of these activities included digging clams and visiting the homelands. Although the materials that were developed on these field trips were shared with the elementary school through the Our Voices Our Stories website (Wilson P. , 2020e), the study did not gather feedback on the materials. In addition, no attempt was made to evaluate or analyze materials used for teaching Kwakwala at the elementary school or any other schools in School District (85).

## **2. The Educational Model for School Improvement**

The school improvement model "Spirals of Inquiry" (NOIIE, 2020) adopted in this study is practiced in Canadian schools (Hulley & Dier, 2008) and is the recommended method for school-based improvement initiatives in British Columbia (NOIIE, 2020). It is used throughout School District 85 schools including Eke Me Xi Learning Centre, where the study takes place. The following sections provide an overview of the practices that impact this study: professional learning communities, cyclical model of curriculum improvement, SMART Goals, evidence-based analysis of materials, subject integration, and cultural shifts and leadership.

### **2.1. Spirals of Inquiry**

The school-based study adopts the curriculum improvement method used at Eke Me Xi Learning Centre and the recommended procedures at School District 85. Specifically, it adopts the "Spirals of Inquiry" process used to frame improvement activities in British Columbia schools (NOIIE, 2020; Kaser & Halibert, 2013), and at Eke Me Xi (Eke Me Xi, 2016; Hubbard & Demoe, 2017). Spirals of Inquiry is a method that engages teachers as researchers to examine their school activities and implement improvements using evidence-based analysis. This approach is supported by the B.C. Ministry of Education and is used in School District 85 (Port Hardy). The Spirals of Inquiry process is based on

the observations that curriculum improvement is continuous and cyclical, evolving through six stages:

... scanning, focusing, developing a hunch, new professional learning, taking action and checking that a big enough difference has been made.

(NOIIE, 2020)

Spirals of Inquiry, in particular, is a method of curriculum improvement that has shown positive results in school-based improvement initiatives for Indigenous learning opportunities.

### **2.1.1. Professional learning communities**

The recommended practice for the development of Indigenous language school-based activities is engagement with Indigenous community members, as noted in NOIIE (2020). These collaborative groups are known as professional learning communities (PLC) in educational settings and are a common practice for improvement activities in schools, especially in situations requiring cultural shifts, as noted in Hulley & Dier (2008, p. 45). PLC practices developed from research based on "Situated Learning" in works including Lave & Wenger (1991) and Rogoff (2003). This theory claims that learning is enhanced through connections and context of social and cultural settings (Lave & Wenger, 1991; Rogoff, 2003; Vygotsky, 1986).

### **2.1.2. SMART Goals**

Both the school-based and the land-based studies were developed with SMART goals in mind (O'Neill & Conzemius, 2005). This is a method of setting goals that aligns with Spirals of Inquiry and school improvement planning. SMART goals need to be "specific, measurable, attainable, results-focussed, and time-bound" (Hulley & Dier, 2008, p. 214). In this study, both the materials development phase of the study and the analyses comply with the principals of SMART goals.

## **2.2. Language Analysis**

The analyses in this study focus on measuring materials using applied linguistic analytical tools to examine the language data. Corpus analysis of the inflectional markers compares the materials to the curriculum, multimodal analysis examines the connections between the materials and the expectations of Indigenous knowledge and traditions, comparative analysis is used to examine social cognition in narratives, and error analysis is used to uncover the difficulties encountered in documentation.

### **2.2.1. Evidence Based School improvement activities**

Without evidence, you are just another person with an opinion.

(Andreas Schleicher, OECD, quoted in Kaser & Halibert (2013)).

In today's educational world, school improvement planning is one of the most important aspects of school activities. Teachers and administrators are expected to continually examine their practice and adapt and develop materials, evaluate practices, implement new ministry initiatives, meet student needs, and reflect community interests. In B.C. schools, teachers apply evidence-based research theory and methods to develop and improve activities with students, reflect on successes and difficulties, and develop innovative experiences for students (NOIIE, 2020; Timperley, Kaser, & Halbert, 2014; Hulley & Dier, 2008).

Spirals of Inquiry provides two advantages for this study and the development of Indigenous language materials more generally. First, it provides an additional connecting point between school-based processes and Indigenous language and knowledge, and second, it focusses on continuous reflection and innovation. In the former, the inclusion of Indigenous staff into school-wide curriculum improvement plans may help to overcome the isolation of Indigenous language activities from other programming, as noted by Indigenous language teachers from Campbell River (personal communication) and in the Port Hardy area (Wilson & Hemphill, 2017). In the latter, the focus on reflection and innovation provides a positive viewpoint on curriculum development, where areas for improvement are seen as new opportunities.

### **2.3. Subject Integration**

Subject integration between Kwakwala and the other courses at Eke Me Xi is an important component in the Eke Me Xi 2016 school improvement plan (Eke Me Xi, 2016). The integration model at Eke Me Xi seeks to provide Indigenous language and knowledge-based activities to be used in experiences that fulfill Provincial curriculum expectations. This is similar to the "Two World" model from the Hawai'ian language education program (Wilson & Kamanā, 2014). In the Two World model, the overall expectations of the wider educational system (i.e., state or province) are maintained, while the Indigenous community develops programming in their traditional language and knowledge systems. For example, the study of tides in grade 8 and 9 science at Eke Me Xi occurred along with clam harvesting. Students learned Kwakwala words and phases for the tides in the Kwakwala class which were reinforced in the science program. Other examples of Kwakwala integration occurred with B.C. First Nations Studies 12 (BCED, 2006), B.C. First Peoples 11 (BCED, 2016a), Contemporary Indigenous Studies 12 (BCED, 2016b), English 10 and 11 First Peoples (BCED, 2010), and the Food and Nutrition class.

### **2.4. Indigenous language subject integration**

As noted above, the Eke Me Xi School Plan (2016) calls for integrating Kwakwala language experiences into other course activities. This recommendation calls for not only

integrating Indigenous knowledge and processes into the regular curriculum, but also the use of Kwakwala during instructional time in other subjects. This is similar to the Two World View used in Hawai'i.<sup>16</sup> The methodology that is used in the development of materials and activities in this study follows the Eke Me Xi School Plan (2016) and works towards the practice of two-way integration, where Kwakwala and Indigenous knowledge is used in other courses, and Kwakwala classes utilize concepts and themes from other courses.

The B.C. curriculum and graduation documents, however, do not state that an Indigenous language can be used to fulfill language graduation requirements (BCED, 2020b; BCED, 2020d). The only languages that fulfill language requirements are English or French, the two official languages in Canada (Government of Canada, 2021). This includes students in a regular program or immersion. For example, a student in an English school taking an "immersion" course in French, or a student of French ancestry attending a French language school. The B.C. education documents are based on and conform to the Charter of Rights of Freedoms (Government of Canada, 2021) and are outlined in the language rights for B.C. schools (BCED, 2020b). Immersion programs in B.C. that are formally noted are those for French, one of the two languages recognized in the Canadian Charter of Rights and Freedoms.

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<sup>16</sup> From Wilson & Kamanā (2014) and personal observations and discussions with administrators and teachers, field study, International Conference on Language Documentation and Preservation (2017).

### 3. Theory and Unit of Analysis

Situated learning and ethnography of communication provide the transdisciplinary framework to develop, research, and examine the materials. Situated learning provides the direction to enhance learning through connections and context of social and cultural settings, and ethnography of communication provides guidelines to research and document the social, cultural, and social-cognitive systems in Kwakwaka'wakw needed to develop materials for the communicative-experiential method of teaching required in the Province.<sup>17</sup> In addition, these theories also provide the framework to integrate Kwakwaka'wakw and traditional Indigenous knowledge systems into subject instruction, where Indigenous language and knowledge systems provide alternatives to "Western-based" ones (Wilson & Kamanā, 2014).

Preliminary analysis of the Eke Me Xi program before this study began indicated that activities at the school integrated traditional knowledge and skills into a range of subject courses. However, the same investigation concluded that language integration was not evident (Wilson P. , 2017b). These results are consistent with a program review at |T'łis̓aḷagj'łakw| School in Alert Bay (Anthony, Davis, & Powell, J, 2003).

The development of materials and activities undertaken in this study build on the results

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<sup>17</sup> See BCED (2003) and SD85 (2010) regarding the communicative-experiential method.

of the earlier studies and focussed on including language activities as well as cultural knowledge into other courses. The analysis examines the degree to which the treatment activities resulted in language integration into Eke Me Xi activities and meet Provincial subject curricular expectations, using |Bakwamkala|, the dialect of Kwakwala spoke by the Gwa'sala-'Nak'waxda'xw Nation, as a means of instruction.<sup>18</sup>

Both the school-based and land-based projects are motivated by the heightened awareness for language revitalization and documentation. This is driven by the decline in speaker numbers, the on-going requirement to improve language revitalization and documentation activities, and the need to build Kwakwala language capacity for community researchers and teachers (Eke Me Xi, 2016; Anthony, Davis, & Powell, J, 2003; Wilson & Hemphill, 2017). In addition, the lack of fluent teachers and researchers noted at Tsulquate is a common problem for Indigenous language revitalization and is considered a major impediment to effective programs, as noted by the British Columbia Ministry of Education in a 2016 report (BCED, 2016c).

### **3.1. Situated Learning**

The general theory that informs the research and analysis activities is based on Situated Learning. This theory claims that learning is enhanced through connections and context

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<sup>18</sup> |Bakwamkala| is the name chosen by |Gwa'sala-'Nak'waxda'xw| Elders to represent their language.

of social and cultural settings (Lave & Wenger, 1991; Rogoff, 2003; Vygotsky, 1986).

This theory informs the acquisition of "contextualized" language for place name revitalization and school-based language materials and instruction.

### **3.2. Ethnography of Communication**

The second general theory is Ethnography of Communication, originally developed by Hymes (1972) and expanded in works on ethno-syntax (Newman, 2002; Chafe, 2002), ethno-pragmatics (Goddard, 2006), and social cognition (Goddard, 2013). These theories claim that language analyses need to include the communicative contexts that occur during authentic communication, including locations, situations, social setting, cultural knowledge, pragmatics, and social cognition. This aligns with Situated Learning by requiring these aspects of communication in language analysis.

### **3.3. Unit of Analysis**

This study adopts a "unit of analysis" that aligns with Situated Learning and Ethnography of Communication. This provides an approach to improve school and research activities that are communicatively based. A unit of analysis is the focus for the information required in a descriptive analysis. If this were a study on Kwakwala phonology, for example, the "unit of analysis" might be the phoneme. However, as this study examines Kwakwala communicative information in place names and experiential activities, it

requires a more expansive unit of analysis. The minimal unit, therefore, is a "communicative act," such as a sentence, a place name, or a hand gesture. The description of a "communicative act" contains not only grammatical structure, but also the location, situation, social setting, cultural knowledge, and social-cognitive knowledge that enable speech act participants to mediate communication and derive meaning.

### **3.4. Situated documentation**

As noted above, the learning theory that informs the research is Situated Learning, which claims that learning is enhanced through connections and context of social and cultural settings (Rogoff, 2003; Vygotsky, 1986). Without these connections, accuracy of language and traditional knowledge is at risk, and students may not be able to benefit from the intercultural connections between the Indigenous world and the national one. Situated Learning provides the justification for the claim that traditional Indigenous activities enable connections and context of traditional language, social and cultural systems.

The method of acquiring and vetting language for the materials and analysis is different from the standard practices of "linguistic fieldwork" elicitation, as noted and utilized in Sardinha (2017) and based on Matthewson (2004) and Bochnak & Matthewson (2015). Fieldwork methodology, such as Matthewson (2004) was developed for semantic analysis

of a language the researcher does not speak. These methods presuppose a number of conditions that are not readily met in educational or community environments. Such requirements include graduate level training in fieldwork processes, semantic language analysis, and an expectation that language elicitation is motivated by linguistic theory.

Instead of utilizing linguistic fieldwork methods, this study is based on "situated documentation," where in-situ language acquisition during authentic experiences provides the method to gather language to utilize in educational or community revitalization activities (Grenoble, 2007; Grenoble & Martin, 2019; Molina-Vital & Manley, 2021). Situated documentation also provides opportunities to engage students and community members in language documentation and encourages wider involvement in revitalization activities in class and on the land, thereby assisting teachers and researchers to develop materials (Molina-Vital & Manley, 2021). This method focusses on the connections between language use and the contexts in which it occurs, rather than the categorization of units based on structural similarity. This ensures that language is documented to account for the expanded unit of analysis noted above.

Situated documentation also ensures that expert Elders are provided with the best possible "mediative environment" during an activity. For the purposes of this study, a "mediative environment" is one where the "communicative acts" are situated in an

authentic setting where the communication might be expected to occur.<sup>19</sup> For example, communicative acts that occur during clam digging, therefore, are best documented during an actual clam digging activity. Descriptions of land-based settings, in similar fashion, would occur on-site in order to best provide direct mediation between the Elder and the environment. For example, during a land-based trip to examine the |'Na'kwaxda'xw| village sites near the entrance to Seymour Inlet, we stopped to examine the area around |Tigwaxsti|. This is a settlement containing several big houses built on the side of a hill. I had known about this site, its location, and village structure from my work with James Henderson in the 1980s during mapping activities while viewing charts (Wilson & Henderson, Place Name Charts, 1982a). During the land-based viewing of the area in 2019, Chief Tom Henderson provided additional detail about the homes on the hill, such as where fresh water was found and where people parked their boats and canoes. Perhaps because it was a windy day blowing our boat past the village as we examined the location, Chief Henderson described the locational and seasonal variations in the winds that occur in the area, where a wind that originates from the North might actually blow in an Easterly direction in winter at |Tigwaxsti|. This level of detailed information is difficult to acquire unless the participants are on-site and can experience the physical environment directly.

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<sup>19</sup> The term "mediation" is used in sense developed by Vygotsky (1986), where situating and contextualizing learning improves learning and communication.

In addition to providing "prompts" for members of a research team as noted in our trip to [Tigwaxsti], acquiring language during "real events" mitigates for the use of language structures that are subconscious. Subconscious aspects of language are often difficult for speakers to explain and require linguistic methods and analysis to uncover. In Kwakwala, for example, subconscious structures include locational information that is coded in the grammar with deictic markers, as discussed in Rosenblum (2015).

Deictic reference is so automatic, so unconscious, and so embedded in speech that speakers have trouble noticing which forms they have used and why.

(Rosenblum, 2015, pp. 4-5)

Visibility markers, for example, provide evidential information and occur on nominals to indicate whether or not the speaker is able to see, or is sure about, an object or person.<sup>20</sup> These markers are difficult for speakers to translate and are not found consistently in data sets, as noted in Littell's comparison between data found in Boas (1947) and the data set in his own work (2016). Situated documentation proposed in this work accommodates for subconscious structures and other variations that are often difficult for speakers to explain by documenting language during activities in the actual locations and settings where the communication acts naturally occur. For example, in order to develop a language-based lesson on Kwakwala phrases to use while playing [Alaxwa] (Lahal, or 'bone game'), teachers would need to work with Elders to document language while playing the game.

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<sup>20</sup> See Littell's discussion of visibility markers as evidentials and review of Boas (1947) in Littell (2016, p. 581). The analysis of visibility marking as an evidential is also supported in Wilson (2017b) and Bach (2007).

In this game, two teams compete to guess the location of two bones hidden in the hands of a member of the opposing team. During game play, Elders will speak about the location and existence of the hidden items. The most efficient method to document game playing language would be to video the activity while Elders are playing the game. This video could then be used to develop written materials to accompany the video. Together, the written materials and video provide details about the language and context of the communicative acts.

In summary, situated documentation provides a method of acquiring language to enable effective documentation of communication acts. This method is consistent with the theories of situated learning (Vygotsky, 1986) and communicative competence (Hymes, 1972) that frame this study. Communicative competence includes situational and social use of language (Hymes, 1972) and represents the linguistic knowledge of "cultural insiders" (Goddard, 2013). It also provides the means to ensure that language documentation includes information based on the expanded unit of analysis needed for communicative acts. Perhaps most importantly, it enables teachers and researchers to engage in language documentation without the need for extensive training in linguistic methods of language acquisition.

### **3.5. Communicative-experiential method**

The Eke Me Xi Kwakwala activities and materials developed in this study are based on the "Introduction to Kwakwala 11" course curriculum included in the Kwakwala Integrated Resource Package (IRP) developed for use in School District 85 (SD85, 2010). British Columbia Indigenous language programming is based on the communicative-experiential method (BCED, 2003) where activities focus on authentic and experiential language activities that are not constrained or organized by complexity of language structure. In addition, Ministry curriculum language expectations are stated in language independent terms and without regard to the language structures in documents, as noted in a recent Ministry report (BCED, 2016c).

Although a communicative-experiential method has been shown to be effective in school settings, as noted in BCED (2003) and SD85 (2010), the ability to create this environment requires either a high communicative competence from the language teachers or a fulsome set of support materials for teachers and researchers. Unlike traditional functional-communicative lesson design, where classroom activities are constrained to a gradual introduction of language structures, such as those developed for Kwakwala in the 1970s and 1980s (Wilson & Henderson, 1981c; Powell, Jensen, Cranmer, & Cook, 1981), communicative-experiential methods develop language activities related to real-world activities. These activities stress authentic language

experiences that are contextually relevant and consistent with Indigenous knowledge, as required in the curriculum document (SD85, 2010).

Although the communicative-experiential method provides a model that enables authentic communication and integration of traditional Indigenous knowledge and language into the overall curriculum, such as the Hawai'ian school-based program (Wilson & Kamanā, 2014), it poses significant challenges for teachers who are learning the language (personal communication with teachers at ICLDC 5 school-based seminars, 2017). For example, a language learner as teacher or researcher may not be able to determine whether a sentence is grammatically correct. In addition, language learners need to acquire not only grammatical competence, but also communicative competence (Hymes, 1972) in order to implement a communicative-experiential program.

Communicative competence includes situational and social use of language, such as the appropriate way to tell a story, apologize to someone, vary one's language depending on situations and settings, or give directions. Communicative competence represents the linguistic knowledge of "cultural insiders" (Goddard, 2013) and connects one's language to one's worldview.

In addition to posing difficulties for teachers and researchers who are not fluent, the lack of language specific detail in documents creates an additional challenge for developing

materials and supports intended for those who are learning the language. For example, the "Introduction to Kwakwala 11" IRP provides Kwakwala examples with some expectations, as noted in Example 1, and at other times does not, as noted in Example 2.

Example 1 Language expectation with Kwakwala

ask and respond to questions with question words such as 'ma "what",  
angwa "who", 'wilakw "when", 'widi "where", and gans "how many".

Example 2 Language expectation without examples

express ability and inability, ask for specific help.

(SD85, 2010)

Although a fluent Kwakwala speaker should be able to develop activities and materials based on the above expectations, a teacher learning the language might require support. For example, a teacher-learner may not know how to form "WH" questions as required in Example 1 or how to ask for help or express ability or inability in Example 2. Even more challenging are expectations requiring language variation based on the pragmatic context of the communication, such as a request for help from student to student compared to student to Elder. The Ministry report addresses these challenges and recommends that documents should provide accommodation for the "specific structures" for each language (BCED, 2016c, p. 32). This motivates a key activity addressed in this research, where the analysis examines the range of language structures used in the materials relative to the communicative expectations in the Kwakwala curriculum. The evidence-based data

examined in the study provide exemplars that connect language structures to communicative activities based on the expectations in the Kwakwala Integrated Resource Package (IRP).

### **3.6. Material Culture**

The materials developed for schools and in the land-based project are the data used in the analysis for the project. This includes not only the language lessons but also videos, maps, board games, clamming technologies, cedar bark activities, narratives, and support materials. Together, these represent the "material culture" which result from the activities of the school and land-based projects. The inclusion of the range of material culture developed during the study provides a rich sample of situated language which enables the investigation of language and in context. This procedure is similar to studies of material culture. Previous studies that use material culture to examine intercultural connections among Kwakwala speaking communities include Glass (2006) and Berman (1991a; 1991b).

### **3.7. Social knowledge and language**

The theories that frame the language analysis are based on extending traditional linguistic descriptions of Kwakwala by Boas (1911; 1947) to include those based on the ethnography of communication developed by Hymes (1972). Examples of the application

of this theory for Kwakwala are Berman (1991a) and (1991b), which uncovered the social and cultural knowledge in traditional narratives for Kwakwala in the works of Boas and Hunt. The ethnography of communication developed from the recognition that language is situated in social/cultural settings, as noted in Berman (1991b):

The ethnography of communication brings together the study of what we could call the sociology (mean “who is communicating to whom, and why, and under what circumstances”) and the structure (the “what” and the “how”) of communicative behavior.

(Berman, 1991b, p. 205)

Ethnography of Communication aligns with Situated Learning theory (Vygotsky, 1986; Rogoff, 2003) through the recognition that language is situated in social and cultural settings. Situating language learning, therefore, requires language learning activities to be situated in social and cultural settings connected with the language.

The primary research activities and the development of lessons undertaken in the study uncovered the social and cultural knowledge that affect language use in the materials.

This includes:

- social and cultural expectations in narratives for school use
- the concept of settlement and community in the land-based projects
- visual representations of traditional technologies

- written vs. visual representations of activities and objects

### **3.7.1. Ethno-pragmatics**

Ethno-pragmatics addresses the social and cultural constraints and requirements regarding the appropriateness of activities and communication in varying settings and situations (Grenoble, 2007). Ethno-pragmatics seeks to uncover the “pragmatic” rules that define the boundaries of acceptable situations and communication and seeks to uncover the underlying motivation for these rules. Works by Wierzbicka (1994), Goddard (2006; 2013), and Hasada (2006) exemplify this research.

### **3.7.2. Social Cognition**

Social cognition theory provides a framework to examine the perceptions people have about others and how this affects and is affected by communication. Social cognition theory recognizes that an individual’s perceptions are shaped by culture, as noted in Goddard (2013):

Social cognition (roughly, how people think about other people) is profoundly shaped by culture. It cannot be insightfully studied except by methods that are able to tap into the perspectives of cultural insiders, while avoiding the pitfalls of conceptual and terminological Anglo-centrism.

(Goddard, 2013)

Goddard's comment above also suggests that intercultural communication will be influenced by one's cultural background, where cultural insiders have different understandings than cultural outsiders (Goddard, 2013). Examples in this study include:

- acceptable story content
- reflecting community parent-child expectations

### **3.7.3. Ethno-syntax**

Beginning in the 1980s, linguistic analyses of Indigenous languages expanded examinations of evidential and locational systems to not only consider morphological structures, as can be noted in Boas (1947), but also unrelated structures within a semantically defined system (Jacobsen, Jr., 1986). This developed into the inclusion of social, cultural, and cognitive information into the analysis of language. Ethno-syntax examines how the choice of language structures are mitigated by social cognition and is concerned with developing methods to uncover these issues and methods that teachers use to present this knowledge (Chafe, 2002; Goddard, 2006; Newman, 2002). This study poses two questions, first, whether locational markers are grammatical or demonstrative in connotation and, second, whether visibility markers are used when a speaker "sees" an object or when the speaker is "sure" about the object discussed.

#### 4. Study Method

The study method is based on Action Research, a qualitative based method often used in school settings to engage teachers and other stakeholders to examine and refine practices (Rust & Hansen, 2013). The specific type of Action Research used in this study is known as Participatory Action Research (PAR), where I engaged with the |Gwa'sála-'Nakaxda'xw| community to participate and assist with two projects with goals that had been already identified by the community. See Junker (2018) regarding applications of PAR for Indigenous communities and Chevalier & Buckles (2013) and Thiollent (2011) for PAR background. Junker writes "PAR seeks to understand the world by trying to change it, collaboratively" (2018, p. 165). In this study I joined two |Gwa'sála-'Nakaxda'xw| professional learning communities engaged in changing their world by revitalizing traditional homelands and improving the teaching of Kwakwala in schools. The projects included Elders, Chiefs, administrators, researchers, teachers, and community members who collaborated to develop goals and implement solutions for their community. These goals addressed the unjust practices of colonization which separated the community from their homelands and their language.

My activities in these two projects took place over a three-year period (2015-2019). Both projects are in the |Gwa'sála-'Nakwaxda'xw| community on the Tsulquate Reserve, British Columbia. The land-based project engaged in revitalizing place names and

geographical descriptors for the territories of the |Gwa'sala| and |'Nakwaxda'xw|, and the school-based project focussed on the Kwakwala improvement initiative at Eke Me Xi Learning Centre, a small public high school. Activities are summarized below.

- At school, improvement plans call for the integration of Kwakwala into other curriculum subjects that are normally taught in English (Eke Me Xi, 2016). The integration model at Eke Me Xi seeks to provide traditional language and knowledge-based activities that also fulfill Provincial curriculum expectations. This is consistent with the "Two World" model from the Hawaiian language education program (Wilson & Kamanā, 2014). In the Two World model, the overall expectations of the wider educational system (i.e., state or province) are maintained, while the Indigenous community develops programming in their traditional language and knowledge systems.
- In the land-based program, activities include updating written records from legacy documents to current standards and ensuring that place names and geographic descriptors are documented with regard to the |Gwa'sala-'Nakwaxda'xw| worldview. In addition, both projects contribute to the revitalization of |Ba'kwam'kala, the |Gwa'sala-'Nakwaxda'xw| dialect of Kwakwala.

This study builds on my previous research which was used to inform this study. The previous experience includes developing materials with Elders from Kwakwala speaking

communities beginning in 1974 and included |Gwa'sala-'Nakwaxda'xw| community members. This work involved gathering data for the development of language lessons and revitalization of place names in the areas where Kwakwala is spoken. These activities lasted until 1985. Three significant differences are of note between the current study and my previous experiences. First, the earlier land-based research was conducted using nautical charts while the current study also included on-site observations and geomapping. Second, the current school-based project included more frequent on-the-land activities with students, teachers, and Elders. Third, the curriculum in the first school-based materials was based on a grammatical-functional approach, while the current curriculum is based on communicative-experiential design.

The earlier and current studies also differed regarding my roles. The earlier activities included linguistic research on Kwakwala (1974-1985) and work as a sessional lecturer in the Native Indian Language Diploma Program (NILDP) training potential teachers and researchers for School Districts 72 and 85 (1979-1982). The current activities include applied linguistic research and activities at Eke Me Xi School and the land-based research with the |Gwa'sala-'Nakwaxda'xw| Treaty Department (September 2015 to June 2019). At school, I collaborated with staff to develop materials and teach Kwakwala to two groups of students, Junior (grades 8-10) and Senior (grades 11-12). For the land-based project I assisted with the documentation of place names in the |Gwa'sala-'Nakwaxda'xw| homelands.

During the study (2015-2019), I was an active participant in the development of materials and processes to assist the two projects, as well as a researcher conducting the study reported in this dissertation. This PAR method enabled me to gain first-hand knowledge of the issues that affect the projects, and work collaboratively with Elders, teachers, and researchers to develop interventions.

#### **4.1. School-based study**

The school-based study follows the goals, recommended practices, and curriculum of School District 85, the North Vancouver Island school board. This includes the Kwakwala Integrated Resource Package (IRP) developed for use in North Vancouver Island schools. This curriculum guide provides a framework for Kwakwala classes from grades 5 to 12. This study focuses on first developing and then analyzing materials for the "Introduction to Kwakwala 11" course, a course for high school students just beginning their formal study of the language. The IRP was developed by Kwakwala speaking experts and consultation among the Indigenous peoples and nations in the North Vancouver Island area. It is an approved curriculum by the Ministry of Education for the Province of British Columbia (SD85, 2010) and utilized in schools for Kwakwala instruction.

This study is in an early phase of the curriculum cycle where materials are being developed for use in revitalization activities. The analysis of the materials focusses on the objectives of the curriculum expectations and recommendations of the Indigenous community. The anecdotal observations and formal analyses of materials provide evidenced-based examinations to ensure:

- language in the materials is accurate and representative of the curriculum
- visual and auditory supports situate language with locations and settings
- narratives meet the stated expectations of the Elders regarding story requirements
- material development and technical supports are effective and support teachers and researchers who are Kwakwala language learners

The study utilizes applied linguistic analyses to evaluate the Kwakwala materials produced in the "development" stage of the project. It seeks to uncover whether the Kwakwala language and modalities used in the materials are accurate, representative of the range of language required in the curriculum and reflect Indigenous ways of knowing as it applies to the |Gwa'sala-'Nakwaxda'xw| community. In addition, the study provides commentary of the capacity of the materials to support teachers and researchers who are language learners.

The study does not evaluate the curriculum guide (SD85, 2010) or the recommended support materials in the IRP document (SD85, 2010). It also does not evaluate the

efficiency of the lessons or materials relative to the students at the school or whether "a big enough difference has been made" by this process. Such study could only be done once the analysis of the materials is complete, revisions made where necessary, and implemented in the school (NOIIE, 2020).

#### **4.1.1. Land-based study**

The land-based study supports the revitalization of place names in |Gwa'sǰala-'Nakwaxda'xw| territories. The difference between the current land-based Treaty Department project and my earlier place name project is the mandate to provide a much greater depth of information than earlier works, e.g. Boas (1934), Wilson and Henderson (1982a), and Galois (1994). The current mandate includes updating transcription, gathering personal stories from Elders, historical analysis, geographical coordinates, drone video footage of the areas, and on-site visitation by researchers and community Elders. The additional descriptive and visual information "situates" the place names and documents the cultural and social traditional knowledge of the |Gwa'sǰala-'Nakwaxda'xw| people. In addition, the research team coordinates with the Toponymy department of the Government of British Columbia to develop materials regarding Provincial naming conventions as part of the process for place name reclamation. The geomapping work by the |Gwa'sǰala-'Nakwaxda'xw| Treaty Department is in the process of developing an online database to provide access to place

names and territories with visuals, geo-mapping, and histories.

#### **4.2. Overview of Researcher Activities**

My activities at school included teaching Kwakwala, collaborating with teachers and Elders to develop materials for “Introduction to Kwakwala 11”,<sup>21</sup> and documenting language support materials to assist teachers who are learning the language. Interventions for land-based activities included reviewing previously documented place names, updating transcriptions and analysis of land-based descriptors, and accompanying Elders to homeland territories to document place names and locational descriptions.

Interventions that applied equally to both projects included the development of processes and methods to document language with attention to the communicative context, including location, setting, situations, dialect, and social use of language. Documentation activities supporting both projects included the development of computer-based proofing and orthography conversion tools for Kwakwala, assisting with the development of an online database and mapping website, and developing online access to the materials compiled from project materials in three dialects and four different written representations of the language.

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<sup>21</sup> “Introduction to Kwakwala 11” is the course taught at Eke Me Xi.

### **4.3. Overview of documentation and support materials**

This dissertation includes an overview and discussion of sample materials and documents produced during the study. These examples provide a representative sample of the range of language development activities that occurred, and the materials and documentation that resulted. The overview also provides information on the online materials and supports for |Bakwamkala| and the online tri-dialect database for the three dialects spoken in the Port Hardy area: |Bakwamkala, Kwakwala, and Gučsala|. The tri-dialect online database (Wilson P. , 2020a; 2020b), was developed from a Microsoft Access relational database that houses the language data from the educational and land-based research materials used in this study. It also contains data from educational materials in |Kwakwala| from Wilson & Henderson (Kwakwala Word List, 1982b) and |Gučsala| from Wilson, Wallas, & Peters (Gučala Lessons, 1980a). This was done to supplement the range of information in these other two dialects. Now, the online database provides a quick access point and an opportunity to test out various methods to house and display data for eventual use by students in language programs.

### **4.4. Language authority**

In order to provide effective and accurate language that matches the communicatively stated expectations in the curriculum, the community Elders provided language expertise as members of the professional learning community developing materials and

contributing to documentation. The Gwa'sala-'Nak'waxda'xw Nation provides Elders services for those over the age of 60. Elders participate in activities and luncheons at the Elder's Centre which is located between the Band Office and Eke Me Xi Learning Center.<sup>22</sup> The Elders who participated as language experts for the school and land-based projects were recommended and approved by school and/or band. Depending on their activities, they were paid by the school through the Elders in residence program from School District 85,<sup>23</sup> through the Gwa'sala-'Nak'waxda'xw Treaty Department, or through the Gwa'sala-'Nak'waxda'xw Elementary School. All land-based and school organized trips were funded through the schools or the band office. Many of the Elders at Tsulquate were residents at one of the two B.C. mainland settlements at |Ba'as| (Blunden Harbour) or |Gigak| (Smith Inlet) before both communities were amalgamated and moved to Vancouver Island by the Government of Canada in 1964 (Jackson L. , 2014). These Elders are fluent in Kwakwala and English, and many have real life experiences in the traditional territories after the move to Tsulquate in food gathering and employment in the fishing, canning, and logging industries. Although most Elders were sent to St. Michaels residential school in Alert Bay, some who resided at |Gigak| attended elementary school in their village. The |Gigak| school was closed just before the move to Tsulquate (personal communication, Mary Henderson, who was a young teenager at that time). Although Elders are fluent, they have few opportunities to interact with other speakers in their

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<sup>22</sup> See Gwa'sala-'Nakwaxda'xw Nations (2021a) for information on the Elder's Council.

<sup>23</sup> See SD85 (2021) for an overview of the Elders in Residence Program.

homes. Most Elders live with younger generations who do not generally speak the language. Opportunities to speak |Bakwamkala| occur when Elders get together at the Elder's Centre at Tsulquate. These activities include lunches, Bingo, school activities, and |Pasa| (potlatch activities).

Elders provide the expertise to develop detailed language examples and structures that fulfill the communicative expectations in the curriculum. In addition, Elders ensure that attention is paid to variations in language structures that are based on location, such as in the classroom or on the land, and variations based on social activities, such as language used in formal occasions, informal settings, and narratives. Elders also provide expertise to ensure that materials present accurate visual and audio supports that contextualize the language in materials.

#### **4.5. Technical Authorities and Responsibilities**

There are four authorities in this research: the |Gwa'sala-'Nakwaxda'xw| Elders, the administrators at the school and Treaty Department, the Toponymy office of B.C., and me. The |Gwa'sala-'Nakwaxda'xw| Elders are the authority for traditional knowledge and language accuracy. School District 85, Principal Leah Hubbard, and Eke Me Xi teachers and staff are responsible for implementing the school improvement plan for Kwakwala. My role includes developing and documenting materials for the "Introduction

to Kwakwala 11” course and collaborating with school staff to integrate Kwakwala with other school courses and general school goals, Eke Me Xi (2016) and Eke Me Xi (2018b). The land-based administrator Collen Hemphill, Chief Treaty Negotiator, and researchers David Scott, GIS/Mapping, and Linda Dorricott, Research Support-Archivist, are responsible for ensuring that place names are accurate to a location including geomapping coordinates, descriptions, and documenting stories and histories.<sup>24</sup> In addition, the land-based team is responsible to develop and launch a Web-based portal to house their information. My role in the land-based project is to assist with transcription, language analysis, and online documentation. The Toponymy office for the Province of British Columbia provides the descriptors for landforms and place names (see Technical Appendix 19). In addition, I am responsible for all aspects of this document and the language transcription and analysis. I am also responsible for the connections between the structures of Kwakwala and the expectations in the "Introduction to Kwakwala 11" course (SD85, 2010).

#### **4.5.1. Researcher responsibilities: data**

In addition to the responsibilities related to this study noted above, I was responsible for ensuring that the language data and related multimedia are accessible in the community

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<sup>24</sup> The Chief Negotiator for Treaty, Colleen Hemphill, reports to the Gwa'sala-'Nak'waxda'xw Treaty Team which is comprised of hereditary chiefs and band councillors. See Gwa'sala-'Nak'waxda'xw Nations (2021).

and preserved for future use. During research activities I developed and utilized a Microsoft Access database to house the data as well as an online website to share language materials. Both the Access database and the WordPress online site (Wilson P. , 2020e) include examples, materials and lessons developed during the program as well as a searchable language word list containing data from the three dialects in the Port Hardy area: |Bakwamk̄ala, Kwakwala, Guts̄ala|. Entries include coding for semantic categories, dialect, speaker, date, and grammatical information. The database entries include the materials from this study as well as entries from my earlier work. All data sets are viewable in four different orthographic methods: NAPA, U'mista, and Boas/Hunt adapted character coding, and an ASCII compliant coding (see Technical Appendix Orthographies for an overview of orthographic methods).

#### **4.6. Methods to ensure that language is contextualized**

In order to ensure that the language in the materials is communicatively accurate, the innovation in research methodology is based on the Situated Documentation (as noted in 3.4) and summarized in the following knowledge claim:

The acquisition of fully contextualized Kwakwala occurs most efficiently and most accurately when it occurs in the correct location and during authentic activities.

This procedure is intended to ensure that documentation includes the locational, situational, and communicative aspects of speech acts. This is particularly significant for Kwakwala, which is a highly locational language (Boas, 1947; Rosenblum, 2015; Littell, 2016), and lacks fluent speaker teacher-researchers. These speakers may not be acquainted with the locational, situational, and social aspects of the language. Situated Documentation also ensures that expert Elders are provided with the best possible "mediative environment" during an activity. For example, observing tide movements or the types of seaweed to gather while on the beach. In addition, acquiring language during "real events" mitigates for the use of language structures that are subconscious. Subconscious structures in Kwakwala, for example, include detailed locational information that are coded in the grammar with deictic and visibility markers (Rosenblum, 2015, pp. 4-5). Providing the best "mediative environment," therefore, accommodates for factors that might lead to language that does not reflect the intended context, which might occur during the development of a language lesson on clam digging while sitting in a classroom. Finally, acquiring language during situated and authentic activities may also mitigate the need for highly trained researchers who specialize in semantic and communicative-based elicitation.

#### **4.7. Thesis statement**

Evidence-based analysis of the materials developed during the study demonstrates that a transdisciplinary approach framed by situated learning, situated documentation, and an expanded unit of analysis, that is undertaken by non-fluent teachers, researchers, and administrators, in collaboration with fluent Elders, results in materials that meet curriculum and community expectations, situates language and media, provides narratives conforming to social and cultural knowledge, and improves documentation.

The transdisciplinary activities include:

- documentation of language during authentic activities (situated learning),
- documentation of language on location where activities ordinarily occur (situated documentation),
- continual review of materials and practices (the cyclical model for improvement),
- attention to situational contexts of language (an expanded unit of analysis),
- attention to variations in style, genre, and dialect (communicative competence),
- integrated activities between Indigenous language and knowledge and content courses,
- error analysis and computer-based analysis and conversion of orthographic representations.

The evidence-based analysis used to support the thesis:

1. compares the range of language and concordance between the materials and curriculum expectations (corpus-based concordance analysis),
2. examines the situational accuracy and consistency of language and social conventions (multimodal ethnographic coding of print and multimedia materials),
3. determines the communicative competence, situational accuracy, and consistency of language and social conventions (comparative analysis),
4. examines orthographic inconsistencies in materials and development of conversion and correction of keying errors (error analysis and computer-based parsing),
5. provides opportunities for materials to include dialect variations representative of the communities (materials and online databases).

## 5. Data Sources and Justification

The data for the study include the materials developed at Eke Me Xi and the land-based project. In addition, previous works consulted include linguistic descriptions and texts, notes on |Bak<sup>w</sup>əm<sup>k</sup>ala| language made with Elders, and Kwakwala pedagogical materials I developed for Kwakwala from 1974-1986. In addition, descriptions of the inflectional system, narratives, and pragmatic systems are based on previous linguistic descriptions and texts, as well as my unpublished research notes made in collaboration with Elders.

During my earlier research activities, Elders often had greater familiarity with traditional lifestyles and experience living in a wider number of traditional communities, including the mainland inlets of Blunden Harbour and Smith Inlet. While many of these Elders had attended residential schools, others had stayed at home or attended local elementary schools. During this earlier research period, it was common for Elders to be less fluent in English than in Kwakwala. For example, Kwakwala does not distinguish between third person forms: "he, she, it." Elders in 1976 often used these forms interchangeably while speaking English. This is not the case in the current day, where Elders are fluent in English. One Elder, Lillian Johnny, with whom I worked from 1976-1978, was continuing to support language revitalization during the current study even despite her advanced age. I was fortunate to be able to reconnect with her during the current study. She passed in 2019 and is very much missed in her community.

## **5.1. School Developed Materials**

The materials developed at the school provide the data for the examination of language accuracy. These artifacts are the language data set used to examine the accuracy of locational, spatial, evidential, and pragmatic systems. In addition, these artifacts are used to examine the interconnection between the knowledge and language in the materials and Provincial curriculum expectations.

The examination of materials has several advantages for the study. First, it provides a means for the school to check on the suitability and accuracy of materials to meet community goals. Second, it details links to the Provincial curriculum. Third, it does not study or disclose information on Eke Me Xi students or staff. Fourth, the data are available publicly, making it possible for other researchers to re-examine the data.

### **5.1.1. Pedagogical Materials: Dialects**

The study draws on pedagogical materials to support language description and materials development and analysis. Three areas are included: materials in the three dialects of Kwakwala in the Port Hardy area (|Bak<sup>w</sup>əmka|, |K<sup>w</sup>ak<sup>w</sup>ala|, and |Ĝuĉala|) Kwakwala language lessons for schools, Web based language supports for Kwakwala, and integrated resources supporting curriculum integration of Indigenous knowledge and subject courses.

## 5.2. Previous Kwakwala linguistic analyses

The description of the locational, spatial, evidential, and pragmatic systems presented in the dissertation builds on previous descriptions including:

- Bach:
  - Deixis in Northern Wakashan (2007, pp. 253-265)
- Berman:
  - The Production of the Boas-Hunt Kwakw'ala Texts (1991a)
  - The Seals' Sleeping Cave: The Interpretation of Boas' Kwakw'ala Texts (1991b)
- Boas:
  - The Kwakiutl Indian Language (1911)
  - Geographical Names of the Kwakiutl Indians (1934)
  - Kwakiutl Grammar with a Glossary of the Suffixes (1947)
  - Kwakiutl Dictionary (1948)
- Jacobsen:
  - The Heterogeneity of Evidentials in Makah (1986)
- Janzen:
  - A Preliminary Discourse Analysis of Kwakwala Narratives: Gwawina and Dzunuḱwa (2015a)

- Waldamas? An exploration into the phonological word in Kwakwala (2015b)
- Littell:
  - Focus, Predication, and Polarity in Kwakwala (2016)
- Sardinha:
  - The semantics of Kwakwala Object Case (2017)
  - Deriving Eventuality Types in Kwakwala (2018)
  - Aspectual /-x'id/ in Modern Kwakwala (2020)
- Lincoln and Rath:
  - North Wakashan Comparative Root List (1980)
- Rosenblum:
  - A grammar of space in Kwakwala (2015)
- Siemans:
  - Guča: An Account of the Phonetics, Phonotactics, and Lexical Suffixes of a Kwakwala Dialect (2016)
- Wilson:
  - Comprehension difficulties with the Boas-Hunt materials (1993)
  - Word Paradigm Morphology and Kwakwala Inflectional Markers in High School (2019)

- Wilson and Henderson:
  - Advanced Kwakwala Lessons (1981c)
  - Advanced Kwakwala Lessons 2 (1982c)

### **5.3. Previous Kwakwala texts**

Text data referenced and utilized in the development materials for genre and pragmatic usage in narratives include a range of materials that resulted from the collaboration between George Hunt and Franz Boas. These materials include:

- Boas:
  - The Social Organization and Secret Societies of the Kwakiutl Indians (1897)
  - Kwakiutl Tales 1 (1902a)
  - Kwakiutl Tales 2 (1902b)
  - Kwakiutl Tales 3 (1902c)
  - Kwakiutl Tales (1910)
  - Ethnology of the Kwakiutl (1921a)
  - Ethnology of the Kwakiutl (1921b)
  - Religion of the Kwakiutl Indians (1930a)
  - The Religion of the Kwakiutl Indians (1930b)
  - Kwakiutl Tales - New Series: Part 1 Translations (1935)

- Kwakiutl Tales - New Series: Part 2 Texts (1943)
- Boas and Hunt:
  - Kwakiutl Texts (1905)
  - Kwakiutl Texts - second series (1906)
- Hunt
  - George Hunt Notebooks (1918)

#### **5.4. Collaboration with Elders**

Community Elders were consulted throughout the research program to provide language and knowledge expertise. This is necessary to support the non-fluent staff at the school and to provide details where |Bak<sup>w</sup>əm<sup>k</sup>ala| differs from Kwakwala. In addition, their knowledge is needed to assist with language and traditional knowledge. The materials development at the school is framed by Gwa'sala-Nakwaxda'xw Elders, who shared their understanding of traditional knowledge and Bak<sup>w</sup>əm<sup>k</sup>ala, which is based on their historic traditions and locations. Traditional knowledge is based on the social customs and technologies of the various Gwa'sala-Nakwaxda'xw family units/tribes located on the B.C. mainland before being re-located to Vancouver Island in 1964.

In this study, community Elders participated with teachers and researchers as paid members of the development teams. School-based activities were funded through the

Elders in residence program, the First People's Cultural Council, curriculum development project, and the Gwa'sala-'Nak'waxda'xw Nation. Land-based activities were funded through the Gwa'sala-'Nak'waxda'xw Nation Treaty department, First People's Cultural Council, |Gwa'sala 'Nak'waxda'xw| Elementary School, the Regional District of Mount Waddington, and the University of British Columbia.

## **5.5. Ethics**

Ethics exemption was approved at the beginning of the study during the pilot stage and shared with the administrator responsible for the Elder's Council and Eke Me Xi administration. The ethics protocol follows Tri-Council Policy (Social Science and Humanities Research Council of Canada, 2015) for work with community Elders. The Elders provide expertise on the social and linguistic traditions for the |Gwa'sala - 'Nak'waxda'xw| community, they are not "subjects" in the study. As noted above, Eke Me Xi students are not the subjects of study. The materials developed during the study which are the subject of the analysis and recommendations are available through School District 85 and the |Gwa'sala-'Nak'waxda'xw| Archives.

### **5.5.1. Elders: the community language experts**

Elders are the community language experts who provided their knowledge for the materials that I developed in this study. These individuals are recognized in the

community as language experts. They spent their early years in the |Gwa'sala-'Na'kwaxda'xw| settlements in Smith Inlet at |Gigak| and Blunden Harbour at |Ba'as|. In addition to language, they shared their experiences of growing up in the traditional homelands, and their knowledge of seasonal settlements, territories, technologies, and social/cultural activities in the watershed of Smith Inlet and Seymore Inlet.

## **6. Previous research: Kwakwala school materials**

Previous research on Kwakwala includes land-based documentation, educational curricula and materials, language analysis, and support materials to assist with the integration of cultural and social activities into English-based courses. These activities include primary language analysis, surveys on population, settlements, and territories, as well as written, audio, and video documentation of Kwakwala by researchers and community members. Secondary documents include linguistic, social, technical, and cultural analyses of the primary documents. Tertiary documents include research on Kwakwala for educational materials and the development of websites that provide information on the language. Previous works related to the analysis in this study are Kwakwala curriculum, pedagogical materials, land-based research, and previous analyses of the language that relate to the four topics investigated in the study: inflectional marking, connections between the language and audio-visual representations, narrative discourse with emphasis on social values and social cognition, and documentation for revitalization activities in school and on the land.

### **6.1. The gaps: Education**

The review of previous research which follows reveals the need for educationally focussed language elicitation and evidence-based analysis. Four areas are addressed in this study that are not found in earlier research. First, previous works do not examine

whether the Kwakwala in the school materials meets the expectations of the curriculum. Second, previous analysis does not address whether the language and the supporting audio-visual information used in school and land-based materials is authentic and representative of Indigenous knowledge. Third, previous works do not examine whether the language in stories and narratives are reflective of Gwa'sala-Nak'waxda'xw social and social-cognitive knowledge. Fourth, previous examinations of documentation do not address the difficulties encountered in educational and community research programs. These areas include the need to examine dialect differences in educational settings, to examine the needs of teachers and researchers in respect to orthographic differences, and to assist teachers and researchers who are documenting the language for teaching purposes and for the community.

## **6.2. Communicative-experiential method**

The 2003 curriculum framework for language instruction in British Columbia mandated that Indigenous language education in British Columbia use a communicative-experiential teaching method (BCED, 2003). Previously, Kwakwala lessons and materials were based on a grammatical-functional approach to school-based language activities. Grammatical-functional lessons provide a graded approach to functional language acquisition based on complexity of language structure and difficulties that might be expected with students whose first language is English, as noted in Wilson & Henderson

(1981c). Communicative-experiential methods, however, stress authentic language that links communicative acts to experiences. This approach supports Kwakwala activities that include authentic language, Indigenous knowledge, and current settings in communities (SD85, 2010). Activities, therefore, are developed based on communication and not constrained by a step-by-step approach to language based on grammatical complexity common in grammatical-functional approaches. Although complexity of language and difficulties that English speaking students might encounter are addressed through curriculum expectations, the overall scope and sequence of expectations from grade 5-12 is focussed on communication not grammar (BCED, 2003).

### **6.3. Language lessons and materials**

School-based materials available at Eke Me Xi when I began the study were developed before the advent of the Kwakwala Integrated Resource Package. These materials are based on the grammatical-functional method and not on the communicative-experiential method of language teaching required in the current curriculum (SD85, 2010). These materials were based on the Kwakwala dialect and focus on core language lessons and cultural activities that include Kwakwala words and phrases (Powell, Jensen, Cranmer, & Cook, 1981). The "core" language model is one that delivers language activities as a subject of instruction, not the means of instruction.

The first programs in schools began in the 1970's and were based on a functional-grammatical approach, where language activities provided functional and usable language activities constrained by complexity of structure. Examples include lessons and workbooks published by the U'mista Society in Alert Bay (Powell, Jensen, Cranmer, & Cook, 1981), lessons, workbooks, cultural activities, and word lists made during the Native Indian Language Program from the University of Victoria, and materials made in collaboration with School Districts 72 and 85, e.g., Wilson & Henderson (1981c), and materials made during a Canada Works program for School District 85, e.g., Wilson & Johnny (1978) and Wilson, Wallas, & Peters (1982b).<sup>25</sup> The Kwakwala Integrated Resource Package Appendix 3 provides a listing of various resources that include both Kwakwala language materials as well as cultural knowledge-based activities for English (SD85, 2010, pp. B3-B138).

#### **6.4. Indigenous knowledge and technologies**

There are a number of high school courses that focus on Indigenous knowledge and technologies that are taught at Eke Me Xi. These are: BCED (2006), BCED (2016a), BCED (2016b), and BCED (2010). These courses contain Indigenous themes and knowledge and include readings from Indigenous authors. Although the subject content in these courses is English based, the course and support materials provide opportunities to

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<sup>25</sup> See Section 27 for an overview of NILDP and Canada Works materials.

integrate subject content and Kwakwala language activities. In addition, there is a growing supply of Indigenously themed content supports that integrate across subjects. Williams & Snively (2016), for example, provides Indigenous knowledge-based activities for science programs.

## **6.5. Kwakwala educational language research**

Previous examinations of Kwakwala language activities in schools include student surveys, classroom observations, interviews, and examinations of social and cultural content in language activities. The following sections 6.5.1 to 6.5.4 provide an overview of Kwakwala educational research.

### **6.5.1. Eke Me Xi**

Eke Me Xi conducted a student survey to examine the Kwakwala program at the school (Hubbard and Demoe, 2017). This was designed to acquire student feedback on cross curricular integration of Kwakwala as well as information on the student opinions of their Kwakwala learning. Most students indicated language improvements. Approximately 50% of the students were not sure about the purpose of the cross curricular integration between Kwakwala and their other classes at Eke Me Xi.

### **6.5.2. Classroom observations**

Classroom observations were conducted at |Tłis̱alagi'ḻakw| Elementary School in Alert Bay (Anthony, Davis, & Powell, J, 2003). This report noted significant cultural content integrated into the school program, however, the report indicated that the Kwakwala language component was not meeting goals (Anthony, Davis, & Powell, J, 2003).<sup>26</sup>

### **6.5.3. Interviews**

Glass (2006) provides information on language programming in Alert Bay and Campbell River communities based on interviews with educational administrators. The work discusses the difference between language programs in Band run schools and those run by Provincial school districts.

### **6.5.4. Evidence based language examinations:**

Evidence-based examinations of orthographic representations of Kwakwala include commentary on methods used to represent inflectional marking. For example, Janzen examines differences between written representations of inflectional markers in research and educational works. In some materials, inflections that refer to a following word are

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<sup>26</sup> A similar finding was noted in Wilson & Hemphill (Supporting Community-Driven School-Based Indigenous Language Development, 2017) based on a multimodal analysis of videos produced at Eke Me Xi.

written separately from the word to which they are phonologically attached (Janzen, 2015b).

## **6.6. Current research: Indigenous language education in B. C.**

The lack of materials and need for teacher support is noted in the "Kwakwala 5-12: Integrated Resource Package" (IRP), which contains the curriculum and support materials for courses in School District 85 (SD85, 2010). The IRP states:

... far fewer print and audiovisual materials exist in Kwakwala than in English. Furthermore, in order to teach Kwakwala authentically within the norms of Kwakwaka'wakw culture, instruction must build on information that can be acquired from Elders and fluent speakers of the language. Therefore, all learning activities in the Finding Information<sup>27</sup> organizer include the acquisition of information from Elders and fluent speakers. Acquisition of information from Elders and fluent speakers also compensates for the relatively few material resources that exist at present which feature authentic situations in contemporary everyday life. (SD85, 2010, p. 20)

Although research has demonstrated that communicative-experiential methods are effective in school settings (BCED, 2003), a 2016 review of Indigenous language programming in B.C. recognizes that communicative-experiential methods require fluent

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<sup>27</sup> Finding Information are sections in the IRP that enable teachers to locate information to assist teachers to develop activities and materials for the various courses (SD85, 2010).

speakers. The review states there is a "dire need for fluent teachers" (BCED, 2016c, p. 27). This is consistent with world-wide observations of Indigenous and other marginalized language programs. These studies recognize the need for teachers to have a high degree of communicative competence or access to a fulsome set of support materials (BCED, 2016c; SD85, 2010; Hall, Smith, & Wicaksono, 2011; Hinton, 2003). The Ministry report provides recommendations to improve supports including regular access to Elders and fluent speakers, and accommodation for the "specific structures" for each language (BCED, 2016c, p. 32). In addition, recommendations call for improving the connections between the language independent communicative expectations in the curriculum guide and language specific structures (BCED, 2016c).

## **6.7. Narratives**

Previous research on Kwakwaka'wakw narratives is based on structural and cultural analyses of texts and stories. Boas' work provides the description of the expectations involved in Transformer stories (Boas, 1966, p. 309). Berman's work includes the structural and social-cultural genre in "House" narratives (Berman, 1991a; 1991b).<sup>28</sup> Janzen (2015a) examines written and narrative conventions. My work includes examining the difficulties with re-eliciting Boas and Hunt texts (Wilson P. , 1993), style variation in narratives

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<sup>28</sup> House stories are histories that provide documentation of a family's prerogatives and authority (Berman, 1991b).

(Wilson P. , 1990), and uncovering cultural and social understanding in Boas and Hunt's work (Wilson P. , 2011; 2013).

## **6.8. Previous land-based materials**

My involvement in land-based research supported the activities to document the Gwa'sala-Nakwaxda'xw Treaty territories and develop school Kwakwala materials situated in the traditional territories of the |Gwa'sala| and |'Nakwaxda'xw| nations. During these activities, I conducted primary research with Elders to document Kwakwala place names and land descriptions on field trips to traditional territories. I also provided |Bak'əkala| transcription and conversion from legacy orthographies in previous works to community orthographies to ensure compliance with Unicode (UTF-8). Kwakwala materials for schools included the development of a chart-based map detailing food gathering resources in |Ba'as| (Blunden Harbour) for clams, fish, and berries (Wilson & Henderson, Foods and locations at Ba'as, 2017b), as well as narratives situated in traditional territories, e.g., Wilson & Henderson (Wisa and Gana go berry picking at Ba'as, 2017a).

During the land-based research, I relied on the expertise of the Gwa'sala-Nakwaxda'xw Treaty Department research team. I also utilized previous materials including Boas (Geographical Names of the Kwakiutl Indians, 1934), Galois (Kwakwaka'wakw

Settlements, 1775-1920: A Geographical Analysis and Gazetteer, 1994), and the Gwa'sala-Nakwaxda'xw Treaty Department Map (Gwaʔsəla-Nakʷaxdaʔxʷ Territory Map, 2015). In addition, I utilized notes on place names developed from my collaboration with James Henderson (1978-1985) and Tom Henderson (2016-2019), as well as maps developed with James Henderson (Wilson & Henderson, Place Name Charts, 1982a).

### **6.9. The gaps: Kwakwala Documentation**

School-based and land-based programs rely on previous Kwakwala materials. Many of the Kwakwala materials, however, are not written in phonologically accurate orthographies or are not written in one of the two community orthographies. This makes the materials difficult to use in educational and revitalization programs (Wilson & Wilson, 2020a). In addition, archives containing printed and recorded Kwakwala are mostly distant from the homelands of the Kwakwala speaking people, making it difficult for teachers and students to access printed and recorded language. Furthermore, Kwakwala audio recordings, which are housed in Western European based institutions throughout North America and Europe, are not yet available online, such as the materials at the Royal British Columbia Provincial Museum (personal communication, Brian Seymore, RBCPM, 2020).

## 7. Research Activities

Research activities included documenting the |Baḵwəmḵala| dialect of the language and filling the gaps in the research literature. This included primary, secondary, and tertiary research. This is a different and more complex process than creating materials for national language educational programs, where a large corpus of research data is regularly available. For example, it was necessary to collaborate with Elders to ensure that Kwakwala stories about children and youth respected traditional social values and conformed to narrative structure.<sup>29</sup>

In order to best assess the need for supports, I assisted the Kwakwala improvement initiative at Eke Me Xi, and the documentation of place names in |Gwa'sala-'Naḵwaxda'xw| homelands. During this period, I worked in collaboration with Elders, school staff, and researchers. Activities included documenting |Baḵwəmḵala| place names, developing school materials, and teaching Kwakwala. These activities enabled me to see "firsthand" the difficulties that teachers and researchers encountered. My observations led to discussions among the members of the two research teams and community Elders, which informed the documentation practices adopted in the two subsequent years. This work continued materials development and place name research

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<sup>29</sup> The analysis of narratives in *The Production of the Boas-Hunt Kwakw'ala Texts* (Berman, 1991a) and *The Seals' Sleeping Cave: The Interpretation of Boas' Kwakw'ala Texts* (Berman, 1991b) focus on formal "House" stories from the collection of texts by Boas and Hunt. Although there are structural similarities with everyday stories for children, there are differences in both structure and social cognition.

through collaborative activities with Elders, school staff, and researchers. The following Sections 7.1 and 7.2, provide an overview of school-based in class and land-based activities, and Section 7.3 focuses on place name research on the land and from previous research.

### **7.1. School-based in class research examples**

School-based research activities included working directly with Elders in class during Kwakwala activities, working with Elders on field trips, and working with Elders outside of the school (for example, at the Elder's Centre at Tsulquate). Examples of in-class research included follow-up activities from field trips and elicitation of language data. In these various settings, Elders provided Kwakwala language information that was transcribed and documented during the activity. This strategy provided a range of information that assisted with the development and subsequent analysis of materials. The following subsections provide a brief overview of the practices with examples.

#### **7.1.1. In-class research: Clothing**

One example of in-class research was on clothing terms with the Junior Kwakwala class (grades 8-10). The students were arranged in the class in a semi-circle, I was at the front of the class, and the teacher sat next to Elder M.H. Students asked (in English) for names for clothes, and M.H. responded with the words and phrases as needed. I wrote the

Kwakwala on the board and the students copied this into their notebooks. As classrooms tend to be noisy, the teacher was able to assist me in acquiring the correct pronunciation and writing of the words in question. In one instance, the students asked for the word "necklace." M.H. pronounced the word and I wrote |tik'waxa| and said the word back to the class. Both M.H. and the teacher indicated that I had written the word with the wrong vowel at the end. M.H. repeated the word and I still did not hear the ending properly. The teacher indicated that the last sound was "o" not "a" as in |tik'waxo|. As I corrected the word on the board, I realized that the word stem was 'to hang' |tikwa| with the body part derivational suffix 'neck' |-xo|. Having the teacher sit next to the Elder provided an effective strategy to ensure correct transcription of Kwakwala.

Following the lesson, I entered the words into the database and created a list of clothing words from the activity. During the class activity, we also included colour terms to describe clothing. These were also included in the materials list. See Section 24.8.4 Clothing for example materials that were developed based on the classroom-based research activity.

### **7.1.2. Clam processing**

**Shucking clams:** Shucking clams was the second stage in the school activity gathering and processing clams. This activity occurred the day after we went digging clams. Hazel

Wilson (HW), an Elder from |Tsax̱is| (Fort Rupert), led a combined Junior and Senior Kwakwaka'wakw class in this activity. During the process, a number of participants took pictures to document the work being done. At the end of the day, I collected the pictures and created a visual timeline of the shucking process in an MS-Word table. The table contained two columns in each row: with a picture in one column, and a space for writing in caption in the other. The next day, the Junior class worked collaboratively to create English captions for the activity, noted in

Illustration 1 from Wilson (2020d).

Illustration 1 Shucking clams

Alkants̱a Gawikanam	Katidax̱us dligamus _____
	Day of Shucking with Hazel at Eke Me Xi.
	We're getting prepared for shucking.
	We're learning how to shuck.
	Look for a small opening, put your knife in and cut around on both sides to open the clam.
	Opening the clam for harvesting.

(Eke Me Xi, 2020d)

I modified the document to three columns for the Senior class (Illustration 2 Clam Shucking Kwakwala and English). The additional column was used to document the captions in |Kwakwala|, the dialect of Kwakwala spoken by HW. During the Senior class, the clam shucking pages were displayed on a screen while I transcribed the |Kwakwala| spoken by HW. The students also had copies of the table and filled in the Kwakwala during the class.

Illustration 2 Clam Shucking Kwakwala and English

	<p>Ləmúxw tsuxwasəwúxwda gawíkanəm ƙa lawi'esa igis.</p>	<p>This is rinsing the clams in order to take the sand out.</p>
	<p>Ləmānu'xw tsəxisa istəxw ika ləxwa gawíkanəm.</p>	<p>We throw out the not good parts of the clams.</p>
	<p>Ləmúxw gwałəłə'oxwda gawíkanəm ƙa's leləxə wədətsi.</p>	<p>The clams are ready to be put in the freezer.</p>
	<p>Ləmānu'xw wəlas hiləxə lediganu'xw dzika.</p>	<p>We can make many good foods from our clam digging.</p>

(Eke Me Xi, 2020d)

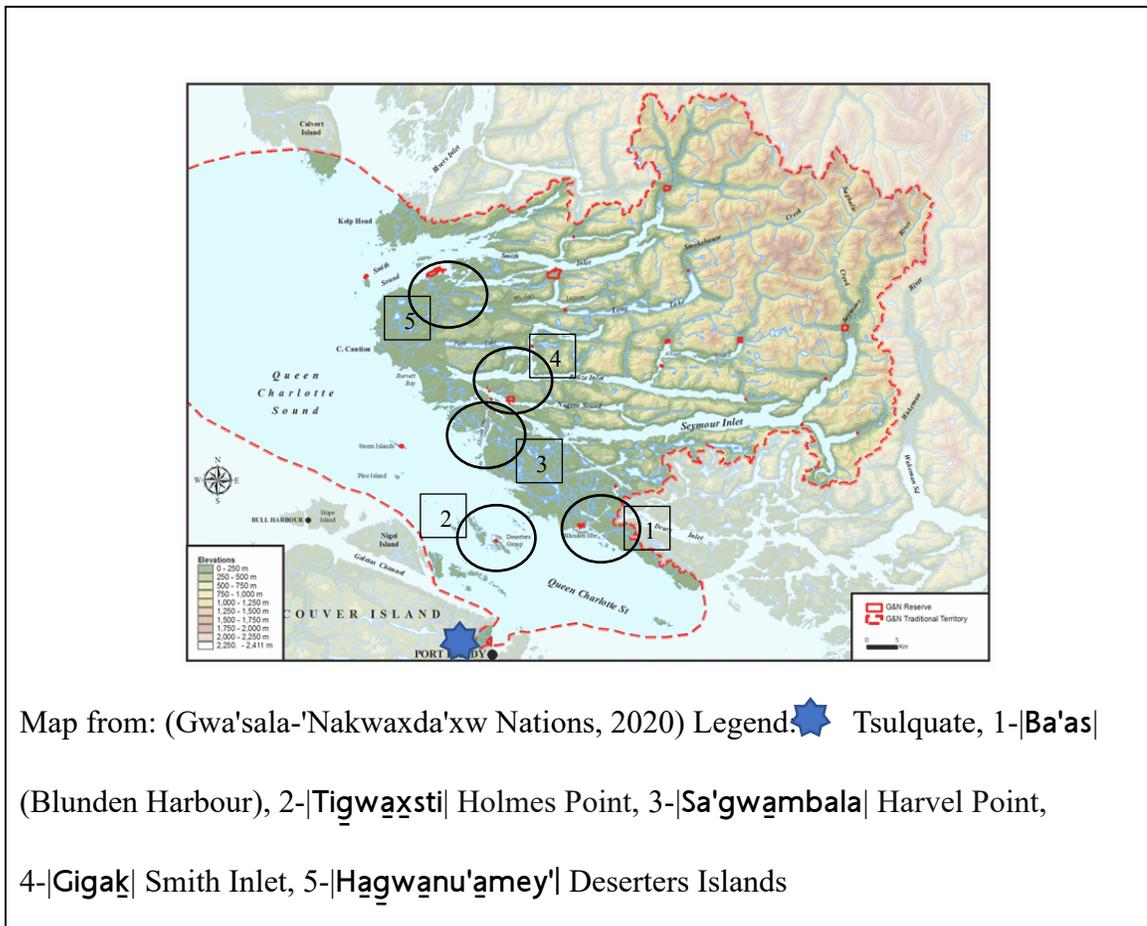
## **7.2. School-based field trip research**

School-based field trips provided opportunities to conduct research needed for the development of language materials. Examples included digging clams, gathering seaweed, stripping cedar and alder bark, and visiting Blunden Harbour |Ba'as| with Elders. During these activities, I transcribed Kwakwala and made notes. When appropriate, I also took pictures and videos of activities. Spontaneous interactions in Kwakwala were not common on these trips, as the majority of attendees were students and non-speakers. Despite this, field trips provided opportunities for students to interact with Elders and community experts in English and enabled students to participate in authentic experiences that were situated in traditional territories. In addition, students and staff assisted the documentation of the activities by taking photos and videos. This result of this documentation enabled me to develop materials with the visuals that were situated in appropriate settings, as exemplified in the clam processing activity in Section 7.1.2. In addition, the documentation of the field trips allowed students and staff to gain experience in the technologies needed to document language and traditional activities. Two examples are provided. Section 24.6.1 is an overview of a cedar and alder bark gathering activity, where students participated in stripping cedar bark and gathering alder bark (used to make the traditional dye used to enhance the red colouring used in regalia) during a field trip. Follow up in-school activities included smoothing cedar bark and preparing alder bark dye.

### 7.3. Place name research

On the land activities with the land-based project and the school included opportunities to investigate place names and geographical descriptors in the |Gwa'sala-'Nakwaxda'xw| homelands. These activities required the research team to travel via water taxi or tour boat, as there is no public land access to the traditional homelands. Trips to the homelands included the settlements and territories located in the watershed areas of Seymour inlet and Smith Inlet, and the islands highlighted in Map 5 Gwa'sala-'Nakwaxda'xw Nations Map.

Map 5 Gwa'sala-'Nakwaxda'xw Nations Map: research locations



Place names and geomapping field trips were organized by the Gwa'sala-'Nakwaxda'xw Treaty Department. In addition to providing opportunities to document areas and place name knowledge with Elders, the information documented on the trips contributed to the development of materials for Eke Me Xi. Map 6 Resources at |Ba'as| provides the locations for food resources and landforms in the |Ba'as| area.

Map 6 Resources at |Ba'as|



The trips to the homeland territories also provided opportunities for Eke Me Xi students to accompany Elders and researchers on trips. This enabled the students to meet with Elders to experience their heritage directly on the land. Map 6 Resources at |Ba'as| below is a listing of the resources at |Ba'as| developed as a supplement to the map.

Word List 1 List of resources with translations for Map 6 Resources at |Ba'as|

amdaṁa	little green sea urchin	la'it	small light blue mussel
aḵawi	loon	maṣikw	purple sea urchin
dagidzaṣ	grave	migwad	seal
dzoli	cockle	naxaḵ	geese
gagulaṁa	clam: little neck clams	sa'gwis	seal oil
gaguḵw	swan	ṭsatsanaṁ	eel grass
gawiḵanaṁ	butter clams	ṭselaxdi	mallard
geḵwa	steelhead	uṭsolisbidu	small bay
gwadin	golden eye	uxwsola	Bradley Lagoon
gwalitsi	abalone	ḵamaḵ	blueback
ḵu's	pond	ḵuli	mussel
ḵaxola	cranberry: Bog Cranberry	ḵamaḵ	blueback
ḵumes	crab	ḵuli	mussel

(Wilson & Henderson, Foods and locations at Ba'as, 2017c)

## 8. Development activities overview

The goal of development activities at school focussed on print and online materials for use with the land-based and school-based programs. For the land-based project, the goal was to assist the team of researchers to develop materials for the |Gwa'sala-'Na'kwaxda'xw| archive, the |Gwa'sala-'Na'kwaxda'xw| Treaty Department, and a multimedia Web based portal of the traditional territories. Land-based materials were developed in collaboration with the administrators and members of the land-based research team. School-based materials were developed through collaboration with school staff and community Elders. School-based materials examined in this study are those that teachers could use to develop language lessons and integrate Kwakwala into other curriculum courses and school-wide activities. For example, the first Kwakwala school materials that were developed at the beginning of this study integrated Kwakwala into a school-wide focus on respectful behaviour and interaction. In this activity, students worked in small groups to create and then play board games. This is detailed in Section 8.6 below. For the land-based project, early activities consisted of collaborating with the research team to correct printing and transcription difficulties in the map developed by the |Gwa'sala-'Na'kwaxda'xw| Treaty Department. Examples of selected materials developed during the study are found in the appendices, Sections 24 and 28.

## **8.1. Teaching strategies and the materials**

The materials developed during the study do not prescribe or rely on specific teaching strategies, classroom management methods, or technologies. Instead, the materials are similar to textbooks or unit plans, where the focus is on accurate Kwakwala language within a communicative activity. The materials, therefore, are intended to provide the "raw material" for teachers to implement communicative-experiential activities for their students as required by the Kwakwala IRP (SD85, 2010). The materials also provide support to integrate Kwakwala into other courses following the Eke Me Xi School Plan (2016). How individual teachers or staff members implement these goals for Kwakwala will vary based on individual interests, expertise, and comfort. In addition, teachers are expected to vary strategies based on the unique makeup for each class and student. Specific variations, for example, will occur for students with Individual Education Plans (IEPs).

The decision to focus the materials development rather than teaching strategies is based on the research question, which examines whether materials are accurate, provide effective language supports for non-fluent teachers, meet curriculum expectations, and provide Indigenous knowledge and settings.

During the times when I was teaching Kwakwala, however, I employed various strategies to teach the language which are evident in the materials. For example, review strategies for vocabulary included bingo activities and Internet Jeopardy. Strategies during clam and seaweed harvesting field trips included opportunities for students to harvest, interact with Elders, and take photos and videos to document the work. Other field trips included work sheet check lists for students to document their activities.

## **8.2. Individual Education Plans**

Students who are identified as having learning difficulties are required to have an Individual Educational Plan (IEP) in British Columbia schools. Although the Kwakwala IRP indicates that students may be exempt from Kwakwala learning activities (SD85, 2010), it is common for most students with IEPs to participate in language programming. The research does not examine or develop materials for students<sup>30</sup> with IEPs.

## **8.3. Development Methods**

The materials development process is based on a Participatory Action Research model (Chevalier & Buckles, 2013; Junker, 2018). In this model, the primary researcher collaborates and participates as a member of a team to work towards program goals while researching one or more aspects of a team's activities (Junker, 2018). In this study, I

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<sup>30</sup> I do not include materials or strategies for students with disabilities in this document, as it might be perceived as compromising student privacy.

collaborated with school staff, community researchers, and Elders to assist with two ongoing projects: one, to improve Kwakwala school activities and two, to document place names and landforms. Together, I engaged with team members to identify needs, develop supports, and examine evidence. Action items for the two projects were based on recommendations from the school improvement plan (Eke Me Xi, 2016) and from the community project revitalizing place names (personal communication, project staff). Development and support activities at school followed the curriculum guide (SD85, 2010), and place name activities followed the objectives of the research work of the Treaty Department, |Gwa'sala-'Nakwaxda'xw| Nation.

#### **8.4. Separating project activities from this study**

During the study, I developed and analyzed materials and collaborated with teachers to provide Kwakwala instruction. The analysis focusses on materials that relate to the four main questions posed by the research in the Foreword. These focus on the requirements of the school plan, curriculum expectations, and land-based goals. This includes materials that:

- integrate Kwakwala and other Eke Me Xi courses or whole school activities
- were based on a communicative-experiential method of teaching
- followed curriculum guidelines
- integrated Indigenous knowledge, social, cultural, and locations

- included collaboration with Elders and community administrators
- included field trips and land-based activities

Materials that I developed at Eke Me Xi that are not related to the four study focus questions are not included in the analysis. For example, sound drill and sound-symbol lessons are not examined. These activities were not integrated with other activities at Eke Me Xi although they occurred in daily Kwakwala lessons. I also do not report on or analyze student achievement or lesson results. Student evaluation, for example, was the responsibility of the classroom teachers, and student feedback of Kwakwala integration was examined by school staff (Hubbard & Demoe, 2017). Section 24 provides a detailed overview of daily activities that includes an overview of both materials examined in the study and those that are not.

### **8.5. Materials development overview**

I developed materials for the study through conversations with school staff and the land-base researchers. At school, the staff suggested activities that could be integrated between the Kwakwala and other school activities. In the land-based project, the research team sought my assistance on transcription, orthography, and translation/glossing. Once we decided the area for development, I examined the Kwakwala literature, materials from my experience with the NILDP program, and the expectations in the curriculum guide. I also met with Elders, either during the regular Elder's council meetings or one on one, in

order to elicit |Bakwámkala| and verify cultural, social, and communicative speech acts. The meetings with |Gwa'sála-'Nakwaxda'χw| Elders provided checks to ensure that the dialect and transcription was accurate.

In order to facilitate and improve the accuracy of materials, I regularly checked my work against the Boas Dictionary (1948), the First Voices Online Dictionary (First Voices, 2017), Shaw's revision of Grubb (Grubb, 1977) in Shaw (2006a) and Shaw (2006b), the NILDP Kwakwala Word List (Wilson & Henderson, 1982b), and Kwakwala Place Name Charts (Wilson & Henderson, 1982a). I also referred to previous lessons and materials that I developed during my work in NILDP and Canada Works projects supporting activities in School Districts 72 and 85 (see Section 21.7). This process was followed for all materials, regardless of whether they were to be used for the analysis or general classroom activities, such as developing minimal pair lists to use in sound discrimination drills.

During the first two years of the study (September 2016 to June 2018) I taught Kwakwala, developed lesson materials, and assisted place name activities. The activities also included land-based field trips, taking videos and photos to document activities, creating visuals for materials, and curating visual and audio materials in the production of student workbooks, videos, animations, and online review activities. During the

development phase, I created an MS Access database to house the words and sentences for lessons and place names. In the second year of the study, I developed a WordPress website to house examples of the course materials (Wilson P. , 2020e). As noted in the Introduction, I delivered two conference papers based on the research, Wilson (2017b), which discussed the use of Situated Learning to frame the investigation, and Wilson & Hemphill (2017), which provided the background of the study and preliminary findings and analysis.

In the third and fourth year of the study (September 2018 to January 2020), I spent more time developing the analytical methods used in the study and cut back on the teaching load. This work included coding inflectional materials and finalizing the analysis methodology. During this time, I delivered two additional conference papers, Wilson (2019), which examined the concordance between the inflectional markers in the course materials and the expectations of the curriculum, and Wilson & Wilson (2020a), which provided a preliminary report on documentation activities and analysis. During the fourth year beginning in January 2020, I ported the contents of the MS Access database to the WordPress site and developed an online searchable portal using Searchable Pro (Searchable Pro, 2020). The data is accessible in four orthographies and includes entries in the three dialects represented by North Vancouver Island families at Eke Me Xi, see, for example, Wilson (2020c).

## **8.6. School-based materials: the beginning**

When I first arrived at Eke Me Xi in October 2016, the school was without a |Baḵwəmḵala| teacher. This created a dilemma for me as I had planned my role to work with Elders to develop materials for the Kwakwala teacher, rather than assuming the role as the teacher. In addition, as a member of the Ontario College of Teachers (OTC) with Principal Qualifications, it was necessary for me to comply with (OTC) requirements,<sup>31</sup> as well as conform to the ethics exemption approval for the research collaboration with Kwakwala speaking Elders. As a result, I defined my classroom role as assisting the assigned teacher of the Kwakwala class rather than seek teaching certification in the Province of British Columbia. My role in the classroom, therefore, is not part of this study, but rather as one supporting the teacher assigned to teach Kwakwala. This role meant that I did not engage in student achievement, attendance, record keeping, or discipline.

### **8.6.1. Eke Me Xi Kwakwala classes**

At Eke Me Xi, Kwakwala provides a credit course in a non-semester time frame.

Students in BC study 120 hours per full time course for which they receive 4 credits

(BCED, 2020b). At Eke Me Xi, students were divided into two groups, Junior, grades 8-

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<sup>31</sup> For example, it was necessary to disclose my activities at Eke Me Xi to the Ontario College of Teachers.

10, and Senior, grades 11-12. Depending on the timetable, classes either occurred twice a week or three times a week.

### **8.6.2. Time spent related to Eke Me Xi**

As a researcher participating in school improvement activities for Kwakwala, I attended most Kwakwala classes for the first two years of the research period. In addition, I also accompanied the school on field trips and attended school wide events. I estimate that my activities at school included 240 hours per year for the first two years of the study (September 2016 - June 2018). This accounts for time back in Ottawa during the first two years. In addition, I estimate that I spent 3 hours per hour of class time developing materials, that is an additional 1440 hours over the two-year period, for a total time related to in-school Kwakwala and materials development of 1920 hours.

### **8.6.3. Daily Activities: Language class**

The materials for both the junior and senior classes were developed with a variety of activities for each daily class. Depending on the timetable, junior classes usually occurred three times per week while senior classes met two times per week. The materials included the following activities which were designed to fulfill curriculum expectations.

1. Sounds and characters (sound drills, listening comprehension and familiarity with writing system)

2. introductory dialogue
3. lesson
4. follow up activities
5. word list review
6. general review

Examples of materials are provided in Appendix Section 24.

### **8.7. Curriculum integration: Indigenous knowledge and perspectives**

Integration of Indigenous knowledge and perspectives is mandated in educational programs in the Province of British Columbia. At the high school level, this occurs in two ways. First, through courses specifically developed with First Peoples content.

- English First Peoples Literary Studies and New Media 11 (BCED, 2010)
- English First Peoples Literary Studies and Spoken Language 11 (BCED, 2020e)
- English First Peoples Literary Studies and Writing 11 (BCED, 2020g)
- English First Peoples 12 (BCED, 2020h)
- B.C. First Peoples 12 (BCED, 2020d)
- Contemporary Indigenous Studies 12 (BCED, 2020a)
- B.C. First Peoples 11 (BCED, 2016a)
- English 10 and 11 First Peoples

The second method of integration is through the Ministry of Education document which outlines connections between Indigenous knowledge, perspectives, and technologies across the curriculum from Kindergarten to Grade 12 (Indigenous Knowledge and Perspectives in K-12 Curriculum, 2020f). This document provides suggestions for teachers to develop and implement activities that integrate Indigenous knowledge and perspectives in their courses. For example, the "Applied Design, Skills, and Technologies Curriculum" (BCED, 2020c) includes the Grade 8 Food and Nutrition course. An example activity from the course is in Table 4. Although the Ministry document (BCED, 2020c) provides examples of integration activities, it does not provide specific information for each Indigenous community. Detailed activities and knowledge would need to be developed by School Boards and their respective Indigenous communities. See Table 4 below.

Table 4 Integration Food Studies 8

Big Ideas	Explicit	Implicit
Content	FOOD STUDIES: First Peoples food use and how that use has changed over time	FOOD STUDIES: variety of eating practices: <ul style="list-style-type: none"> <li>with whom, what, when, how, why, where food is consumed in a variety of situations (e.g., informal, formal, special, and/or ceremonial occasions)</li> </ul> local food systems growing: <ul style="list-style-type: none"> <li>harvesting, processing, packaging, transporting, marketing, consumption, and disposal of food and food-related items</li> </ul>

(BCED, 2020c, p. 5)

## **8.8. Curriculum integration: language**

The curriculum integration documents from the Ministry of Education for British Columbia focus on integrating Indigenous knowledge and perspectives but not Indigenous languages. Neither the B.C. graduation policy (B.C. Graduation Program Policy Guide (2020-2021), 2020b) nor the Indigenous integration document (Indigenous Knowledge and Perspectives in K-12 Curriculum, 2020f) make reference to subject content integrated with Indigenous language. In addition, the curriculum framework document for Indigenous and other languages (The Languages 5 to 12 Template: Development Package, 2003) does not specifically address the question of integrating Indigenous languages into other subjects or other subjects into Indigenous languages. There is, however, no specific prohibition against such integration, and the fact that the Eke Me Xi School Plan (2016) was approved by School District 85 indicates that cross subject integration with Kwakwaka'wakw is acceptable. Sections, 24.1, and 24.5 provide examples of language and other subject integration at Eke Me Xi.

## 9. Introduction to the Analysis

I address the following research questions in the analysis:

- Do the materials contain the range of grammatical structures in Kwakwala required in the curriculum expectations?
- Do the materials situate the language consistent with the communicative activity and provide contextual support?
- Do the materials reflect |Gwa'sala-'Nakwaxda'xw| style, pragmatics, social context, and social cognition?
- Do the materials improve the documentation for school and land-based documentation?

I conducted four separate analyses to address the questions posed above. The analysis methods and dataset are summarized in sections 9.1 to 9.1.3.

### 9.1. Accordance between the materials and the curriculum

The accordance between the materials and the curriculum is examined through a corpus-based analysis of the range, diversity, and occurrence of inflectional markers<sup>32</sup> in materials. Inflection markers are sampled from the data in order to compare the distribution with the communicatively based expectations in the curriculum. Data for the

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<sup>32</sup> Inflectional markers in Kwakwala are suffixes that provide grammatical information usually coded by separate words in English. For example, the pronoun 'I' in English occurs as the pronominal suffix /-ən/ in Kwakwala.

analysis includes materials developed during this study, educational lessons developed previously (Wilson & Henderson, 1981c; Wilson, Wallas, & Peters, 1980a), and word lists (Wilson & Henderson, 1982b; Wilson, Wallas, & Peters, 1982b).

### **9.1.1. Situational Accuracy**

The second area I analyze is "situational accuracy," where I examine whether visual and media evidence in materials is contextualized to appropriate situations, settings, and locations. Examples of situational accuracy include a picture with a Kwakwala caption, or a video of someone dancing in a big house along with a Kwakwala song. The various modalities are compared for consistency and Indigenous content using multimodal analysis.<sup>33</sup> Data in this section come from materials developed at Eke Me Xi and in land-based research.

### **9.1.2. Communicative Competence**

In order to assess the communicative competence area, I examine whether the materials demonstrate language that varies according to style, social context, social cognition, and dialect. I check whether they conform to a |Gwa'sala-Nakwaxdaxw| worldview in dialect, style, and social context. I contrast stories from my earlier work (Wilson & Henderson, Stories for Children, 1981a; Stories for Children 2a |Kwakwala|, 1982), with

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<sup>33</sup> Modalities include illustrations, captions, pictures, video and audio.

those developed during the current study (Wilson & Henderson, 2016; 2017a; Wilson & Wilson, 2017f). I also examine two versions of an origin of deer motif, one documented by Boas in 1894 and published in 1910 and the other documented by Hunt during the Jesup North Pacific Expedition and published in Boas & Hunt (1906).

### **9.1.3. Documentation**

In the fourth area, I examine whether the materials and procedures developed in the project have improved the documentation of Kwakwala and its dialects. The analysis examines improvements in access and accuracy regarding language documentation. The parser developed during the project is used to examine difficulties with orthographic conventions, conversion utilities, and keying errors. Areas examined include:

- error analysis of materials
- re-transcribing and correcting previously published |Gwa'sala-Nakwaxda'xw| place names in publications and maps into the community orthographies
- conversion between orthographic representations of Kwakwala

The parsing program is also used to examine difficulties associated with:

- conversion among linguistic, community, and legacy Kwakwala writing systems (Wilson & Wilson, 2020a)
- correcting keying errors (Wilson & Wilson, 2020a)

- developing an ASCII only Kwakwala orthography for use in computer systems unable to utilize Unicode UTF-8 standards

The data includes draft and finished materials developed during the study, place name research documents including Boas (1934) and Galois (1994), maps that cover the |Gwa'sála-'Nakwaxdaɣw| territories (Wilson & Henderson, 1982a; Wilson & Henderson, 2018), and linguistic research (Rosenblum, 2015; Littell, 2016; Janzen, 2015b; Siemens, 2016; Sardinha, 2017).

## **10. Accordance between materials and curriculum**

In order to examine whether the materials developed at Eke Me Xi cover the range of Kwakwala structures required to meet the communicative expectations in the curriculum, I focussed on Kwakwala inflectional markers. Inflectional markers in Kwakwala are suffixes (enclitics) that occur after word stems to provide person (e.g., ‘I’, ‘you’), mood (e.g., statement, command), case (e.g., subject, object), a three-way distinction in location: near speaker, near listener, near someone or something else (cf. ‘this’, ‘that’ in English), and a two-way distinction in visibility relative to the speaker (visible or known by the speaker, not visible or not known by speaker). These markers are productive and required in language activities to meet curriculum expectations, such as asking and responding to questions and presenting information.

For the analysis, I examine the range of Kwakwala inflectional markers and compare these to curriculum expectations. For example, inflections in Kwakwala mark the difference between a statement (indicative mood) and a question (interrogative mood), and the curriculum expectations require that students ask and respond to questions (SD85, 2010, p. 107). If, for example, there were numerous examples of questions but few examples of answers, the materials would not meet the expectation requiring students to ask and respond to questions. In summary, the analysis of the range of inflectional

markers provides an overview of the range of language in the materials and enables a comparison with curriculum expectations.

### **10.1. Connecting grammar structures and curriculum expectations**

In order to analyze the range of language in the materials relative to the curriculum expectations, it is necessary to associate the inflectional markers with the communicatively based language expectations in the curriculum guide.<sup>34</sup> The association between Kwakwala structures and communicatively based expectations in the curriculum is not direct, however, as structures vary considerably relative to communicative use. For example, an expectation such as "use and respond to commands, requests, and suggestions" (SD85, 2010, p. 104) is represented by a wide range of potential structures. Table 5 Commands and requests provides examples of commands and requests from Eke Me Xi materials:

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<sup>34</sup> Intuitively, these more easily align with the communicatively based expectations of the curriculum than other structures.

Table 5 Commands and requests

<p>Ḃngweda ḂmḂa?</p> <p>Ḃngw.e.da ḂmḂa</p> <p>who.pro3.SBJ.INT.PROX3.DEM play</p>	<p>WH Question: who</p> <p>‘Whose turn is it to play?’</p>
<p>'MasiḂ Ḃax'igitḂa'usaḂa ḂḂoḂw'mḂas?</p> <p>'masi.s Ḃax'i-gi-tḂ-a'.usa.Ḃa ḂḂoḂw'mḂas</p> <p>why.pro2.SBJ.INT fall.make.FUT.INT.poss2.pre3.OBJ alder</p>	<p>WH Question: why</p> <p>‘Why are you going to fell an alder tree?’</p>
<p>Ḃnwadi'ma'uḂwda 'nala?</p> <p>Ḃnwadi-'m-a'uḂwda 'nala</p> <p>cloudy-VER-pro3.SBJ.INT.PROX2.DEM day</p>	<p>Sentence Question:</p> <p>‘Is it cloudy today?’</p>
<p>HḂlaga ḂḂan'abo'mas.</p> <p>Ḃlaga ḂḂan'abo'mas</p> <p>go-pro2(NM)<sup>35</sup>.SBJ.IMP lower.area</p>	<p>Command:</p> <p>‘Go downwards (to the lower area!)’</p>

The first two examples in Table 5 illustrate two WH questions, ‘who’ and ‘why’. In the first example, the question word ‘who’ forms the question without the use of the interrogative marker |'a| on either the question word or the following word ‘play’. In the second example, the question word ‘why’ is not marked with the interrogative marker, however, the next word ‘to fell a tree’ is marked with the interrogative

<sup>35</sup> (NM) not marked.

marker. The third example, a ‘yes/no’ question, demonstrates the use of the interrogative marker to form these questions without using a question word. The fourth example demonstrates that a command is formed when the second person pronominal is omitted.

The examples above illustrate the range of structures in Kwakwala that are used to form questions and requests. These include words, ‘who’ and ‘why’, and inflections, e.g., the interrogative marker |'a|. Other curriculum expectations are not directly coded in the inflectional morphology, such as suggestions. There is no Kwakwala mood inflectional morpheme or word that infers a suggestion (i.e., subjunctive mood).

Table 6 Suggestions provides an example suggestion using a negative question.

Table 6 Suggestions

<p>I's laxas didaga'exsdala?</p>	<p>‘Wouldn’t you care for</p>
<p>i's la.xas di-daga-exsd-ala</p>	<p>some tea?’</p>
<p>neg-pro2.SBJ.INT go.pre3.OBJ.poss2 have-tea.to</p>	<p>lit. not you go for tea</p>
<p>want.CONT</p>	

As noted in Table 6 Suggestions, suggestions in Kwakwala can be structured using negative requests such as in "Wouldn't you care for some tea?"

According to the recommendations in the Ministry report (BCED, 2016c) the curriculum framework document (BCED, 2003) and the Indigenous language IRPs, it is necessary to provide connections between the structures of the language and communicative-experiential expectations (BCED, 2016c, p. 32). The need for greater clarity in this regard is evident in the survey responses discussed in the review (BCED, 2016c).

## **10.2. Linking communicative expectations to Kwakwala**

Communicative expectations for Indigenous and other languages in British Columbia were originally designed and written in English in the framework document (BCED, 2003). The “Introduction to Kwakwala 11” course also contains English-based language statements, for example SD85 (2010, p. 104). English-based expectations without exemplars in the target language contribute to the difficulty aligning language structures to communicative-experiential expectations. For example, the expectation "Ask and Respond to Questions" (SD85, 2010, p. 104) provides a potentially large range of both communicative and grammatical possibilities. In addition, English-based communicative expectations do not account for variations that occur between languages, so that expectations stated in English may not provide the kind of direction necessary in Kwakwala. For example, the expectation "use learned expressions and phrases in past, present, and future" (SD85, 2010, p. 104) is stated in English and appears to be based on an English lens of "grammatical time." English grammatical time, however, does not

align with Kwakwala "grammatical" time. For example, Kwakwala includes a "recent past" as well as a "remote past." Kwakwala "present tense" is unmarked and often requires the use of aspectual, demonstrative, and evidential markers to situate time and location during communication (see Section 20.1.8. for discussion on the semantic domain of present tense and the interaction of tense with aspect).<sup>36</sup>

The following examples illustrate questions and responses in Kwakwala that require different structures between a positive response and a negative response. Table 7 Ask and Respond to Questions 1 illustrates example questions and answers that "appear" to demonstrate a relatively uncomplicated way of meeting the expectation "Ask and Respond to Questions"<sup>37</sup> using Yes-No question formation with positive and negative answers.

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<sup>36</sup> Since Kwakwala grammatical time does not align with English grammatical time, it is necessary for materials to provide not only information on the structures, but also the contexts in which the various tense-aspect structures are used. This is one of the areas where fluent speakers are needed to ensure accurate language in materials.

<sup>37</sup> Based on a phrase structure interpretation of the expectation (SD85, 2010, p. 104).

Table 7 Ask and Respond to Questions 1

Grammar Description	Kwakwala	English
• ask 2nd person questions.	Wiṣḳa'mas? wiṣḳa-'m-as uneasy-VER-pro2.INT	'Are you uneasy?'  'Is it true that you are uneasy?'
• respond positively to yes/no questions using the first person singular.	Am wiṣḳa'man. am wiṣḳa-'m-an yes uneasy-VER-pro1.IND	'Yes, (it's true that) I'm uneasy.'
• respond negatively to yes/no questions using the first person singular.	Ƙi kiṣan wiṣka. k'i kiṣ-an            wiṣka Neg-pro1.SBJ    uneasy	'No, I'm not uneasy.'

Although the dialogue pattern in Table 7 seems relatively straightforward, there are structural and social settings which impact language. Structurally, both the question and positive answer in Table 7 require the use of the |'m| marker, which indicates a truth-like or verum condition (following Littell (2016)). In the question, the English translation is ordinarily rendered as 'Are you uneasy?' In Table 7 the translation is given as 'Is it true that you are uneasy', where the |'m| verum marker (VER) is translated as 'is it true'. This marker is also used in the positive answer, where |'m| translates 'it is true'. In the

negative answer, however, the verum marker is omitted, indicating that the truth condition does not apply.

Other complications arise with verbs indicating perceptions, such as "hunger." In Kwakwala, for example, a speaker might answer the question, 'Are you hungry?', using the /-x'id/ (inchoative) to signal a transition (Sardinha, 2020). |-x'id| signals a change in state as in 'I'm hungry now.' rather than the |'m| verum marker. |-x'id| indicates that the respondent has "just" become hungry, i.e., a transition, whereas the use of |'m| verum for 'uneasy' in Table 7 indicates a general state 'over a length of time'. Other examples of variations between different language use in Kwakwala might occur depending on personal or social contexts. For example, respondents might not wish to disclose their state of mind or feel the need to indicate that they are in a good state of mind, regardless of their perceptions. Difficulties between English and Kwakwala and varying social conventions of language usage pose difficulties relative to determining which language structures should be used to fulfil the requirements of the communicative-experiential expectations. Teachers, therefore, need to interpret curriculum guidelines and develop a best fit for Kwakwala that is age-grade appropriate and accommodates the settings and situations in which the language activities occur.

### **10.3. Method of analysis, inflectional markers**

The accordance between materials and curriculum seeks to discover whether inflectional marking in the materials fulfills the range of communicative expectations. For example, do the materials include questions and answers. Specifically, the examination seeks to discover whether the materials provide a "fulsome" range of inflections relative to the curriculum and Kwakwala. For example, do the materials include a variety of person markers in questions and answers, such as a question to a second person with a first person answer: "Are you fine?" – "Yes, I am fine," or a question asking about a third person "Is she ok?" "No, she is sick." Another example is whether the materials include intransitive and transitive sentences using both Kwakwala object markers.

#### **10.3.1. What is a fulsome range?**

Communicative-experiential activities in school settings should provide students with not only the range of language indicated in the curriculum, but also provide activities related to a curriculum expectation more than once. I use the word "fulsome" to describe both the structural communicative range but also the number of different examples with the same inflection. For example, we should expect to see more than one example of a verb with a first person subject indicative inflection, e.g., "I am hungry," "I am going to the store." In this study, I compare the communicative-experiential materials developed for Eke Me Xi with those I developed for the NILDP-CW that are grammatical-functional. In the

NILDP-CW materials, I developed lessons to meet a range of structures as well as ensure consolidation and review activities for student learning.

The concept of "fulsome" is not as simple as counting the number of occurrences for each structure, however. There are some structures in Kwakwala that do not provide a wide range of distribution, but which are common in certain communicative contexts. For example, the use of full word pronouns is not as common as inflected pronominal and pronominal forms, which predominate. When one is introducing oneself, for example, it is common to use the full word pronominal form rather than the inflected form. Compare the examples in Table 8 (1) full word pronoun, (2) inflection.

Table 8 Full word pronoun compared with inflection

<p>(1) Nugwa'əm Tsupala.</p> <p>nuga'əm</p> <p>pronoun1.SBJ.IND</p>	<p>Tsupala</p> <p>Tsupala (personal name)</p>	<p>'I am Tsupala.'<sup>38</sup></p>
<p>(2) Tsupalaxtʃən</p> <p>Tsupala-xtʃən</p> <p>Tsupala-to be named.pro 1.SBJ.IND</p>		<p>'I am Tsupala.'</p>

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<sup>38</sup> |Tsupala| is my Kwakwala name from the 'Nak'waxdaxw Henderson family.

The analysis that follows, therefore, provides comments in regard to data in contexts where Kwakwala structures vary in range depending in context.

#### **10.4. Coding inflectional markers**

Word paradigm (WP) analysis (Blevins, 2016) was used to code the "lump" of inflections for each word in the data. Word paradigm (WP) morphology includes an approach to polysynthetic language word morphology that groups word parts (morphemes) into groups or "lumps" (from Blevins (2016)). WP can also be used to develop language descriptions leading to word paradigms similar to pedagogical grammars for Latin, where the paradigmatic distribution of inflections is provided in lists. An overview of the WP method used in this study is presented in Section 16, Technical Appendix Word Paradigm Morphology. Information on the rationale for WP morphology is found in Section 20.1.2. Sections 20.4 and 20.5 provide examples of Kwakwala word paradigms developed from Eke Me Xi and NILDP-CW materials.

For the purposes of this analysis, word stem - inflectional combinations are considered as different words when a stem combines with different inflectional markers. Dictionaries usually do not consider differences between two words with the same stem but different inflectional forms as separate entries. Instead, these words would usually be considered as "tokens" of the same word as noted in Hilpinen (2012, p. 265). My interest, however,

is examining whether the materials exemplify a range of inflections needed to meet curriculum expectations. In order to conduct the analysis, I treat two words with the same stem but different inflections as separate words for the analysis. For example, the expression ‘my cat’ in Kwakwala would be one word, and ‘your cat’ would be another word. In a word paradigm-based dictionary, one might expect to see the word ‘cat’ |busi| listed in the main entry, and a list of declensions of cat in a paradigm table.<sup>39</sup> See Sections 27.3 and 27.4 for an overview of the development of word lists in the NILDP program and used at Eke Me Xi. The examination does not consider the number of occurrences of the exact same stem-inflectional lump.<sup>40</sup>

## 10.5. Data

In order to determine whether the materials developed at Eke Me Xi are accurate and provide the range of language experiences required in the curriculum, I examine evidence from written materials developed at the school as well as from materials I developed in the 1970's and 80's. The Eke Me Xi materials are based on a communicative-experiential method, while the earlier materials are based on a functional-grammatical approach.

These two data sets were processed in MS-Access.

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<sup>39</sup> Boas (Kwakiutl Dictionary, 1948), lists derivational forms of root words together with the root entry. I have found Boas' method of listing Kwakwala "words" to be difficult to use "quickly," due to the frequent lexicalization of words and the complexity of morphophonemic processes in the language.

<sup>40</sup> Although this would be important to uncover the number of times a student encounters a word, it was not included in this study. This study, however, focusses on the lesson materials as the "material artifacts," not on the actual classroom activities.

The Eke Me XI and NILDP-Canada Works materials were coded in a MS Access Database. See section 21.1 for an overview. I imported Eke Me Xi data into the MS Access database from word lists (Wilson P. , Bakwámkala Word List, 2017a) and materials (Wilson P. , Our Voices Our Stories, 2020e). I keyed in entries from printed draft word lists from digital versions processed at the University of Victoria (Wilson & Henderson (Kwakwala Word List, 1982b) and Wilson, Wallas, & Peters (Ĝu'cala Word List, 1982b)). Sentence examples from Eke Me Xi materials were imported into the database and lessons from earlier materials were keyed in from Wilson & Henderson (Kwakwala Language Lessons, 1979a; Advanced Kwakwala Lessons, 1981c; Advanced Kwakwala Lessons 2, 1982c) , and Wilson, Wallas, & Peters (Ĝu'cala Lessons, 1980a). Data is also included from narratives Wisa and Ĝana go berry picking at Ts'algwadi (Wilson & Henderson, 2016), Wisa and Ĝana go berry picking at Ba'as (Wilson & Henderson, 2017a), Shucking Clams (Wilson & Wilson, 2017f), Stories for Children (Wilson & Henderson, 1981a), and Stories for Children 2a |Kwakwala| (Wilson & Wallas, 1982).

## **10.6. Data coding and hypotheses**

I coded the inflectional endings in three separate rounds. Each separate coding round examines different areas to compare the materials to the curriculum expectations: first, to examine the difference between both "word lists" developed to assist with language

lessons. These contrast with typical "dictionary entries", where entries do not generally show a range of inflectional marking.<sup>41</sup> Second, to examine the average number of inflections between two samples of lesson materials, one from Eke Me Xi and the other from NILDP-CW. This second round serves to provide a general sketch of whether the materials use inflections or, instead, use full words to represent the concepts normally found as inflections in Kwakwala, such as the pronoun |nugwa| 'I' (first person pronoun verbal form) instead of the pronominal |-ən| 'I'. Third, to examine the range of, and distribution for, each inflectional category (e.g., mood, person) relative to the detailed requirements for communicative activities in the materials. The third round seeks to determine if the range matches expectations, such as the range to ask questions (interrogative) and answer them (indicative).

The three rounds examine three different questions:

1. First round: What are the differences between the inflectional marking between the word lists developed during NILDP and the Canada Works program? These word lists were compiled from grammatical-functional lessons, and the Eke Me Xi word lists compiled from communicative-experiential lessons. The expectation is that the entries contrast with dictionary entries, where a range of inflectional marking is not common cf., Boas (1948), First Voices (2017), Grubb

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<sup>41</sup> Dictionaries and word lists tend to adopt the practice of representing inflections based on a particular form, for example, third person singular for verbs and singular for nouns in the First Voices Kwakwala Dictionary (2017).

(1977), and Shaw (2006a; 2006b).

2. Second round: What can we learn about the differences between the NILDP-CW grammatical functional materials and the Eke Me Xi communicative experiential materials by examining the percentage of inflected words versus uninflected words.
3. Third round: The third round examines the range of inflections evident in both Eke Me Xi and NILDP-CW materials.

Third round coding examines:

- a. whether the materials meet the range of language required in the curriculum
- b. compares the inflectional range between Eke Me Xi versus NILDP-CW materials
- c. determines whether differences in language structures might be noted between the NILDP-CW and Eke Me Xi data sets.

I hypothesized that:

- Both NILDP-CW and Eke Me Xi materials would contain a diversity of separate entries for stems with various inflections.
- Eke Me Xi materials focus on communicative-experiential curriculum expectations (SD85, 2010).

- NILDP-CW materials provide a wider diversity of inflections than Eke Me Xi because they were developed with attention to grammatical structure rather than communicative activities.

I also anticipated that differences might occur between the two dialects.

### **10.7. Language expectations and the curriculum**

Grammatical competency in the materials is investigated through an analysis of inflectional marking in Kwakwala. The analysis examines whether the inflectional markers are accurate and provide the range of language required to meet the communicative expectations in the curriculum. There is also a need to identify the connections between the communicative-experiential expectations and the potential structures that illustrate these expectations. This is significant for teachers who are learning Kwakwala. These teachers will have difficulty knowing the range of structures that could fulfill an expectation, which structures are appropriate for the intended grade level, and whether or not a sentence is grammatical.

### **10.8. Grammatical competence and the curriculum**

The communicative expectations discussed in this analysis focus on the "Communicating, Exchanging Information" and "Communicating, Presenting Information" sections of the IRP (SD85, 2010, pp. 104-107).

Table 9 details the "Communicating, Exchanging Information" expectations for language activities of "Introduction to Kwakwala 11" IRP (SD85, 2010, p. 104). Column 1 lists the expectations, and column 2 provides Kwakwala examples. The example sentences in column 2 provide teachers with "clues" to the kinds of structures that can be used in their materials and lessons.<sup>42</sup> In addition to the Kwakwala examples noted in Table 9, the guide provides example activities (SD85, 2010, p. 104).

Although the activities and curriculum expectations in Table 9 below provide details related to the curriculum, a teacher who is learning the language would need assistance from a fluent speaker in order to develop and implement lessons and activities.

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<sup>42</sup> The examples in column 2 in Table 9 do not provide Kwakwala examples for the full range of expectations listed.

Table 9 Communicating, Exchanging Information

<i>It is expected that students will:</i>	<i>Examples in Kwakwala from the curriculum guide that illustrate expectations:</i>
-recognize, pronounce, and form the characters of the Kwakwala alphabet.	Play alphabet games, such as Letter Bingo or Hangman to provide extra practice in recognizing the letters of the Kwakwala alphabet.
-use and respond to commands, requests, and suggestions.	Provide opportunities for students to follow routine classroom directions and instructions in Kwakwala. Use gestures to clarify meaning. - John, i'axalala dfa'uxwda Samx. (John, work with Sam.) - Giga'walxsi'stalitax. (Come and stand in a circle.)
-ask and respond to questions with question words such as 'ma "what", angwa "who", 'wilakw "when", 'widi' "where", and gans "how many".	<i>(no examples directly given; however, example question words are detailed in column 1)</i>
-exchange information about activities, people, places, and things.	Have students use pre-framed models to interview one another to learn personal information. Partners then introduce one another to the class - e.g., - He'man dfigami _____. (My name is _____.) - Ge'man egas 'namukw gada. (This is my friend.) - He'am dfigamsux ka'e Pam. (Her name is Pam.) - Ix'akuxa _____. (She likes _____.)
-communicate wants, needs, likes, dislikes and emotions, giving simple reasons.	Ka'kut'fa'exsduxw xan's yakandas. (She wants to learn our language.)
-express ability and inability. ask for specific help. -use learned expressions and phrases in past, present, and future. -participate in Kwakwala in a variety of situations drawn from real life. -use learned expressions and phrases in past, present, and future. -participate in Kwakwala in a variety of situations drawn from real life.	<i>(no examples)</i>

(SD85, 2010, p. 104)

Table 10 below provides additional Kwakwala examples from the Eke Me Xi lessons to further illustrate how communicative expectations match Kwakwala.

Table 10 Language expectations with examples from Eke Me Xi materials

It is expected that students will:	<i>Examples from the materials at Eke Me Xi that relate to the expectations:</i>
use and respond to commands, requests, and suggestions.	Salt'ida's. Calm yourself. Ix'mas? Are you well? Ix'man. I am well.
ask and respond to questions with question words such as 'ma "what", angwa "who", 'wilakw "when", 'widi' "where", and gans "how many".	'Madzos? What's the matter? Tixwan gugwayu. I have a bruised leg. 'Wiksas? How are you? 'Wixdi le Gana? Where did Gana go? Angweda ?amfa? Whose turn is it?
exchange information about activities, people, places, and things.	Wibaloḵwda tsalax? Which way is the tide going? Tsawitḵaluxwda tsala. The tide is coming in.
communicate wants, needs, likes, dislikes and emotions, giving simple reasons.	Mixamalan. I'm sleepy. Halaga kwa'liḵ. Go and lie down.
express ability and inability.	Duḵwala'mantḵaxus 'watsekus. I can see your dog.
ask for specific help.	Matsasus axe'axsdaḵawa'os? How can you be helped?
use learned expressions and phrases in past, present, and future.	Kalxwatḵan. I am going shopping. Kalxwaxdan. I went (recently) shopping. Pusḵax'idan. I feel hungry (at this moment). Pusḵaman. I am hungry (it is true).
participate in Kwakwala in a variety of situations drawn from real life.	Aḵaxtḵudzusus tsepidziyakus. Put on your dance apron. (said to alert dancers to get ready for traditional dance practices)

(Column 1, SD85, 2010, p. 104: Column 2, Eke Me Xi Materials)

### **10.9. Linking communicative expectations and range of language**

In order to plan lessons and implement classroom activities, Kwakwala teachers need to develop language activities that connect with the communicatively based expectations.

This requires teachers to develop activities that meet the objectives stated in the expectations as well as decide which Kwakwala words, phrases, sentences, and dialogue to use in their lessons. Teachers will also need to ensure that their language choices relate to the settings for each activity, as well as align with grade and experience levels.

The demands of a communicative-experiential curriculum, as noted in the introduction, are particularly difficult for teachers and researchers who are learning the language.

These individuals may have a limited range of language making it difficult for them to ensure a best fit between communicative expectations, language, and settings. In order to support teachers and researchers who are learning the language, they will need to have regular interaction with Elders as well as support materials that provide robust documentation that connects language examples with the communicative curriculum expectations.

For the purposes in this study, the analysis focusses on Kwakwala samples from word lists developed from lessons and sentences from educational materials. These include lessons designed for Kwakwala classes or integrated into other content classes. For

example, when the science class studied tides, the Kwakwala class would study communicative phrases and vocabulary related to tides. Section 24.8, exemplifies the integration of Kwakwala with a unit on ecology and a visit to the Quatse Salmon Stewardship Centre in 2018-09-12.

### **10.10. Analysis Overview**

The goal of the inflectional analysis seeks to determine whether materials that I developed for Eke Me Xi meet language expectations in the "Communicating, Exchanging Information" and "Communicating, Presenting Information" sections of the IRP (SD85, 2010, pp. 104-107). The inflectional data used in the analysis are from the materials I developed based on suggestions from teachers, Elders, and the Eke Me Xi School improvement plan (2016). This includes language lessons, materials, and word lists from the Kwakwala classes and other content courses. For example, while students were engaged in clam harvesting, I directed students and teachers to assist with documentation activities (photos, audio, and video). This documentation provided visual and background information that I used to develop language materials.

Table 11 provides example commands, questions, and responses from a worksheet reviewing a clamming activity.

Table 11 Example commands, questions, and responses

	<p>Question:</p> <p>'Matsaḡigada?</p> <p>'Matsaḡi.gada?</p> <p>What-</p> <p>pro3.SBJ.INT.PROX1</p> <p>What is this?</p>	<p>Answer:</p> <p>Gawiḡanamuḡw.</p> <p>Gawiḡanam.uḡw.</p> <p>Clam-</p> <p>pro3.SBJ.IND.PROX2</p> <p>That is a butter clam.</p>
	<p>Command:</p> <p>ḡwala tḡuma olakala laḡus yaḡa.</p> <p>ḡwala tḡuma olakala la.ḡus yaḡa.</p> <p>Don't "very" "really" Aux-</p> <p>PROX2.POSS2 dig</p> <p>Don't dig really hard.</p>	

(Eke Me Xi Lessons, 2017)

Not only was the language accurate to the situation and setting of the activity, but it also provided additional cultural knowledge necessary for a successful clam dig. This can be noted in the second example in Table 12, where instructions explain that if one pushes a clam fork into the beach with too much force the clam shell might puncture and make the clam unsuitable for eating. As noted above, non-fluent teachers will need to interpret the curriculum expectations to collaborate with Elders to develop materials and activities that

connect curriculum expectations with Kwakwala structures. Table 12 and Table 13 exemplify the complexity of structure and context.

Table 12 Ask and respond to questions 2.

Description	Kwakwala	English
<ul style="list-style-type: none"> <li>ask someone if they want something using the second person /-as/ interrogative marker and the derivational suffix 'to want'.</li> </ul>	<p>Didageᵑsda'mas?</p> <p>di-daga-eᵑsda-'m.as</p> <p>to-have-tea-to want-VER-pro2.SBJ.INT</p>	<p>'(Is it true that) you want some tea?'</p> <p>lit. to have tea want you?</p>
<ul style="list-style-type: none"> <li>respond using the first person /-an/ indicative marker and the derivational suffix 'to want'.</li> </ul>	<p>Am didageᵑsda'man.</p> <p>am di-daga-eᵑsda-'m.an</p> <p>yes to-have-tea-to-want-VER-pro1.IND</p>	<p>'Yes (it is true that) I want some tea.'</p> <p>lit. to have tea want it's true I</p>
<ul style="list-style-type: none"> <li>responding to someone to indicate that it is not wanted using the first person /-an/ indicative marker and the derivational suffix 'to want.'</li> </ul>	<p>ki kisan didageᵑsda.</p> <p>ki kisan</p> <p>no not-pro1.SBJ.INT</p> <p>di-daga-eᵑsda</p> <p>to have-tea-to want</p>	<p>'No, I don't want some tea.'</p> <p>lit. No, I don't want to have tea</p>

In Table 12, the inflections used to form the question and answers are similar to Table 7, however, the stem word includes two derivational suffixes: 'to have', added to the stem

word |di| ‘tea’ to form |didaga| ‘to have tea’. The stem ‘to have tea’ includes the derivational suffix ‘to want’, which forms |didagexsda|, ‘to want to have tea’. The negative answer in Table 12, like the negative answer in Table 7, does not have the /'m/ verum suffix. Although the above example illustrates circumstances where Kwakwala structures are different from English through the use of derivational suffixes, other examples are structurally more complex, where social variations impact language use.

The following Table 13 exemplifies a basic question and answer taken from dialogue asking whether someone wants some tea. Table 13 includes examples of two different polite requests illustrating a communicative act where the speaker conveys a heightened sense of politeness in asking someone if they would like tea. The examples below illustrate the use of negative verbs to convey politeness, as well as variations between the use of derivational suffixes and full word forms.

Table 13 Ask and respond to questions 3.

Description	Kwakwala	English
<ul style="list-style-type: none"> <li>polite request using the negative /i's/, second person /-as/ interrogative marker, and derivational suffixes 'want' and 'have'.</li> </ul>	<p>l's la<sub>x</sub>as didaga'e<sub>x</sub>sdala?</p> <p>i's                      la-<sub>x</sub>as</p> <p>neg-pro2.INT    go-pre3.OBJ.poss2</p> <p>di-daga-e<sub>x</sub>sd-ala</p> <p>tea.want.CONT</p>	<p>'Wouldn't you care for some tea?'</p>
<ul style="list-style-type: none"> <li>polite request using the negative /ki's/, the second person /-as/ interrogative marker, the derivational suffix 'to have', and the full word form of 'to want'.</li> </ul>	<p>ki's la<sub>x</sub>'as a<sub>x</sub>e'a<sub>x</sub>sdama<sub>s</sub>a<sub>x</sub> di'ya?</p> <p>ki-'s                      la<sub>x</sub>-'as</p> <p>neg-pro2.SBJ.INT    go-pro3.OBJ.poss2</p> <p>a<sub>x</sub>e'-a<sub>x</sub>sd-am-a<sub>s</sub>a<sub>x</sub></p> <p>want-VER-pro2.SBJ.pre3.OBJ</p> <p>di'ya</p> <p>tea-v-</p>	<p>'Wouldn't you like tea?'</p>

The first example in Table 13 uses the negative verb |i's| 'not you' to convey a polite question or suggestion and the second example uses the negative verb |ki's|. Both negative verbs are used interchangeably, and their distribution may be in free variation.<sup>43</sup> The first example uses the derivational suffixes 'to have' and 'to want' attached to the verbal stem

<sup>43</sup> It is also possible that there may be a difference in dialect.

‘tea’. The second example uses the word ‘to want’ followed by the nominal stem ‘tea’, which has the not-visible marker attached. Both sentences provide polite methods of asking someone if they would like tea.

Table 14 illustrates a positive response |keɬ|, which is usually translated as ‘of course’ and implies a strong agreement. In addition, the focus of the agent switches to the listener, so instead of responding ‘Of course, I would really like some tea’, the speaker says, ‘Of course, that is really good of you’.

Table 14 Response to a polite question

Grammar Description	Kwakwala	English
• use a polite response to a polite question using  keɬ  ‘of course’	Keɬ      olaʔala'as      ik.	‘Of course, that is really good of you.’
	Keɬ      olaʔala'.as      ik	
	of.course      really.pro2      good	

The development of social language variation is an important consideration at Eke Me Xi, such as those noted in Table 13 and Table 14. Teachers need to develop materials and lessons that are based on the social situations in which high school students participate, such as might occur in class, at home, and when among friends. In addition, polite or formal language is expected during formal occasions, ceremonies, and when serving Elders at school and during feasts. This is an important concern for

|Gwa'sala-'Nakwaxda'xw| Elders, who have indicated that language activities should

reflect their social values and traditional knowledge, and be consistent with their perspective and worldview. Polite interactions with Elders are significant in the social practices in the community and need to be included in educational language activities. It is important, therefore, that language documentation includes information about social language usage in situations in which the students might potentially engage.

In summary, language teachers and researchers who are learning the language need to have access to language materials that not only account for the structural properties of Kwakwala, but also for the social, cultural, and social cognition of native speakers. Previous Kwakwala materials, such as those I developed for NILDP-CW (Wilson & Henderson, 1979a), need to be adapted to account for the interplay between language and social, cultural, and social cognition. As well, non-fluent teachers need regular and continual access to fluent speakers when developing new materials.

#### **10.11. Analysis: data sets**

Data for this study include word lists from three data sets and two dialects, |Bakwamk'alal| (|Gwa'sala-'Nakwaxda'xw|) and |Kwakwala (Kwaguł)|. Data is also included from a word list compiled at the University of Victoria from NILDP and Canada Works (CW) materials for School District 72 (Campbell River) and School District 85 (Port Hardy). These materials were developed before the IRP and include Wilson & Henderson, 1981;

1982a; and 1982b. See Table 15 for details of the analysis data.<sup>44</sup>

Table 15 Data sets and Data Source Information

Dialect	NILDP-CW Word List	Eke Me Xi Word List	NILDP-CW Lessons	Eke Me Xi Lessons	Total Words Lessons
Kwakwala	(2a) 3864	(2b) 152	(2b) 1493	(2b) 56	<b>1549</b>
Bakwamkala		(3a) 2776		(3b) 1576	<b>1574</b>

For the purposes of this study, the Eke Me Xi communicative-experiential data are integrated into one group (Eke Me Xi) and the NILDP-CW grammatical-functional data into a second group (NILDP-CW).

Analysis Methodology: Word paradigm analysis (Blevins, 2016) is used to code the inflectional markers in the data set. Word paradigm (WP) morphology is a method of grouping word parts (morphemes) into groups or "lumps." The inflectional endings coded in the analysis include:

- Person markers: includes both inflected and full word versions of person markers
- Mood: indicative, interrogative ((yes/no) and question word (wh)), imperative
- Case: Subject, Object, Other Object (also known as instrumental, e.g., Boas, 1947)
- Deixis: Proximity to 1<sup>st</sup>, 2<sup>nd</sup>, or 3<sup>rd</sup> person (following Boas (1911; 1947))

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<sup>44</sup> Data is housed in a Microsoft Access database. MS Excel is used to examine the distribution of inflections.

- Visibility Evidential: +VIS (or known to speaker), -VIS (or unknown to speaker)

Inflectional coding follows Leipzig (2015) where inflection forms are not segmented in Kwakwala but are segmented by a period in the grammatical analysis.

Table 16 Code Example 1

(1) ?ixmas ‘Are you fine’
?ix-m-as
fine-VER-pro2.SBJ.INT

EXAMPLE	CODE (INFLECTION CODE HIGHLIGHTED IN SQUARE BRACKETS)	INFLECTION CODE DESCRIPTION	TRANSLATION
(1) ?ixmas	?ix-m- <u>as</u> fine-VER-[pro2.SBJ.INT]	pronominal 2nd person, subject, interrogative	‘Are you fine?’

Table 17 Code example 2

(2) ?isən duq <sup>w</sup> əlaʒəx <sup>w</sup> da kadayuk. ‘I can't see the pen (but I know it's there +VIS).’		
?is-ən	duq <sup>w</sup> -əla-ʒəx <sup>w</sup> da	kadayu-k
not-pro1.SBJ.IND	see-CONT- pre3.OBJ.PROX2.DET	pen-post.+VIS

## 10.12. Analysis: First Round Coding

The first round examined the number of inflections in the two-word lists: NILDP-CW

and Eke Me Xi. Words were coded as inflected when they contained one or more marked inflections. Words were coded as not inflected (i.e., base forms) when they did not contain any marked inflections. Words without inflectional markers were only considered as "inflected" when the translation indicated third person, which is not marked in Kwakwala. For example, |la| translated as 'to go' (not inflected) versus |la| translated as 'he-she goes' (inflected). Table 18 contains the results of the analysis.

Table 18 First Round Coding

Data	# of inflected words	Total Words	% inflected words
(2a) NILDP-CW	717	3447	20%
(3a) Eke Me Xi	911	2772	33%

The word list developed for teacher use from the Eke Me Xi program contains more inflected words than NILDP-CW materials. The greater use of inflections in Eke Me Xi data suggests a less "grammatically constrained" range of language than the NILDP-CW materials, which focussed on introducing language structures based on the degree of complexity.

### 10.13. Analysis: Second round coding

Second round coding examined a sampling of sentences in class lessons and materials.

Table 19 results indicate that both Eke Me Xi and NILDP-CW sentences contain a greater

percentage of inflected forms than the word list corpus in Table 18. NILDP-CW sentences contain more inflected forms (79%) than those in the Eke Me Xi corpus (71.5%).

Table 19 Coding # of inflections: words in sentences

Data	# of sentences	# of words	# of words per sentence	# inflected words	% inflected words
(2b) NILDP-CW	521	1484	3.5	1157	79%
(3) Eke Me Xi	631	1631	3.8	1165	71.5%

Table 20 contrasts the sentence inflections between words 1 to 4 with words 5 to 8. The results indicate that a significantly greater number of inflections are found in the first four words than those that follow, where nominals often occur unmarked for location and visibility. In addition, the verbal forms come first in Kwakwala and are regularly inflected. Both data sets are similar in the less frequent use of inflections for words in positions 5 to 8.

Table 20 Number of inflected words in the last four positions in a sentence

	# of words position 1-4	# inflected	% inflected	# of words position 5-8	# inflected	% inflected
(2b) NILDP-CW	1356	1087	80%	127	69	54%
(3) Eke Me Xi	1518	115	73%	120	60	50%

#### **10.14. Analysis: Third round coding**

Third round coding compared the details of the inflections evident in the lesson data sets.

The goal of third round coding seeks to:

- (1) uncover how effective the activities were in reflecting a range of language
- (2) compare the materials to curriculum requirements
- (3) determine whether language structure differences occur between data sets

Third round coding and analysis analyzes whether differences in language structures might be noted between the two data sets. I hypothesized that the NILDP-CW materials would contain a greater diversity of inflections as the materials were developed with attention to grammatical structure rather than communicative activities, whereas the Eke Me Xi materials would focus on specific forms related to activities. I also anticipated that differences might occur between the two dialects. The results of the third-round coding are examined below and focus on person, number, mood, case, and deixis and visibility.

##### **10.14.1. Person and Number**

Table 21 indicates that both NILDP-CW and Eke Me Xi materials provide a full range of inflected person markers. Although the distribution of person markers varies between the data sets, both data sets provide a range of language and utilize both pro- and pre-nominal structures.

Table 21 Person and Number: Inflected Forms (Pronominals and Prenominals)

Data	Words	1sg	1inc	1exc	2	3pro	3pre
(2b) NILDP-CW	1449	185	32	10	67	176	287
(3b) Eke Me Xi	1440	159	7	8	183	161	363

Table 22 illustrates the difference between (1a) prenominals and (1b) pronominals.

Table 22 Person and Number (1a prenominal and 1b pronominal).

(1a) Laxdi John la <sub>x</sub> a ka <sub>l</sub> wilas.		'John is going to the store.'	
la-xd-i	John	la <sub>x</sub> a	ka <sub>l</sub> wilas.
go-recent past-	John.POST3(NM)	la <sub>x</sub> a	ka <sub>l</sub> wilas
pre3.SBJ.IND.PROX3		'to the' LOC	'store' POST3(NM)
(1b) Laxdi la <sub>x</sub> a ka <sub>l</sub> wilas.		'He/she is going to the store.'	
la-xd.i	la <sub>x</sub> a	ka <sub>l</sub> wilas.	
go-recent past-	la <sub>x</sub> a	ka <sub>l</sub> wilas	
pre3.SBJ.IND.PROX3	'to the' LOC	'store' POST3(NM)	

Table 23 below demonstrates that the language used in both datasets employs inflected pronominals far more frequently than full word pronouns. One might hypothesize that language lessons developed by non-fluent speakers might use pronouns in greater frequency due to influence from English. This appears to not be the case.

Table 23 Person and Number: Full Word Pronouns

Data	# Words	1sg	1inc	1exc	2	3pro
(2b) NILDP-CW	29	10	0	0	13	13
(3b) Eke Me Xi	11	1	0	0	0	10

Table 24 provides examples of sentences contrasting pronoun and pronominal usage.

Examples 8a and 8b, as well as 8c and 8d demonstrate the two methods that one can use to name someone or something, the first with a pronoun verb and the second with an inflection.

Both pronoun and pronominal forms are described in Boas (e.g., 1947) and match both current data sets. One difference is the use of inflected forms for giving ones name in NILDP-CW data (i.e., 1970's) and pronoun forms in Eke Me Xi (i.e., 8c rather than 8b).

Table 24 Pronouns and Pro-/Pre-Nominals

(8a) Yuʔəm yalayugada.	‘It is a clam digging stick.’
Yu-’əm.	yalayu-gada
Pronoun2.SBJ.IND-VER <sup>45</sup> .PROX2	clam digging stick.post3.+VIS
(8b) Yalayu'muɣw	‘It is a clam digging stick.’
yalayu-'m.uɣw	

<sup>45</sup> VER "veritas" from Littell (2016).

clam digging stick-VER.PROX3	
(8c) Nugwa'ām Peter.	‘I'm Peter.’
Nugwa'-ām Pronoun1.SBJ.IND-VER	Peter. Peter.post3(NM)
(8d) Peterxtł.ān.	‘I'm called Peter.’
Peter-xtł.ān Peter-"be named".pro1.SBJ.IND	

#### 10.14.2. Possessives:

Distribution of possessive usage between the two data sets is thorough and consistent (Table 25). 1st person inclusive and exclusive examples are not common in either dataset.

Table 25 Possessives

Data Possessives	# Words	1sg	1inc	1exc	2	3
(2b) NILDP-CW	158	53	2	2	73	28
(3b) Eke Mi Xi	197	54	2	3	110	35

Table 26 illustrates that possessives in Kwakwala are marked either prenominally (9a), post nominally (9c), or on both prenominal and postnominal positions (9b, 9c). Both data sets are consistent and similar to the analysis in Boas (1947). Work is on-going in this area.

Table 26 Possessives (prenominal, postnominal, or both)

(9a) <b>dukwəl̥antʰax̥ən</b> 'watsix̥		'I see my dog (near 2).' (B) (K)	
<b>dukwəl-ən</b> λax̥ən see-CONT-pro1.SBJ.IND.pre3.OBJ.POSS1		'watsix̥ dog-post3.+VIS	
(9b) <b>ikaḵelən</b>		'My older sibling is feeling well.' (B)	
<b>ikaḵelən</b> 'nula'ən pre3.SBJ.IND.POSS1		'nula'ən older sibling-post3.POSS1	
(9c) <b>Ćamxʔidaʔs̥x̥us xəndʔəs̥aqus.</b>		'Point at your nose.' (B) (K)	
<b>Ćam-xʔid.aʔs̥x̥us</b> point-now.pre2.IMP.POSS1		<b>xəndʔəs̥.aqus.</b> nose-post3.POSS2	
(9d) <b>Wətʰa'masux̥we 'nule'os lax̥eda Ham'e qa's kəlxwa.</b>			
'Ask your older brother at the Ham'e (restaurant) what you should shop for.' (B)			
<b>Wətʰ-a'm.asux̥we</b> ask-VER- pro2.SBJ.IMP.pre3.OBJ.PROX3		'nule'os post3.POSS3.-VIS	
<b>lax̥eda</b>	<b>Ham'e</b>	<b>qa's</b>	<b>kəlxwa</b>
Loc-PROX3-DET	Ham'e	PURPOSE-POSS2 "for your"	shopping

**10.15. Mood:**

The lessons provide examples of the four inflected mood structures on verbal elements: indicative, imperative, interrogative inflection (i.e., yes/no question), and interrogative question word (i.e., WH question word). See Table 27 Mood.

Table 27 Mood

Data	Total Words	INT (WH-)	INT (yes-no)	INT Total	Indicative (statement)	Imperative
(2b) NILDP-CW	542	33 (7%)	49 (8%)	82 (16%)	440 (68%)	20 (3%)
(3b) Eke Me Xi	553	47 (8%)	77 (12%)	124 (20%)	479 (74%)	74 (11%)

**10.15.1. Case:**

Table 28 provides the distribution of case markers.

Table 28 Case

Data	# of words	# of words inflected only SBJ	# of words inflected SBJ and OBJ	# of words inflected SBJ, and OTH	# of words inflected SBJ, OBJ, and OTH
(2b) NILDP-CW	1304	411	101	82	8
(3b) Eke Me Xi	1440	587	73	48	0

Examples of the three cases are included in both data sets. Both sets include examples with use of two cases, subject with object, and subject with other object. NILDP-CW examples include more frequent examples of sentences with verbs inflected for both subject and object and subject and other object. There are no examples where all three cases occur as inflections on a single verbal element in the Eke Me Xi data, and only eight examples in NILDP-CW data. This is, however, anticipated and consistent with Boas (1911; 1947).

### 10.15.2. Deixis and Visibility

The analysis of deixis and visibility focussed on whether post nominal markers are omitted in both Eke Me Xi and NILDP-CW data sets. Post nominals include information regarding visibility and possessives, as can be noted in Example 3 No postnominal marking. See Section 18.9.2 for an overview of the variable marking of post-nominals.

#### Example 3 No postnominal marking

(1b) Laxdi la <sub>x</sub> a ka <sub>l</sub> wilas.		‘He/she is going to the store.’
la-xd.i go-recent past-pre3.SBJ.IND.PROX3	la <sub>x</sub> a la <sub>x</sub> a ‘to the’ LOC	ka <sub>l</sub> wilas. Store.PROX(NM)

The number of nominals in the two data sets is similar, 593 for NILDP-CW and 594 for Eke Me Xi. Table 29 Post-Nominal marking indicates that the NILDP-CW sample includes 326 words that do not contain any post nominal marking and 267 words that contain at least one post nominal marker. In contrast, the Eke Me Xi sample contains 430 words that do not contain post nominal marking while 154 words contain at least one post nominal marker. In summary, 45% of nominals are marked in the NILPD-CW data compared to 26% in the Eke Me Xi data.

Table 29 Post-Nominal marking

All Post3 Nominal Inflections	# Post3 nominals all words	Post3 not marked	Post 3 marked	% marked
(2b) NILDP-CW	593	326	267	45%
(3b) Eke Me Xi	584	430	154	26%

Table 30 below provides information on post nominal marking for nominals that occur later in a sentence, specifically in positions four through eight. In this case, the percentage of words that are marked with one or more inflections drops to 14% in the NILDP-CW data, and 16% in the EKE Me Xi Data.

Table 30 Post-nominal marking on words 4-8

Post 3 Nominal	# Post3 nominals	Post3	Post 3	%
Inflections on Words 4-8	words 4-8	not marked	marked	marked
(2b) NILDP-CW	167	135	32	14%
(3b) Eke Me Xi	117	98	19	16%

The lack of postnominal marking in later words in a sentence supports a hypothesis that location and visibility-evidential usage is discourse based. Evidence indicates that once the deictic and evidential information is established in a speech act, it is less likely that deictic and visibility markers occur again later. Both NILDP-CW and Eke Me Xi samples are nearly identical in this regard. Further work is needed to examine the hypothesis that deictic marking for location and evidentiality are discursive (see Section 18.9.4 Demonstratives: Location, Grammar, or Discourse? and Section 21.3.6 Word position, inflections, and discourse).

### 10.16. Summary

In summary, the analysis of inflectional markers in the Eke Me Xi materials demonstrates that the range of inflection marking provides evidence that the materials contain the range of inflectional markings required in the curriculum. Eke Me Xi sentences examined in round 3 coding demonstrate sentences with inflections for all categories. For example, the

materials contain WH and Yes-No questions, statements, and commands, and pronominal-pronominals are distributed over all person marking. However, some categories are not as evenly distributed. For example, first person inclusive and exclusive are not as frequent. There are contrasts between Eke Me Xi and NILDP-CW data. For example, NILDP-CW data include a more evenly distributed range of person markers, as well as a greater number of example transitive sentences (i.e., subject and object, subject and other object). This was anticipated, as the NILDP-CW materials were developed specifically to ensure a range of grammatical categories in lessons. Similarities between NILDP-CW and Eke Me Xi also occur. For example, both data sets are consistent in not marking postnominals in words 5-8. The analysis results support the conclusion that both NILDP-CW data and Eke Me Xi data provide a range of inflections that represent the language. Results also demonstrate that grammatical-functional materials provide a more evenly distributed range of inflections among categories, such as in the distribution of pronominals and greater use of transitive constructions. These differences are most likely due to the NILDP-CW materials providing specific lessons on these categories in advanced lessons. See Wilson & Henderson (1981c) and Wilson & Henderson (1982c).

## **11. Analysis of materials: situational accuracy**

In this section I analyze whether the materials are consistent with Kwakwala settings and activities as well as connect with Indigenous themes and knowledge. Two analyses are included: videos and printed lesson materials. The videos were produced through a collaboration between students, Elders, school staff, and professional filmmakers. Print materials were produced during this study for use in Kwakwala classes at Eke Me Xi. The examination determines whether language, community locations, settings, and activities connect with Indigenous themes and knowledge. This includes a multimodal analysis to examine whether there is consistency among the various modes. For example, does the background music in videos come from traditional songs or from non-Indigenous music; or do the print materials rely on generic pictures or clip art or utilize photos or art from the local Indigenous communities.

### **11.1. Method of analysis**

I used in vivo coding (Saldaña, 2016) to investigate the language and multimodal information in the videos in order to uncover language use, technology, social settings, and cultural activities. In vivo coding assigns a code to language or modal data from a video or transcript. The code describes the salient features of the data (Saldaña, 2016). Language coding in the study focussed on examining whether the speakers used Kwakwala, English, or translanguaged (switched between English and Kwakwala during

a communicative utterance). Simultaneous coding was used to examine overlapping modes (i.e., when more than one modality occurs). Modes overlap, for example when background music, visuals, and dancing co-occur on the timeline (Saldaña, 2016, p. 307). This method was found to be effective in examining the data in my Pilot Study (Wilson P. , 2017b). In the Pilot Study, language and social settings were coded separately. The coded language and social items were processed through several rounds of coding to categorize and develop “key” codes to represent Gwa'sala/Nakwaxda'xw situated locations and language, based on practices in Saldaña (2016, p. 56).

A code is a researcher generated word or short phrase that assigns meaning to the data, as noted by Saldaña:

Code: Most often a researcher-generated word or short phrase that symbolically assigns meso or macro levels of meaning to data or to data analytic work in progress. A concept is a word or short phrase that symbolically represents a suggested meaning broader than a single item or action, a “bigger picture” that suggests an idea rather than an object or observable behavior.

(Saldaña, 2016, p. 298 Appendix A)

For example, if the name of a village is used in a story, the code might be written “village named.” If the village is situated using a geographic descriptor, the code might be written

as “village located” in first round coding. Second-round coding begins the process of identifying similarities between codes. For example, “village named” and “village located” could be represented by the concept “location identified,” following procedures in Saldaña (2016, pp. 1-22). Through successive rounds of coding, the researcher “lumps” codes together developing more and more abstract descriptors referred to as “concepts” (Saldaña, 2016, pp. 1-19). The successive rounds of coding lead to more and more abstract concepts that can uncover the “theory” (Saldaña, 2016, p. 13), i.e., the “essence” as described in Rogoff (1991).

I anticipated that the language data might include the following possibilities: Titles English, Titles Kwakwala, Titles Translanguaging (the use of both Kwakwala and English), Sub-Titles English, Sub-Titles Kwakwala, Sub-Titles Translanguaging, End Titles English, End Titles Kwakwala, End Titles Translanguaging, Background Music Traditional (i.e., singing in Kwakwala), Background Music Western (i.e., singing in English), Foreground<sup>46</sup> Music Traditional, Foreground Music Western, Elder speaking English, Elder Speaking Kwakwala, Elder Translanguaging, Student Speaking English, Student Speaking Kwakwala, Student Translanguaging.

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<sup>46</sup> Foreground versus background relate to the continuum of "attention/awareness displayed by an individual or group to relevant higher-level actions. Modal density is used to differentiate between higher-level actions that are at higher and lower levels of attention/awareness" (Norris & Maier, Glossary, 2014). I use the code "foreground" for music when it is the central focus in a multimedia presentation, whereas the code background music is used when it provides support to the main focus.

For each video, the language on the timeline was analyzed based on the "codes to theory" model from Saldaña (2016, p. 13). The resulting abstractions were then compared relative to percentage of time on the video time-line. The following example codes to theory diagram illustrates how increasing abstract codes were developed from the language data, based on Saldaña (2016, p. 13). In Illustration 3 the data are described using the anticipated terms noted above (e.g. End Titles English) rather than a word from the actual transcript, as is suggested in the procedure (Saldaña, *The Coding Manual for Qualitative Researchers*, 2016, p. 23).

### Illustration 3 A streamlined codes-to-theory model for qualitative inquiry

A streamlined codes-to-theory model for qualitative inquiry (Saldaña, 2016, p.13)

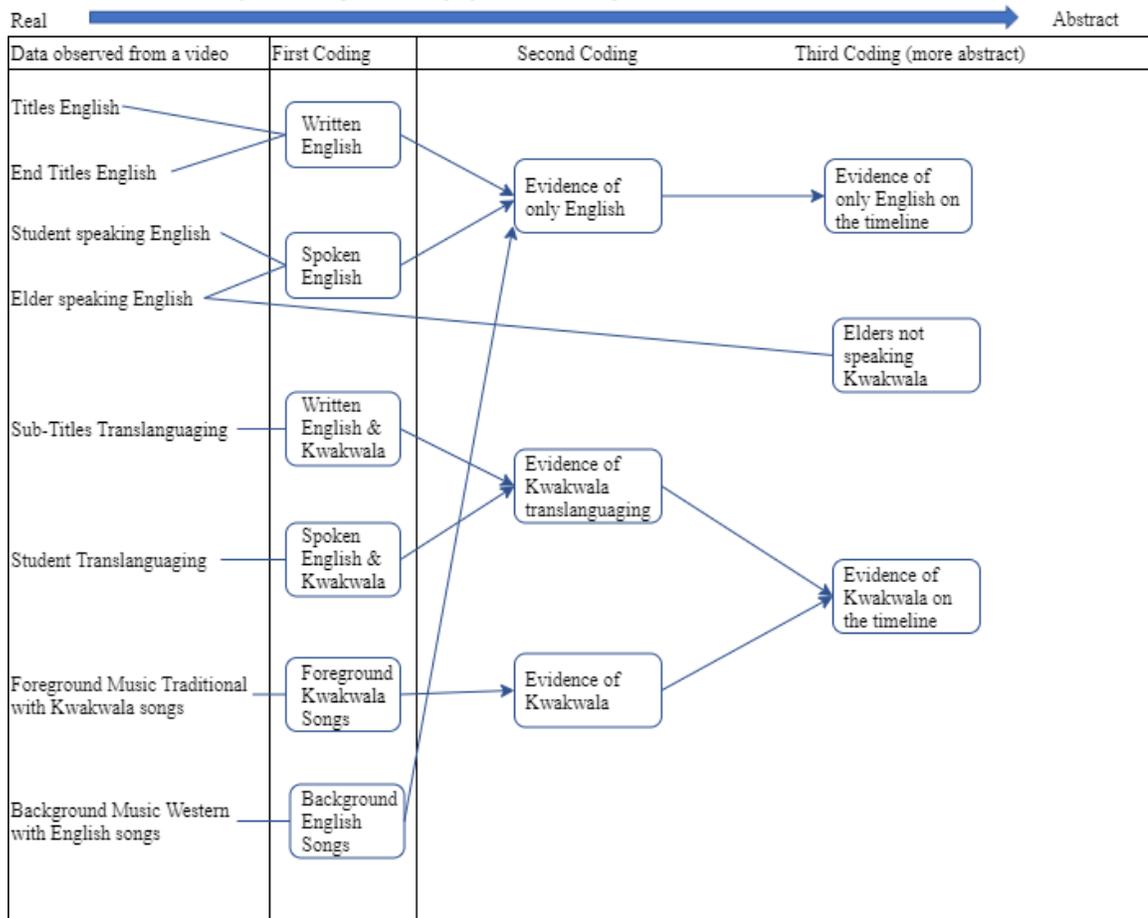


Diagram adapted from (Saldaña, 2016, p. 23) for Kwakwala data

One of the interesting results from the study is the earlier videos (from 2013) rarely had Elders speaking in Kwakwala or translanguaging between English and Kwakwala. This became one of the "teaching points" in preparing for the 2018 videos, where students were encouraged to ask the elders to speak in Kwakwala where possible.

## 11.2. Modality and multi-modality

The study examines the modes used to present traditional language and culture. Modes are:

Socially shaped and culturally given resource(s) for making meaning. Images, writing, layout, music, gesture, speech, moving image, soundtrack are examples of modes...

(Kress, 2009, p. 54)

For example, a story might be written, one mode, and illustrated, the second mode. Van Leeuwen (2005, p. 255) notes that modes can elaborate or extend the communication. For example, elaboration provides additional details about a focused object or person, while extension provides information regarding background setting.

The data analysis also examines instances where more than one mode is used to convey information to situate and mediate communication. This is referred to as “multi-modal” (Norris, 2004, p. 8.3). Norris, for example, argues that the overlaying of modes provides a “modal density” that foregrounds the communication and conveys the strong interconnectedness of language and traditions. Norris’ examination of modal density supports the contention that modal density foregrounds the action for the observer/participant (Norris, 2004, p. 8.3).

The data gathered from the materials developed for the school program was examined for evidence of traditional settings and locations, accuracy of language, and connections to the curriculum. The evidence was coded in vivo and examined through several rounds of ethnographic coding, based on Saldaña (2016). For example, if the materials present a story set at |Sag<sup>w</sup>əmbala|, a |Nak<sup>w</sup>axdaʔx<sup>w</sup>| village in Seymore Inlet, the coding will capture the various means used to provide information to situate the location, for example maps and pictures.

In addition to examining whether or not the visuals and other modes provide effective extension and elaboration of the settings and situations in the materials, it is necessary to check whether these accurately represent |Bak<sup>w</sup>əmkala|. For example, if a Kwakwala sentence indicates that an object is visible but far away from the speaker, any visuals would need to ensure that these details would be represented in the supporting visuals. Other mismatches might occur in visuals where the picture of a beach for digging clams was taken at high tide rather than at low tide.

### **11.3. Coding multi-modality**

In order to code instances of multi-modality, data is coded using simultaneous coding. Simultaneous coding is based on Saldaña (2016).

Simultaneous Coding: The application of two or more different codes to a single datum, or the overlapped occurrence of two or more codes applied to sequential units of qualitative data.

(Saldaña, 2016, p. 305 Appendix A)

Simultaneous coding enables the representation of multi-modal presentations for the analysis. Coding for multi-modality provides a means to capture the utility of “modal density.” For example, a written story about traditional fishing might include a picture of a boat. Whether the boat is depicted as a traditional canoe or a modern speedboat, the data coding needs to capture both the multi-modal presentation, as well as code for “traditional boat” or “modern boat.” It is necessary, therefore, to develop a mechanism to identify instances where multi-modal information foregrounds traditional settings and locations as noted in Norris (2004, p. 83), or detracts from it.

#### **11.4. Quantizing qualitative coding**

In order to examine the degree to which the data provide locational/spatial/evidential systems and social pragmatics, the coding was quantized. In the Pilot Project, the quantizing of the data was based on the amount of time each code occurred in videos (Wilson P. , 2016a). Each timing was scaled as a percentage of time relative to the video length using Excel (2016). For example, if an Elder talked in English for 10 seconds, in a 100 second video, the percent time was given as 10%. Scaled timing as a percent of total

video time enables comparison among the videos which varied in length from 45 seconds to nearly 3 minutes. The conversion of timing to percentage of time also ensured that graphical representations are based directly on the scaled values from data tables, providing a 1 to 1 correspondence between tables and graphics, as noted in Tuft (1985).

#### **11.4.1. Coding summary: multimodal**

This study utilizes the procedure developed in the pilot project (Wilson P. , 2017b) for the current study (Wilson & Hemphill, 2017). This procedure is based on ethnographic coding from Saldaña (2016) and includes codes for multimodal overlapping modes from Norris (2004), and multimodal elaboration versus extension following Van Leeuwen (2005). Graphical representation of overlapping modes conforms to Tuft (1985).

The coding system focusses on two areas: language and multimodal coding. I decided to develop a separate coding for language in order to capture the nuances of the various language uses. Language coding includes English or Kwakwala, speaker, (e.g., student or Elder) and type of language (e.g., talk, titles-subtitles, background music, songs, dialogue). Multimodal coding includes images, videos, drawings, and auditory elements for accurate and authentic Gwa'sala-'Nak'waxda'xw representations (e.g., setting, locations, and technologies). Both language and multi-modal coding includes timecodes that are based on the beginning and end for each element on the timeline. For example, if

a Kwakwala subtitle started at the 2 second mark and finished on the 5 second mark, the coding included the code for "Kwakwala subtitle" as well as the start and finish times.

Both language and multimodal coding allows for overlapping modes. Overlapping modes occur when two or more modalities overlap on the timeline. For example, when a picture overlaps with a sub-title. Examples of multimodal codes are visual and auditory modalities, as well as settings, locations, and technologies.

The quantizing of multimodal data was used to provide an examination of whether language usage and modalities foregrounded Kwakwala or Indigenous knowledge. The quantizing of language and multimodal data adjusted the seconds on the timeline to percentage on the timeline. This enabled comparison from one video to another as each video varied in length.

Overlapping codes on the timeline were quantified on a four-point scale:

- No code (i.e., no evidence of traditions or |Bak<sup>w</sup>əmka|)
- One code (i.e., evidence of a tradition without additional visual or auditory elaboration or extension (Van Leeuwen, 2005, p. 225).
- Two to Three codes
- Four or more codes

Graphical representations of coding density are represented through degrees of shading using Excel (2016), following recommendations from Tuft (1985), as illustrated in Illustration 4, where the darkest two shades depict simultaneous coding of co-occurring modes:

Illustration 4 Example, Degrees of Shading

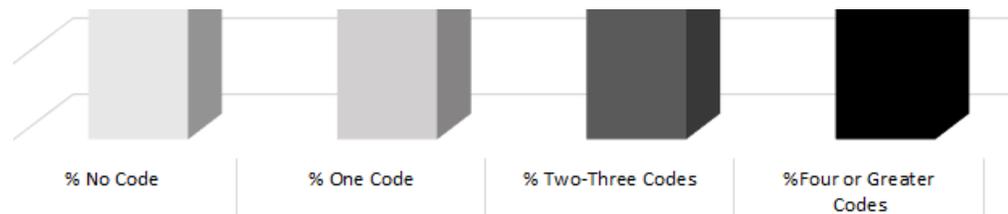
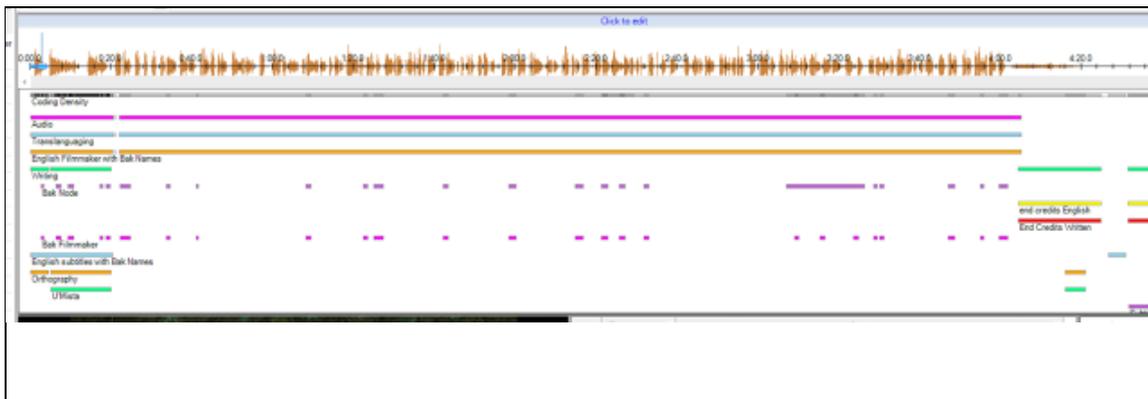


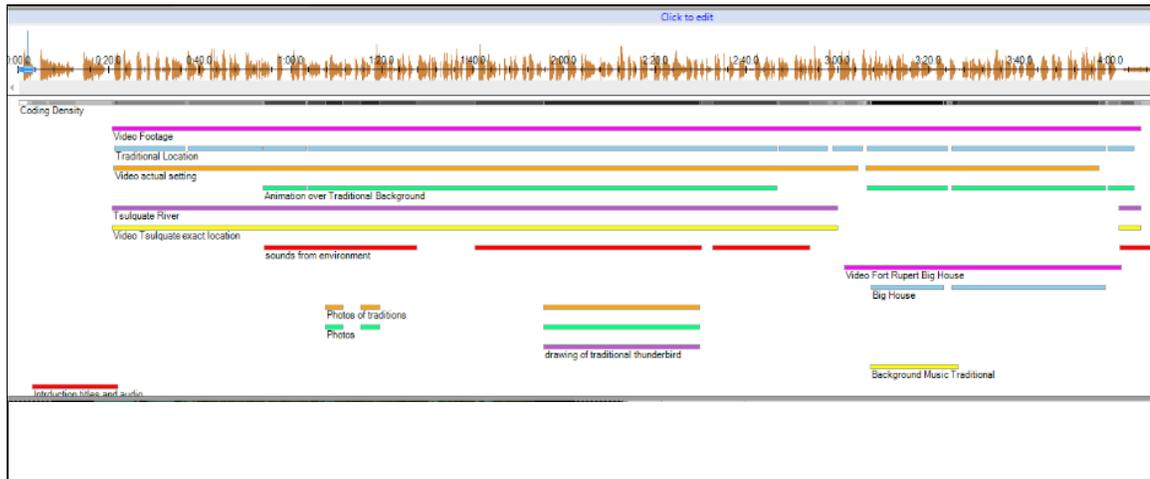
Illustration 5 and Illustration 6 are screen captures of language and multimedia coding of one of the videos using QSR International (2020).

Illustration 5 Language Coding: QSR International



Language coding focusses on seconds in the timeline where evidence of either English or Kwakwala occurs. This includes audio, background music, or titles. Details of data coding are included in Section 21.4, Nvivo Database.

Illustration 6 Multimodal Coding: QSR International



Multimodal coding focuses on seconds in the timeline where visual supports are coded that either situate and support a |Gwa's $\dot{s}$ ala-'Nakaxda'xw| social and cultural worldview or do not. Examples of pictures and videos that support a |Gwa's $\dot{s}$ ala-'Nakaxda'xw| worldview include pictures of traditional and reserve locations, cultural objects, traditional music, and sounds from the environment.

### 11.5. Multimodal analysis: Eke Me Xi Videos

I examined the 2013 and 2018 video projects developed at Eke Me Xi. These videos were developed through a collaboration between students, professional filmmakers, community Elders, and school staff. The 2013 videos were the first ones produced in the program. The goal was to inspire community youth to write and direct a short video related to their interests and submit these to youth film festivals and publish them on the Internet. Student filmmakers are encouraged to enter their videos into festivals.

The film projects have occurred yearly since 2013 and began as non-curricular activities. The activities last from 7 to 10 days and culminate in a community event where the videos are shown. The videos are developed within the guidelines of youth festival videos, which accept videos of approximately two to three minutes in length. See Our World (Festivals, 2020b) for an overview of youth film festivals including those that focus on Indigenous youth. The Gwa'sala-'Nak'waxda'xw Treaty Department provides computer technology, travel supports, and additional funding to engage the film professionals. Eke Me Xi provides space, supervision, and additional technology. Elders and community members engage with the project by providing on-camera interviews for videos and or background information to assist film development. Most participants are in grade 11 or 12.

#### **11.5.1. 2013 Videos**

The 2013 videos occurred during the filming of Lisa Jackson's film "How a People Live," Lisa Jackson's film about the Ba'as |'Nak'waxda'xw| settlement in Blunden Harbour and the forced relocation to Tsulquate (Jackson L. , 2014). See 24.5 for more information on "How a People Live." During the filming of the movie, the film crew assisted the students, the community, and the school to develop videos. The 2013 film productions did not include any specific Kwakwaka'wakw or curricular preparation for the video projects. There were also no opportunities for participants to visit traditional territories. Instead,

images used in the projects were sourced from publications. At the end of the production, Eke Me Xi published the materials on YouTube for public viewing.<sup>47</sup>

I analyzed the 2013 videos in 2016 using the procedures outlined above and presented the findings and recommendations to the school and the community, and at the International Conference on Language Documentation and Conservation in 2017 (2017b). The 2013 videos were published on YouTube and are listed below:

(Eke Me Xi (Producer), Jamaine Campbell (Director, Writer), 2013c)

(Eke Me Xi (Producer), Mary Walkus (Director, Writer), 2013d)

(Eke Me Xi (Producer), Melissa Henderson (Director, Writer), 2013b)

(Eke Me Xi (Producer), Ulrich Andree (Director, Writer), 2013e)

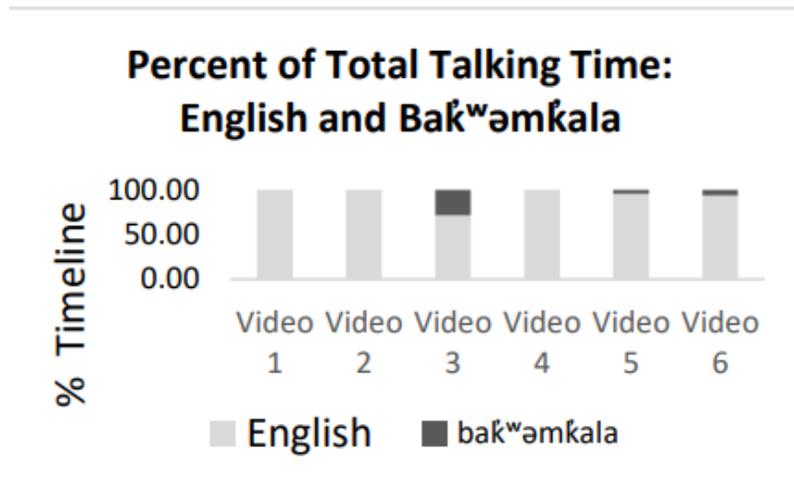
(Eke Me Xi (Producer), Ricky Johnnie (Director, Writer), 2013a)

Results from the language analysis indicate that less than 10% of the video timeline contained Kwakwala audio. This was confined mostly to one video, as depicted in Figure 1.

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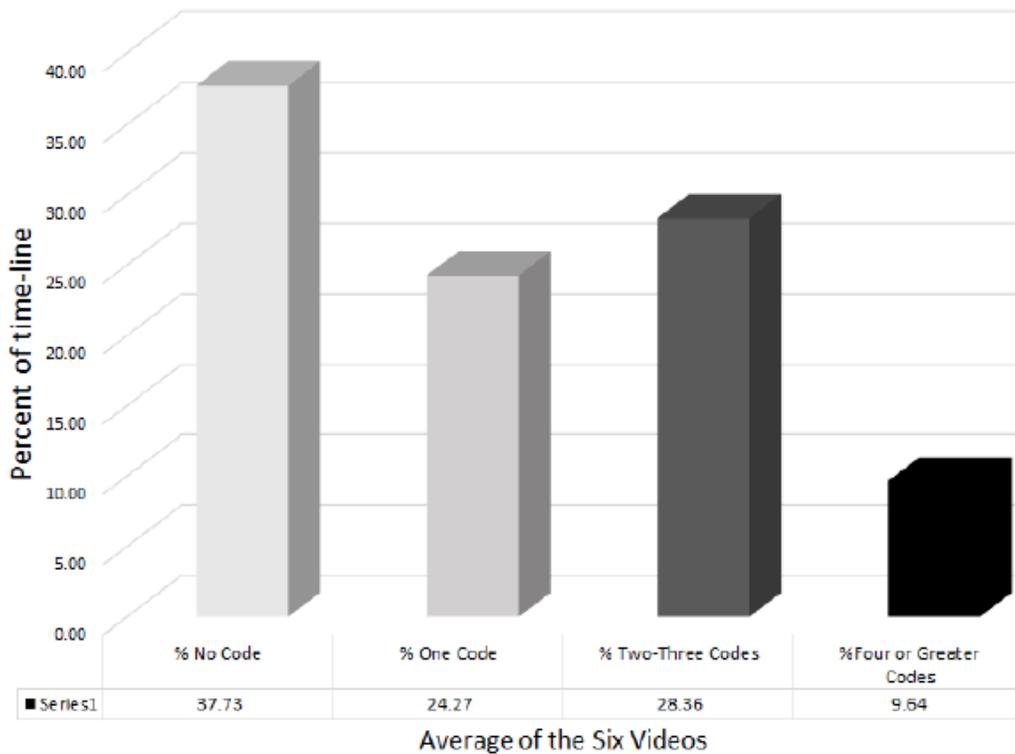
<sup>47</sup> I was not in Port Hardy during the 2013 project. The description of the process was provided through personal communication with Colleen Hemphill, Chief Treaty Negotiator and Leah Hubbard, Eke Me Xi.

Figure 1 Percent of Total Talking Time, English vs. Bakwamkala



Multimodal coding demonstrated numerous examples of traditional Gwa'sala-'Nakwaxda'xw situations and settings. Overlapping culturally appropriate information foregrounded traditions through 38% of the average timeline, with simultaneous coding of 2 to 3 codes on 28.36% of the timeline, and 4 or more codes on 9.64% of the timeline. See Figure 2, where density of coding is indicated by the darker shades (see below). In aggregate, over 62 % of the timeline contains traditional and culturally appropriate information.

Figure 2 Multimodal Coding Density



Darker shading depicts higher coding density following Tuft (1985).

The results of multimodal coding indicate that the video modalities are consistent with the community including:

- Traditional territory
- Traditional activities, stories, and artifacts
- Social and cultural activities and values
- Use of tribe and family names
- Place names
- Names of traditional areas

I concluded that the multimedia in the videos are contextualized and effective in meeting community expectations. I also concluded that Elder-student collaboration is effective and supports student learning (Wilson P. , 2017b).

I recommended the following strategies to increase |Bakwamkala| in future projects:

- translate videos into Bakwamkala,
- integrate Bakwamkala language and culture with other content courses,
- provide focussed language activities before the video project to enable students to include more language in their projects.

### **11.5.2. 2018 Videos**

In the fall of 2017, we found out that the video project would occur in May and June of 2018. The 2018 videos were produced by Our World Language, the production company that had produced the school projects since 2014. This production company focusses on assisting Indigenous youth in writing and directing their own films (Our World, 2020a).

In 2018, in contrast to 2013, activities at school focussed on preparing for the production. These activities began in February 2018 and were based on the recommendations from my analysis of the 2013 videos. I collaborated with the teachers at the school to integrate Kwakwala with art, video technology, and English grade 11 and 12 courses with senior

class students. Examples of Kwakwala and English class activities included a review of previous Eke Me Xi video projects, presentations from students who had participated in creating videos, and instructions on creating story boards and shot lists. In addition, grade 12 students were able to utilize their work and videos as part of their capstone integrated project.<sup>48</sup> During this time, students had opportunities to practice making videos with the school cameras and later gained experience using video-drone technology for documentation.

During this time, I continued to teach Kwakwala to both senior and junior classes and assisted with materials for the upcoming video work. This included Kwakwala lessons to introduce oneself in Kwakwala. I also liaised with the curriculum and documentation initiatives at the elementary school and the land-based project.

In addition to preparing for the video production, we were able to secure additional funding for the 2018 video project as part of the larger curriculum and documentation initiative from the First Peoples Cultural Council, the Treaty Department of the Gwa'sala 'Nakwaxda'xw Nation, the Gwa'sala 'Nakwaxda'xw Elementary School, and the University of British Columbia. This additional funding enabled students, staff, and film crew to travel to traditional locations on the mainland of British Columbia. These locations are indicated in Section 7.3., Map 1.

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<sup>48</sup> Students are not required to participate in the video project.

By the time the video production team arrived in mid May, the students, staff, and Elders who were assisting the students, had completed much of the preparations for their videos. Students had decided on their project topics and worked in pairs. We also had completed field trip forms and booked water-taxis to the traditional territories on the mainland during the period of time when the Our World production team was on site. Just before the project started, student narrators practiced words and phrases in |Bakwamk̓ala| with Chief Tom Henderson and me.

The 2018 videos were published online by the videographers on the "Our World" website.

The 2018 videos are listed below:

(Our World (Producer) Gabriel Charlie & Sonja Walkus (Directors and Writers), 2018h)

(Our World (Producer), Haley Scow & Kayle Walkus-Williams (Directors, Writers), 2018d)

(Our World (Producer), Jade Hanuse (Director, Writer), 2018e)

(Our World (Producer), Kelly Anderson (Director, Writer), 2018f)

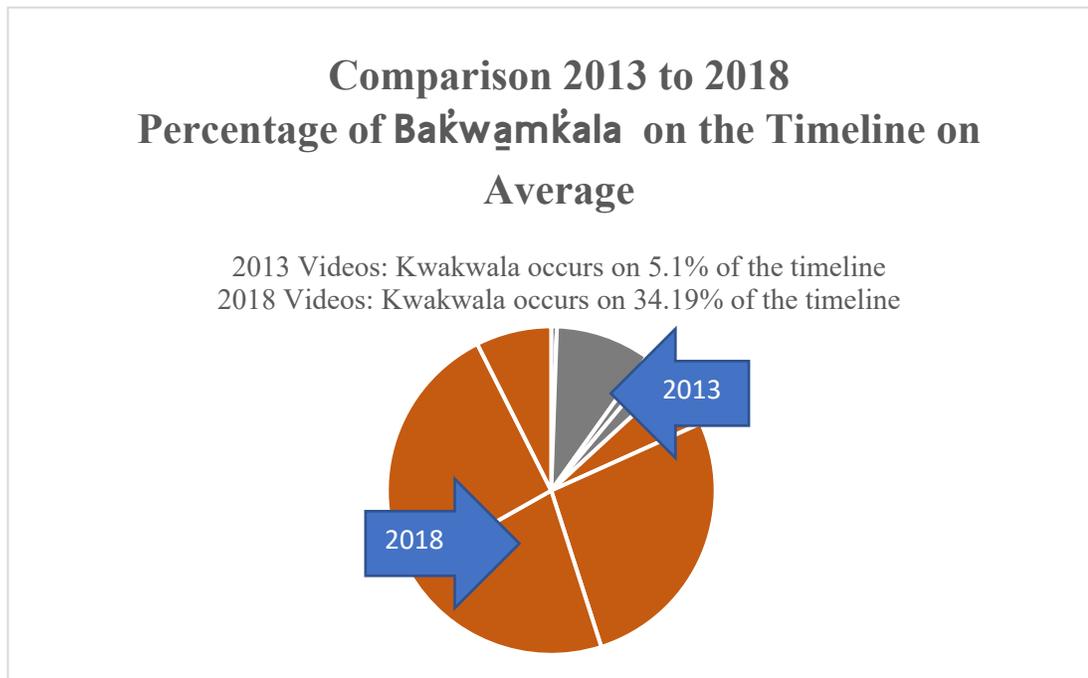
(Our World (Producer), Roberta Williams (Director, Writer), 2018g)

Results from the analysis comparing the use of |Bakwamk̓ala| in the two projects are summarized in Illustration 7 Percentage of |Bakwamk̓ala| on timeline 2013 to 2018. This

presents an aggregation of the percentage of time various modes of |Bakwamkala| occur on the timeline between the videos produced in 2013 with those produced in 2018.

Illustration 7 indicates that the 2018 projects contain more audio and visual representations of Kwakwala on the timeline than the 2013 projects. The 2018 projects also contained more overlapping modes between Kwakwala and visual representations, such as sub-titles and end-titles that overlapped with visuals from traditional locations.

Illustration 7 Percentage of |Bakwamkala| on timeline 2013 to 2018



Audio and visual overlapping foregrounded Kwakwala narration and background songs.

An example of multimodal overlapping modes occurs in "The legend of the Tsulquate

River" (Our World (Producer), Haley Scow & Kayle Walkus-Williams (Directors, Writers), 2018d). This video is a re-enactment of a portion of a narrative from Boas (Boas, *Ethnology of the Kwakiutl*, 1921b, pp. 1121-1178 v2). In the video, Kwakwala is foregrounded in a scene using a cut out illustrated character in traditional regalia who performs a ritual dance. The character is overlaid on a background picture taken at the |Kwaguł Gukwdzi| (Ritual Big House). The scene includes a traditional ritual song background track, and translanguaging narration that includes English description and Kwakwala names. In this video there are five modes that support and foreground Kwakwala and traditional social and cultural activities:

1. Character in traditional regalia
2. Character performs ritual dance
3. Background picture from real location |Kwaguł Gukwdzi| (Ritual Big House)
4. Ritual song background track
5. Kwakwala names translanguaged with English

The 2013 videos also provide effective locations and support for |Gwa'sala-'Nak'waxda'xw| social and cultural traditions. For example, in one 2013 video, Elder Ernie Henderson talks about his time living on a float house as a boy. In the video, the filmmaker overlays a drawing of a float house drawn by Elder Ernie Henderson (Eke Me Xi (Producer), Melissa Henderson (Director, Writer), 2013b). This drawing overlays a

photo of the location where the action takes place. The drawing extends the description while the background photo elaborates the setting of the site,<sup>49</sup> and both foreground the setting and situate the narrative, which is told in English.

Differences between the 2013 and 2018 projects mainly relate to the addition of language-based information and opportunities to visit homelands in the 2018 video productions. These are noted in Table 31.

Table 31 Comparisons between Eke Me Xi Videos 2013 and 2018

- more dialogue in Kwakwala in 2018 than in 2013
- films included scenes on traditional lands in 2018
- integration of traditional histories in 2018
- Elders speaking in Kwakwala in 2018
- 2013: soundtrack music 100% Western
- 2018: soundtrack music 100% Indigenous

### **11.5.3. Summary: Multimodal Analysis of Videos**

In summary, the analysis of multimodal information in the video projects demonstrates that the 2018 videos provide greater use of language, traditional music, and access to traditional territories. In 2018 all of the background music is Indigenous, whereas in 2013

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<sup>49</sup> Extension and elaboration are terms from Van Leeuwen (2005).

background music is not. The 2018 videos also include a traditional Indigenous history from a Boas publication that is situated through visuals in accurate locations (Our World (Producer), Haley Scow & Kayle Walkus-Williams (Directors, Writers), 2018d). In addition, the 2018 videos demonstrate greater use of Kwakwaka'wakw and |Baḵwamk'ala| on the audio timeline.

### 11.6. Print materials: Photographs

Print materials exemplify consistency and supports for Indigenous locations, such as pictures around Tsulquate in game activities and the traditional |Gwa'sala-'Nakwaxdaḵw| homelands on the mainland of British Columbia. Illustration 8 and Illustration 9 exemplify the connections between the language and traditional knowledge activities.

Illustration 8 Clam harvesting and preparation



Harvesting



Food Preparation

(Photos: Peter Wilson, 2017)

Illustration 9 Game Activities

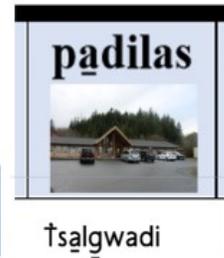
Game Design and Play

Playing a student developed version of Monopoly with elders.



**Wałdamosxa Amła (Words and Phrases for Games)**

tisam	rock	ńam	one	galaband	start	la'man	dulowa'	I won
gwagwa't	paper	ma't	two	dulo	win	a'na'na		oh no!
kqbayu	scissors	yudaxw	three	la'ams	dulowa'	you won	amlamas	you play now



(Photos Peter Wilson, 2017)

11.7. Print materials: clip art

In addition to photographs and videos, some materials utilized clip art and graphic designs. Clip art was used to illustrate teaching materials on clothing and weather.

Example 4 Clothing vocabulary

dagans	
dzamba	

(Eke Me Xi, 2021d)

Example 5 Weather dialogue

T'hisála'ma'uxwda 'nala?		Kí, t'hanikwa'muxw.
'Wadala'ma'uxwda 'nala?		

(Wilson P. , Weather Terms Practice, 2017c)

The junior Kwakwala teacher, Teniel Hunt, and I developed lessons with Elder Mary Henderson to familiarize the students with words and phrases expressing emotions. We decided to use the Chromebooks at Eke Me Xi for these activities but were constrained by the fact that Chromebooks do not have a keyboard encoder for the U'mista orthography. In order to compensate, student typed input was limited to English and the emoticons available on ChromeOS. During these activities, each student would use a Chromebook and access a downloadable file shared over the school network by the teacher. We began with a worksheet exemplified in Example 6 Match the emojis to the Bakwamkala. This worksheet was intended to be projected at the front of the class and students accessed their own copy on their Chromebooks. The students' worksheet did not include the English translation. The lesson was developed to enable the teacher to write the English in column 3 using the projector, pronounce each Kwakwala word, and have the student repeat. When the teacher finishes, the students fill in the English and search

for emoticons on their Chromebooks to complete column 5. Examples of emoticons are provided in Example 6 and Example 7, where students filled in the English.

Example 6 Match the emojis to the Bakwamkala

ikakela	1	To feel happy and content		
lalawiska	2	To feel very angry		
lawis	3	To feel angry		

Example 7 ChromeOS Emoticon examples

		
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(Eke Me Xi, 2021i)

Follow up activities included matching emoticons to sentences in Example 8.

Example 8 Emotion questions and answers

How are you?	Wiksas		lx'man.	
What's the matter?	Madzos?		lawsan.	
good – to feel (feelings), feel good	Ikakela'mas?		Ikakela'man.	

(Eke Me Xi, 2021i)

Example 9 is a printed worksheet. Students write in the Kwakwala to match the prompts.

Example 9 Sentences expressing emotions

to feel angry	ławis			Gana is angry.
to feel too angry	łalawisłā			I feel too angry.
to feel grateful	mumalłā			Xa'na feels gratitude.

(Eke Me Xi, 2021i)

The above samples from materials demonstrate the use of clip art and icons in the materials that are from stock images. Future plans include having students create clip art that can be used in these settings.

### 11.8. Print materials: graphic design

Graphic designs were used to accommodate Indigenous themes into illustrations for materials. Examples of graphic designs at Eke Me Xi include illustrations done for games and videos developed by students, e.g., Feast Time (Eke Me Xi (Producer), Ricky Johnnie (Director, Writer), 2013a) and The Legend of The Tsulquate River (Our World (Producer), Haley Scow & Kayle Walkus-Williams (Directors, Writers), 2018d), as well as graphics that I developed to illustrate stories (see Illustration 11 Wisa and Gana Frame

1). Illustration 10 was drawn by Ernie Henderson to illustrate Ernie's childhood home in the video "Memories at Saagoombalah," (Eke Me Xi (Producer), Melissa Henderson (Director, Writer), 2013b).



Illustration 10 Float House by Ernie Henderson.

Illustration by Ernie Henderson from (Eke Me Xi (Producer), Melissa Henderson (Director, Writer), 2013b)

Illustrations from Elders and community members provide effective visuals that are situated and offer effective use of elaboration and extension (Van Leeuwen, 2005). In Illustration 10, Ernie elaborates the float house using details about the structure as well as suggesting movement by the waves. The background in the image includes trees, rocks, and water that depicts the location around Saagoombalah |Sagwambala| providing extension.

### **11.9. Summary: Print materials**

Photographs, personal drawings, and in-house graphic designs provide greater control over visual images used in documents and materials than stock icons and emoticons.

Future plans include examining the use of icons and emoticons with Elders and discussing the possibility of using community members to produce graphics for school and community use. See Technical Appendix Section 23 for an overview of graphic design in materials.

## 12. Communicative Competence

Communicative competence is the knowledge of the social use of language and represents the linguistic knowledge of "cultural insiders" (Goddard, 2013; Hymes, 1972) and is important in school based Kwakwala activities and materials, as noted in the curriculum guide (SD85, 2010). Non-fluent teachers, however, may not be familiar with the differences between Kwakwala and English and will need to have access to fluent Elders and materials that provide examples of the cultural, social language, pragmatic, and social-cognitive language reflective of "cultural "insiders" (Goddard, 2013).

In this section I examine narratives and analyze the degree to which the materials respect the communicative competence of the |Gwa'sala-'Na'kwaxda'xw| community using comparative analysis. The criteria for the analysis were provided by |Gwa'sala-'Na'kwaxda'xw| Elders. Their comments indicated that a narrative should provide clear evidence of location by name, a realistic location known to the community, names and family information about the participants, and a story line that shows evidence of social expectations and traditional knowledge.<sup>50</sup> Two sets of stories are compared. Section 12.1 examines the differences between two "everyday" stories about two children who go to pick huckleberries. The first story was one developed during the Native Indian Language Diploma Program (NILDP) and the second story was a revision made for Eke

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<sup>50</sup> Comments made by Gwa'sala-'Na'kwaxda'xw Elders are consistent with Berman (1991a and 1991b) and Wilson (1993).

Me Xi. The second comparison in Section 12.2.2 examines two versions of a narrative about the origin of deer from the work by Boas and Hunt. These were used in the Kwakwala class at Eke Me Xi. The first version of the story was documented by George Hunt (Boas & Hunt, 1906, p. 211) while the second version was documented by Franz Boas (Boas, 1910, p. 200).

The Eke Me Xi – NILDP-CW comparison demonstrates that the NILDP-CW version lacks expected communicative competence and locational situations while the Eke Me Xi version meets locational, communicative, and social expectations articulated by the Elders. The examination compares a generically written story (Wilson & Henderson, 1981a), where details of location, family history, and safety concerns were omitted, with two versions of an updated story that were re-written for Eke Me Xi materials (Wilson and Henderson, 2017a and 2017b). The two updated versions of the story take place at Tsulquate, the current location of the |Gwa'sala-'Na'kwaxda'xw|, and Ba'as, a traditional |'Na'kwaxda'xw| settlement located on the British Columbia mainland. The original story and accompanying lesson materials are found in Section 24.7.1, and Eke Me Xi versions are found in Sections 24.7.2 and 24.7.3.

The Boas - Hunt comparison demonstrates that the Hunt documented story (Boas & Hunt, 1906, p. 211) contains situated and locational information and conforms to

expected narrative genre and knowledge, whereas the Boas documented story does not (Boas, 1910, p. 187).

### **12.1. Everyday stories developed for schools**

In September 2016, I met with the Elder's Council to review one of the stories I developed with James Henderson during the NILDP program. The story is about a brother and sister who go to pick huckleberries and then preserve them (Wilson & Henderson, 1981b). The story did not provide specific details about the location or setting. At the time, we recognized that the story was generic, but did so on purpose so that members of the NILDP class could develop stories more specific to the locations where they might be teaching. At the time, I was not aware of the social, cultural, and social-cognitive constraints discussed in this section. A full text of the original story and lesson materials is found in Section 24.7 in U'mista orthography. Supporting word lists are included in Section 24.7.1.

My goal during the meeting with the Elder's Council was to modify the story to include locational details for the Tsulquate community. I expected the changes to include locational elements. However, the Elders had difficulty understanding the story. During the meeting with the |Gwa'sala-'Nakwaxdaɣw| Elder's Council I began by providing an overview of the original story. I asked them to assist me to add details to situate the

location at Tsulquate. I played a 1980 audio recording of a student reading the story. I then read it out loud to the Elders allowing time for questions. The Elders had difficulty understanding the story, because not only was the story lacking locational detail, but also because it did not conform to the social and cultural requirements they expected. During our discussion, it became clear that not only did the story lack locational details, but also did not make sense because it did not fit the |Gwa'sala-Nakwaxdaɣw| worldview. For example, the Elders wondered where the children lived and who were their parents. In addition, they found it unusual that the story did not explain who sent them to pick berries. These missing elements relate to social, cultural, pragmatic, and social-cognitive story requirements examined in studies on the Ethnography of Communication (Hymes, 1972), Ethnopragmatics (Goddard, 2006), and social cognition (Goddard, 2013).

I concluded that the Elders found the original story infelicitous, that is, accurate in grammar but incomprehensible because it does not meet the conditions of the context (Austin, 1962). The comments from the Elders indicate that narratives need to name locations and provide information about the setting. In addition, stories about children need to conform with social expectations about child rearing practices. The following requirements recommended by the Elders are the felicity conditions for a story involving children.

- a named location that is nearby and is known to have huckleberries
- information about the setting

- a parent detailing the route the children should take
- information about the parents, who the children live with, and location of home
- explanation about the goal of picking berries
- concerns of safety precautions
- instructions to the children to tell a relative where they were going, and when they return

The original |Wisa and G̱ana| story does not meet these felicity conditions and makes the story difficult to interpret.

Following the meeting with the Elders, I met with Chief Tom Henderson to rework the original story (Wilson & Henderson, 1981b). Our goal was to include the locational and social requirements based on the recommendations from the |Gwa's̱ala-'Naḵw̱ax̱da̱w̱| community Elders. The following comparative analysis between the original story (Wilson & Henderson, 1981b) and Tsulquate revision (Wilson & Henderson, 2016) examines these details.

### **12.1.1. |Wisa| and |G̱ana| pick and dry huckleberries**

James Henderson and I developed stories about two children during the NILDP-CW curriculum initiative. The stories focus on everyday activities including picking berries and fishing. In Kwakwala, |Wisa| is a common name for a boy and |G̱ana| is a common

name for a girl. Although their age is not specified, the storyline has them go out on their own to engage in the various activities. The stories were included in *Stories for Children* (Wilson & Henderson, 1981a). The story discussed in this study is "Wisa and Ĝəna pick and dry huckleberries" (Wilson & Henderson, 1981b). The story was intended as a framework for the teacher-students in the NILPD course. The stories were developed to reinforce Kwakwala lessons and were intended to be modified to suit the location and context of the teaching situations. In addition to the narrative, each story included an introductory dialogue, vocabulary list, puzzle (word search or crossword), cloze exercises, and questions. Technical Appendix 27.5 includes the story and the supplementary activities (Wilson & Henderson, 1981b). Technical Appendix 24.7.1 provides the original story in the U'mista orthography.

### 12.1.2. The Eke Me Xi revised version of the story

Illustration 11 Wisa and Gana Frame 1



(Wilson, Wisa and Gana go berry picking, 2017e)

In 2016, Chief Tom Henderson and I re-worked the original story "Wisa and Gana pick and dry huckleberries" to accommodate the recommendations of the Elders (Wilson & Henderson, 2016). The revision is based on the first part of the narrative where the children pick huckleberries. Two versions of the story were completed, one takes place in Tsulquate where Eke Me Xi is located, and the other version is located at |Ba'as|, the traditional |'Nakwaxda'xw| community located on the B.C. mainland coast. Following the completion of the story I developed a video and materials for Eke Me Xi for the Tsulquate version of the story. In class, I chose to use the Tsulquate version to ensure that the students were familiar with the locations. The video was made using Cyberlink Power Director (Cyberlink Corp., 2015) from still pictures developed in Daz Studio (Daz

Productions Inc, 2020), and background pictures that I took at Tsulquate. I read the audio track in Kwakwala and the pictures contained Kwakwala subtitles. Illustration 11 Wisa and Gana Frame 1 is the title page of the video with a Kwakwala title.

### 12.1.3. Comparing the 1981 and 2016 versions of |Wisa| and |Gana|

The following examples compare and highlight the differences between the 1981 story (Wilson & Henderson, 1981b) and the 2016 story (Wilson & Henderson, 2016). The examples are written in both NAPA and U'mista orthographies and contain a Word Paradigm analysis and English translation. In the first version, Example 10 1981 Story, the narrative does not situate the action or explain any information about the children. In the second version, Example 11 2016 Story, the narrative begins by situating where the children live and with whom they reside. This is a similar opening to Kwakwala narratives (Boas, 1930a; 1930b; Hunt, 1918).

#### Example 10 1981 Story

Laxʔidi həmsi Wisa λu Ğəna. Laxʔidi həmsaxa ǵʷadəm.
Laxʔidi həmsi Wisa dlu Ğana. Laxʔidi həmsaxa ǵwadəm.
la-xʔid-i həms-i Wisa dlu Ğana. la-xʔid-i həmsa-xa ǵwadəm
go-VER-pre3.SBJ.PROX3 pick_berries  Wisa  and  Gana  go-transition-pre3.SBJ.PROX3 pick_berries.OBJ huckleberries
‘Wisa and Gana went berry picking. They went to pick huckleberries.’

Example 11 2016 Story

Gayuṭi Wisaḅ lu Ğənaḅ laḅoḅ ɔ̌lǧ <sup>w</sup> adi laḅ ʔikuṭəs.
Gayuṭi Wisax̣ dlu Ğanaḅ laḅoḅ ṭsaḅgwadi laḅ ikuṭaṣ.
gayuṭ-i Wisax̣ dlu Ğana-x̣ laḅ-oḅ ṭsaḅgwadi laḅ ikuṭaṣ
live at-pre3.SBJ.PROX3  Wisa -PROX3 and  Ğana -PROX3 at-PROX2 Tsulquate on the high ground
‘ Wisa  and  Ğana  live at Tsulquate on the higher ground.’
Guk <sup>w</sup> ələmxdaʔx <sup>w</sup> i Wisa lu Ğəna laḅwis gigəʔuṭṭuk <sup>w</sup> .
Gukwəḅləmxda'xwi Wisa dlu Ğana dlə'wis gigə'uṭṭukw.
Gukw-əḅ-lə-m-xda'xw-i Wisa dlu Ğana dlə'w-is gigə'uṭṭukw.
live-CONT-VER-PLU-pre3.SBJ.PROX3  Wisa  and  Ğana  CONJ.POSS3 family
‘ Wisa  and  Ğana  live with their parents.’

Example 12 and Example 13 continue the story indicating that it is a nice day. The 1981 story is in third person narrative and indicates a good day to pick berries, whereas the 2016 story quotes the mother telling the children that it is a nice day.

Example 12 1981 Story

ʔixʔidi n̩ala. ʔixʔidi la həmsaxdəmχa ǧʷadəm.
ix'idi 'nala. ix'idi la həmsaxdəmχa ǧwadəm.
ix-'id-i 'nala. ix-'id-i la həmsa-xd-əm-χa ǧwadəm
good-transition-pro3.SBJ.PROX3 day. good-transition-pro3.SBJ.PROX3 go pick berries-recent past-VER-OBJ huckleberries
'It was a nice day. It was a nice day to pick huckleberries.'

Example 13 2016 Story

“ʔikuχʷda n̩ala.”
“ikuχwda 'nala.”
ik-uχwda 'nala
good-pre3.SBJ.PROX2 day
“It is a nice day.”

Example 14 contains additional locational details that are not included in the 1981 story.

Example 14 2016 Story

"Həlaga həmsaχ ǧʷadəma." ʔalaǧənsis ʔəbəmpas qas le həmsa. "Həlaga həmsa laχ ǧʷasələsəsida ǧəlǧəs laχa wa qən qoʎeχes ʔəχaʔəsdaxʷus."
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<p>"Halaga hamsax gwada'ma." "Yalagansis abampas kas le hamsa." "Halaga hamsa lax gwasalasa'sida galgas laxa wa kan kotxes axa'asdaxwus."</p>
<p>"Halaga hamsa-x gwada'm-a." "Yalagan-sis abamp-as kas le hamsa." "Halaga hamsa lax gwasalasa-s.i.da galgas laxa wa k-an kotfe.x.es axa'asdaxwus."</p>
<p>"Go pick.pro2.IMP.OBJ huckleberries-V- sent-pre3.OTH.POSS2 mother.POSS2 AUX-POSS3 go pick_berries other_side-POSS2.DET swimming_place at_the river AUX-Pro1 know-OBJ-PLU.POSS2</p>
<p>"Go and pick huckleberries." said their mom about their berry picking. "Go and pick berries on the other side of the swimming pond by the river so I know where you are."</p>

The 2016 story contains information that is not included in the 1981 story. In Example 14 2016 Story the mother instructs the children to pick berries and to go to a specific location on the reserve so that she will know where the children are. Illustration 12 is the sentence "go and pick berries on the other side of the swimming pond by the river."

Illustration 12 Wisa and Gana Frame 2



(Wilson, Wisa and Gana go berry picking, 2017e)

The 2016 revision conveys the social understanding that a parent should provide detailed information about the location of an activity. The mother not only instructs the children where to pick berries, but also includes what route to take, and the requirement to let one of their relatives know where they are going. The reworked story exemplifies the obligatory nature of location and setting as well as the need to develop a story line consistent with social norms. Without these changes, the story is infelicitous in |Bakwamkala|, even though it seems reasonable in an English children's story.

The review of the narrative structure in the above stories demonstrates that the revised version is situated in an authentic location, provides context about the participants, and reflects social values and cognition for a |Gwa'sala-'Nakwaxdaxw| worldview.

## 12.2. Kwakwala Narratives at Eke Me Xi from Boas and Hunt

The Kwakwala curriculum guide recommends the use of Boas-Hunt materials as resource supports for teachers (SD85, 2010). It also recommends the use of these materials for grade 11 and 12 Kwakwala courses (SD85, 2010, p. 89). Examples of recommended Boas-Hunt materials include narratives (Boas, 1902a; 1902b; 1902c), geography (Boas, 1934), and social organization in Boas (1897). See SD85 (2010, pp. B19-B20).

I chose to focus on narratives from the Boas - Hunt collaboration to examine whether these works comply with recommendations of the |Gwa'sala-'Nakwaxdaɣw| Elders. Such an examination would help to determine the difficulties non-fluent speakers might encounter with these materials. Although I recognized the Boas - Hunt resources provide a range of Kwakwala relating to the curriculum, I also was aware that these resources present challenges for students and teachers. First, the orthographic conventions in the materials are not the same as those used in schools. Second, the orthographies used in Boas and Hunt works vary over the publication years, as noted in Wilson (1993, pp. 15-16). Third, the Kwakwala in earlier Boas - Hunt publications present comprehension difficulties for fluent speakers (Wilson P. , 1993). Orthographic challenges in the Boas and Hunt materials are discussed in Section 13, and comprehension difficulties and

narrative genre are discussed below in Section 12.2.1. Unfortunately, I was unable to re-elicite these stories or commentary from current speakers.<sup>51</sup>

### **12.2.1. Previous research: Comprehension difficulties in Boas and Hunt works**

In Wilson (1993) I reported on an examination of the Boas and Hunt materials to determine whether or not fluent speakers in the 1980's were able to comprehend the Kwakwala in the Boas-Hunt works. The 1993 study was motivated by my observation that speakers in the NILDP-CW program had difficulties comprehending some of Boas-Hunt materials. At the time of the NILDP-CW classes, I was not able to examine the cause of difficulties. In 1985, I reviewed a sampling of Boas-Hunt narratives in collaboration with James Henderson to determine the source of the difficulties. A summary of this work follows.

Mr. Henderson was an ideal colleague to assist with an examination of the Boas-Hunt materials. He spoke English and Kwakwala fluently and was acquainted with various dialects of the language. His mother was a |'Nakwaxda'xw| Elder and his father was from Scotland. His mother was from the |'Nakwaxda'xw| community at |Ba'as| (Blunden Harbour). Mr. Henderson was familiar with George Hunt and related to George Hunt's second wife who was his aunt. In addition, he was acquainted with speakers who had

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<sup>51</sup> See comments regarding study in Section 34.3.

collaborated with Boas and Hunt (personal communication). I surveyed works from earlier publications including Kwakiutl Tales (Boas, 1910), Kwakiutl Texts - second series (Boas & Hunt, 1906); and works from later publications including Kwakiutl Tales - New Series: Part 1 Translations (Boas, 1935) and Kwakiutl Tales - New Series: Part 2 Texts (Boas, 1943).

The result of the examination found comprehension difficulties in earlier works, such as those developed from the Jesup North Pacific Expedition (Boas & Hunt, Kwakiutl Texts - second series, 1906). Difficulties included unknown words, and personal and proper names. Mr. Henderson also pointed out variations in morphology between his Kwakwala and the Kwakwala in Boas & Hunt, for example (1906). At the time, I concluded that the Kwakwala in later publications did not affect comprehension, for example Boas (1935) and (1943), whereas the Kwakwala in earlier publications did. I recommended a need for further analysis to uncover the source of these difficulties and suggested further research in cultural knowledge (i.e., communicative competence) and dialect (Wilson P. , 1993, p. 14).

### **12.2.2. Hunt and Boas materials at Eke Me Xi**

During the first two years of this study, I did not use the Hunt or Boas works in the Kwakwala classes. During this time, the students and staff made use of the English

translations in the Boas-Hunt materials for background cultural information (Boas, Ethnology of the Kwakiutl, 1921a). In one case Boas (1921b) was used to develop a video for an Our World Video project. The video "The Legend of the Tsulquate River," (Our World (Producer), Haley Scow & Kayle Walkus-Williams (Directors, Writers), 2018d) was based on a portion of the family history of |Xaxusanasu'| who later takes the name |Waxap'alsu'| (Boas, Ethnology of the Kwakiutl, 1921b, pp. 1121-1178 v2). The video includes "translanguaged" Kwakwala and English on the soundtrack and sub-titles. For example, in the introduction to the story, the narrator speaks in English but pronounces the names of the characters in Kwakwala. The video also displays the narration in subtitles mirroring the audio, i.e., the Kwakwala names are written in the U'mista orthography. For example, the narration and subtitles at the 14 second mark are:

“This is a portion of the Kwaguł knowledge where a young person,  
Xaxusanasu', received three powers and names.”

(Our World (Producer), Haley Scow & Kayle Walkus-Williams  
(Directors, Writers), 2018d)

In 2018 Eke Me Xi began to expand its collection of Boas-Hunt materials. The success in using the Boas materials in the video and the acquisition of additional Boas-Hunt publications provided an opening to use their work in Kwakwala classes. It also gave me

the opportunity to revisit my earlier work on comprehension difficulties with Boas-Hunt materials (Wilson P. , 1993).

I chose to use two versions of a Transformer narrative in the Eke Me Xi collection from Boas & Hunt (1906) and Boas (1910).<sup>52</sup> I also developed supplementary vocabulary for the activities (see Section 24.7.6 for the full text and word list). The two narratives recount the event when |Ḳaniḱe'lakw| 'the transformer' changes a person into a deer (Boas & Hunt, 1906 and Boas, 1910). One version was documented by George Hunt during the Jesup Expedition (1900-1903), as noted in Boas (1910). The narrator of the story is from the |Yut'inuḱw| people but is not identified by name, see Boas and Hunt (1906, p. 210). The other version was documented by Franz Boas in 1894 and narrated by |Ḳumgilis| from the |'Nakangilisala| people (Boas & Hunt, 1906, p. 200). Both narrators were identified as speakers of the |T'at'asiḱwala| sub-dialect of the Northern dialect of Kwakwala (Boas & Hunt, 1906; Boas, 1910).

There are numerous transformation narratives in Kwakwala, e.g., Wallas & Whitaker (1981). Transformation histories are common across many Pacific Northwest Coast languages, including the other Wakashan languages, e.g., "Wren Story" (Thomas, 1978)

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<sup>52</sup> The narrative texts purchased at Eke Me Xi, Kwakiutl Tales 1 (Boas, 1902a), Kwakiutl Tales 2 (Boas, 1902b), and Kwakiutl Tales 3 (Boas, 1902c), are an early print run for the ones used in this work, respectively Kwakiutl Texts (Boas & Hunt, 1905), Kwakiutl Texts - second series (Boas & Hunt, 1906), and Kwakiutl Tales (Boas, 1910). See also 24.7.4.

and Salish languages, e.g., "Transformer and Flea" (White, 1975). Boas provides a brief overview of the transformer stories among the Kwakwaka'wakw speaking peoples:

The hero [i.e., |K̓anik̓e'lakw|] is one of two brothers of supernatural origin who travels through the world, transforms malevolent people into animals, gives to others their proper human form, instructs them in the arts of living, creates ample supplies of food at certain places, and transforms some of the mythical ancestors according to their desire into prominent local features, such as rocks, islands, and rivers.

(Boas, Kwakiutl Ethnography, 1966, p. 309)

Wallas and Whitaker refer to these narratives as stories of creation (1981, p. 5), however, Hunt explains that |K̓anik̓e'lakw| is not perceived as a creator (in English see Boas (1930b, pp. 177-178) and in Kwakwaka'wakw see Boas (1930a, pp. 172-173)).

Boas examined and published two versions of the deer origin story, one that he documented in 1894 and the other documented by George Hunt during the Jesup expedition. In the introduction, Boas states that the first 243 pages published in Boas (1910) were documented from speakers other than George Hunt to check reliability (Boas, 1910, p. V). Boas comments:

Since all the texts contained in the Publications of the Jesup Expedition have been written down by the same individual, they present a certain uniformity of diction.

In order to overcome this, I collected during the work of the Jesup Expedition, as well as at other times, tales from the lips of natives, and these present the necessary control material for checking the reliability of the language and form of the tales recorded by Mr. Hunt. The tales contained on pp. 1-243 of this volume were all dictated to me in this manner.

(Boas, 1910, p. V)

Although Boas indicated that he had examined both versions of the transformer narratives, he did not comment on variations and provided only one comment in Boas (1910). He states:

Mr. Hunt has tried to record the following traditions in the |Tʔatʔasiqwala| dialect.

The language is, however, not quite consistent.

(Boas, 1910, p. V)

The reader is left questioning what exactly Boas means with the words “not quite consistent”.<sup>53</sup>

In the following sections the two versions of the deer narrative are contrasted. The documentation of both versions appear to have occurred while the narrator was providing other |K̄anik̄e'lakw| narratives, which is how they are presented in both volumes Boas & Hunt (1906, p. 211) and Boas (1910, p. 187). This seems likely as both versions do not

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<sup>53</sup> It has not been possible to determine how closely the language is representative of the |Tʔatʔasiqwala| dialect. This is one area for further research.

identify |K̄anike'lakw| by name in the opening sentence. The full texts are found in Section 24.7.4.

### 12.2.3. Comparison Origin of deer Boas and Hunt versions

Hunt Version: Origin of Deer, Kwakiutl Texts Second Series, Boas and Hunt (1906, p. 211), Traditions of the Yutl̄inuḡw (Tlatlasikwala Dialect)

Boas version: Nuyamsa K̄aniki'laxw dḡa'wida Takus - The Origin Story of K̄aniki'laxw and Deer, Kwakiutl Tales, Volume 2 (1910, p. 187)

U'mista renderings by Peter Wilson: Origin of Deer - originally published in 1906 (Boas & Hunt, 2019), The origin story of K̄aniki'laxw and Deer originally published in 1910 (Boas, 2019) for Eke Me Xi.<sup>54</sup>

Code (H1) and (B1) represent Hunt (H) and Boas (B) followed by sentence number.

Opening sentence:

The opening sentence in the Hunt version situates the story at |Huḡulid|, a location translated as 'Shouting Place', while the Boas opening sentence does not situate the location. Although it has not been possible to verify |Huḡulid| with current speakers, it is listed in Boas (Geographical Names of the Kwakiutl Indians, 1934, p. 48). The Hunt version also employs the quotative '|l|' 'it is said' (Boas, 1947, p. 177) throughout the

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<sup>54</sup> Kwakwala transcription and English translations are based on the original except where otherwise noted.

narrative. The quotative is written suffixed to verbal elements in Boas - Hunt works and is common in Kwakwala narrative genre. The quotative in the following occurs in the inflectional lump |'laḵa'i| 'it was said not visible'. The Kwakwala quotative is not usually translated into English. An alternative English translation is provided in Example 15 Hunt opening sentence to familiarize the reader with this Kwakwala narrative device.

Example 15 Hunt opening sentence

<p>(H1) We, gaḵkas'laḵa'e lakasaḵ  Huxulid.  ('laḵa'e quotative)</p>	<p>'Then, he came to Huxulid (Shouting Place).  alternate translation illustrating quotative:  Then, it was said, he came to Huxulid  (Shouting Place).'</p>
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Example 16 Boas opening sentence

<p>(B1) Duḵw'atḵalaḵ taḵus, giḵa'la laxi gaḵtsam.  duḵw'atḵalaḵ taḵus, giḵ-a'la laxi gaḵtsam.</p>	<p>'He saw Deer sharpening shells  (long flat objects).'</p>
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The second sentence in the Hunt version is similar to the first sentence in the Boas version but adds the detail that the man was perspiring.

Example 17 Hunt sentence 2

<p>(H2) We, lakas'laḵa'i duḵ'watḷalakasḵi baḵwamala exkas gusaḵamala giḵalagi' laḵi gaḷtsami.</p>	<p>‘Then, he saw a man, who was perspiring, sharpening mussel- shells.’</p>
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The next three sentences in the Hunt version, Example 18 Hunt Sentence 3, Example 19, and Example 20 describe how |Ḷaniḵe'lakw| approached the man. These sentences are not found in the Boas version. The sentences are narrated using the quotative |'laḵa'i|. The narrator refers to |Ḷaniḵe'lakw| with the term |Ade| which is a term of respect in Kwakwala. The Boas version does not use respectful forms.

Example 18 Hunt Sentence 3

<p>(H3) We, laskas'laḵa'i Ade, Ḷaniḵe'lakw, gwa'i'stakas laḵ.</p>	<p>‘Then, the Lord,  <u>Ḷaniḵe'lakw</u> , went up to him and questioned him.’</p>
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Example 19 Hunt sentence 4

<p>(H4) We, lakas'laḵa'i wuḷḷalakasiḵ.</p>	<p>‘Then, he went to hear him.’</p>
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Example 20 Hunt sentence 5

<p>(H5) We, lakas'laḵa'i 'nixax:</p>	<p>‘Then, he asked.’</p>
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Examples Example 21 and Example 22 contrast in style. The Hunt version has |Ḳaniḱe'lakw| speak respectfully to the man using the respectful address term |Ada'i| when asking “Oh, respected one, what is it that you are making?” In contrast, the Boas version asks, “What is that?”

Example 21 Hunt sentence 6

(H6) " 'yakuṣuṭ, Ada'i! 'maskastṭos'ma'us asukwasakuṣ?" 'nixkas 'laḵa'iḵ.	“Oh, respected one, what is it that you are making," he said to him.’
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Example 22 Boas sentence 2

(B2) “Mastṭux?” la'la'i 'nix 'la'i <u>Ḳaniḱi'laxw.</u>	““What is that?” said <u>Ḳaniḱi'laxw.</u> ’
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Sentences 7-10 in the Hunt version, Examples 23-23, are the reply from the man, who indicates that he is sharpening the shells to fight with |Ḳaniḱe'lakw|. Examples 23 situates the narrative in the |Ḳaniḱe'lakw| tradition as a being who "transforms malevolent people into animals" (Boas, 1966, p. 309):

Examples 23, 24, 25, and 26: Hunt sentences 7-10: the man replies

(H7) We, hex'idkas'am'laḵa'i nanax'makasi bakwamalex Ada.	‘Then immediately the man replied to the Lord.’
(H8) We, lakas'laḵa'i 'nikasa:	‘Then he said to him.’

<p>(H9) "Lixaskas'ma'aḁanḁos ḁiyaskas ḁalax ḁaniḁe'laxwaḁs gaḁkasa'itḁa hexhalisḁalakastḁ."</p>	<p>"Evidentially you are the only one who does not know that  ḁaniḁe'lakw  is coming to make everything right."</p>
<p>(H10) "We, gakas'misaḁ yasyanḁalal'yutḁini ḁo gaḁkastḁ," 'nixkas'laḁa'i.</p>	<p>"Then, this is my means of fighting him when he comes," he said to him.'</p>

The Hunt version further reinforces the man as a "malevolent being" in Example 27.

Sentence 13 indicates that the man is a 'nasty man' |baḁwa'uḁi|.

Example 27 Hunt sentences 11-13

<p>(H11) We, lakas'laḁa'i ḁaniḁe'laxwi daḁalakasḁi giḁaḁḁsamas.</p>	<p>'Then  ḁaniḁe'lakw  asked for the mussel-shells, and said:'</p>
<p>(H12) We, lakas'laḁa'i 'nixa: " 'ya, ḁast, we'aḁntsos ḁan duḁ'wid kaseḁs 'ma'osasokwasakus ḁas yasyanḁala'yotḁusaḁ ḁaniḁe'laxwa'u gaḁkastḁ," 'nixkas'laḁa'i.</p>	<p>'Then he said, "Oh my friend, let me look at what you are making for your means of fighting  ḁaniḁe'lakw  when he comes," he said to him.'</p>
<p>(H13) We, hex'idkas'aḁm'laḁa'i baḁwa'uḁi ḁsuḁw'idkastsis giḁaḁḁsami laḁ Ada.</p>	<p>'Then, the nasty man gave the mussel-shells to the Lord.'</p>

The Hunt version also uses polite address forms. In (H12) |Ḳanikī'laxw| refers to the man with the term |kast|. |kast| is an address form for a dear friend. In sentence (H13) the narrator refers to |Ḳanikī'laxw| as |Ada|, 'lord'.

The Boas version of the story, in distinction, does not use polite language and does not explain why the man is sharpening the shells. It also does not indicate that the man is preparing to fight |Ḳanikī'laxw|.

In the final stage of the narrative, |Ḳanikī'laxw| takes the mussel shells and transforms the man into a deer. Both Hunt and Boas versions are similar in content as exemplified in Example 28 Comparison (H14 and B6): |Ḳanikī'laxw| takes the mussel shells, and Example 29 Comparison (H15) and (B7): |Ḳanikī'laxw| praises the shells. The Hunt version, however, uses polite language in (H14) exemplified by the narrator, who refers to |Ḳanikī'laxw| as |Ade| 'lord'. The Boas version (B6) uses pronominal third person to refer to |Ḳanikī'laxw|. In Example 29 the Hunt version (H14) is more detailed in describing the man's work than the Boas version (B7).

Example 28 Comparison (H14 and B6): |Ḳanikī'laxw| takes the mussel shells

(H14) We, lakas'laxa'e daxidkasi Adexi ma'tsami gigałtsama.	'Then, the Lord took the two mussel-shells.'
(B6) Dax'id laxi gałtsam.	'He took the shells (long flat objects).'

Example 29 Comparison (H15) and (B7): |Ḳaniḳi'laxw| praises the shells

(H15) "Lakas'aṃxa'ax exgas 'ma'usasugwos.	"This is very pretty work."
(B7) "La'aṃṭ exa.	"These are nice."

Both stories conclude with the process of transforming the man into a deer. Both versions indicate that |Ḳaniḳi'laxw| put mussel shells on the man's head for ears. The Boas version adds that |Ḳaniḳi'laxw| smeared ground on the man's body. This is not included in the Hunt version.

Example 30 Boas version: |Ḳaniḳi'laxw|smears ground on the man

(B10) La'la'i g̣als'id gigax̣mutas.	'He smeared ground on him.'
(B11) "G̣wasa'x̣sdix'idax̣."	"Turn your back this way."
(B12) La'la'i g̣weya'ạx̣sdix'id lax̣.	'He turned his back this way.'
(B13) La'la'i g̣alṭṣax̣sṭand, yạsi gigax̣mut.	'He smeared his back with ground.'

Finally, in Example 31 and Example 32, both versions indicate the man is now a deer.

Example 31 Hunt version: Man becomes deer

(H18) "We, lakas'aṃxa'as lakasṭ ṭakusṭḡas ạtkasṭḡa bakumiḡ,"	"Now, you will be the deer of the next generations."
-----------------------------------------------------------------------	------------------------------------------------------

(H19) 'nixkaslaḵa'ixs lakasa'i ḵaḷtsagandkasax,	'Thus, he said while he frightened it away.'
(H20) We, lagimi'xwdzo'am'laḵai daḵwyagi taḵusa.	'Then the deer was jumping away.'

Example 32 Boas version: Man becomes deer

(B14) "Halaga, daḵw'idutḷ.	"Go, jump away."
(B15) Laḷts taḵosas aḷa baḡwanamtḷ."	'You will be the deer of future man.'
(B16) La 'la daḵw'ida.	'He then jumped.'
(B17) La'am taḵus'ida.	'He is a deer now.'

Commentary:

The Hunt version of the story contains expected elements in the |Ḷaniḵi'laxw| narrative genre. In the Hunt version, the location of the activity is clearly indicated with a placename. The narration also makes it clear that the storyline is one where |Ḷaniḵi'laxw| transforms a bad person who is preparing to fight with |Ḷaniḵi'laxw| into an animal. The narrator refers to the man with the Kwakwala term |baḡwa'uti|, which Hunt translates as 'nasty'. This word is the combination of the stem |baḵw-| 'man, person' with the derivational suffix |-utḷ| 'lazy, improper, a person who does not act properly'. The Boas version, in contrast, does not situate the location of narrative and does not follow the expected Transformer storyline.

The Hunt version employs respectful language. The narrator quotes |Ḳaniki'laxw| calling the man |Ada'i| 'Lord' and |qast| 'dear friend'. The narrator also refers to |Ḳaniki'laxw| with the term |Ada| 'Lord'. The Boas version, does not employ respectful language, as noted in (B2) when |Ḳaniki'laxw| asks "'What is that?'" referring to the shells that the man is sharpening.

In summary, the Hunt version of the story provides the locational and situational aspects expected in a |Ḳaniki'laxw| narrative and employs respectful language. The Boas version of the story, however, does not meet these conditions. Unfortunately, Boas does not disclose the details of his instructions to the narrator, so I am unable to comment on the circumstances of this version of the story. Perhaps Boas was not aware of the details of the |Ḳaniki'laxw| narrative genre in 1894 when he documented the work. For the purposes of "Introduction to Kwakwala 11", I conclude that the |Ḳaniki'laxw| Hunt documented version of the story is a better exemplar for school use than the Boas documented version.<sup>55</sup>

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<sup>55</sup> A comparison between these two versions of the story would provide an opportunity for senior students in grade 12 Kwakwala to conduct a comparative analysis of narrative genre. Such a study could examine both the English and Kwakwala versions integrating grade 12 English and Kwakwala.

### 13. Documentation

Although Kwakwala has been widely documented over the past 200 years, much of the material poses challenges for teachers and researchers. There are numerous roadblocks in utilizing and creating Kwakwala written documentation. One of the main challenges is the wide divergence in orthographic representations of the language. Some of these writing systems are accurate while others are not. Computer-based documentation also presents challenges in schools and community research. Difficulties include the lack of digitized versions of previous documents that conform to the two Kwakwala community-based orthographies. In addition, less expensive computer hardware does not provide keyboarding in Kwakwala (e.g., Chrome books). The most pervasive difficulty is the lack of Indigenous language operating system supports for all but one of Canada's Indigenous languages.<sup>56</sup> Lack of OS language specific supports mean that there are no proofing tools, accommodations for diacritics, system-based sorting and spell checking for Kwakwala. For example, a list of words in Kwakwala cannot be accurately sorted using Microsoft Office. Although there are methods to "work around" these difficulties, such procedures are difficult for front-line teachers and community researchers to use.<sup>57</sup>

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<sup>56</sup> To my knowledge, Microsoft only provides a system specific language package for Inuktitut.

<sup>57</sup> Examples include creating sort handles for word lists and adding Kwakwala words to spell checking.

This dissertation focusses on improving documentation to support non-fluent teachers and researchers for Kwakwala revitalization. Previous sections have explored language accuracy, cultural knowledge and settings, and narratives. In this section, Documentation, the focus is on improving written documentation. The goal is to improve access to Kwakwala materials for teachers and community researchers and support the local development of materials.

The Documentation section begins with an overview of the problems associated with written Kwakwala. Next, I examine errors in the materials at Eke Me Xi and difficulties in the geomapping work that are associated with legacy orthographies and interfacing pre-Unicode computer-based character coding. I then evaluate the potential of a computer-based parser to overcome the problems converting among orthographies and proofing errors. The efficiency of the parser, thereby, is a measure of documentation improvements.

The initial investigations into improving Kwakwala documentation led to the development of a deterministic parser (finite state machine) to improve documentation as well as uncover difficulties associated with word processing Kwakwala utilizing computer-based technology. The parser converts between Kwakwala orthographic conventions and corrects keying errors where the representation of a Kwakwala sound

(phoneme) in one orthography is converted to the equivalent representation in another orthography (Wilson & Wilson, 2020a). The parser was also used as an analytical tool to examine difficulties in map and school-based data.

### **13.1. Introduction**

Orthographic representations of Kwakwala are numerous and varied. Despite the potential that written language materials could bring to community language initiatives, the different orthographic systems present impediments for researchers, teachers, and students. Difficulties include decoding written representations for Kwakwala, documentation errors, and inconsistent keyboarding conventions for input. This is a common problem in Pacific Northwest Coast languages (Williams, 2013). In addition, studies have demonstrated that teachers and researchers who are not fluent in Kwakwala require language supports. These are needed to overcome difficulties associated with Indigenous and marginalized languages in order to effectively develop, analyze, teach, and document materials (Hall, Smith, & Wicaksono, 2011; Hinton, 2003).

In this research, I improve access to written materials by examining current practices and developing technology supports to convert between various writing systems and ensure compliance with Unicode (UTF-8) standards. I also examine technology supports to improve keyboarding accuracy. My goal was to enable teachers, students, community

members, and researchers to access and create accurate written materials in the orthography of their choice, while at the same time enable the sharing of materials regardless of orthographic method.

In this study, I focussed on developing conversion utilities for orthographies that are "phonologically accurate." Phonologically accurate orthographies are ones that provide a method to encode and differentiate all Kwakwala sounds. This includes systems based on one-symbol one-sound (e.g., the International Phonetic Alphabet (IPA)), or systems that use diagraphs or trigraphs to represent single phonemes. In addition, computer-based development activities complied with Unicode (UTF-8) standards were also created as this universal standard ensures that the materials will be compliant for years to come.

### **13.1.1. Background**

There are several orthographic representations of Kwakwala that have been used since contact. These fall into two groups: those that are not phonologically accurate and those that are. Among those in the first group, Kwakwala speaking communities are most aware of the works developed by the Anglican Church of Canada, renderings of Kwakwala in Government of Canada documents, and Kwakwala derived place names used in the Province and recognized by the Toponymy office of the Government of British Columbia. Although these writing systems do not provide a complete rendering of

Kwakwala sounds, they provide clues to pronunciation and enable fluent speakers familiar with the language to recognize the words (personal observation, see publications from British and Foreign Bible Society, e.g., (1897). The orthographic systems that are accurate fall into three groups, the works by Boas and Hunt, the systems used in linguistic publications, and those used in communities. Recent linguistic works do not consistently provide capitalization or punctuation (Rosenblum, 2015; Littell, 2016; Janzen, 2015a),<sup>58</sup> while works by Boas and Hunt and community systems use capitalization as if they were writing in English. Linguistic works either use IPA (International Phonetic Alphabet) or the Northwest Adaptation of the Phonetic Alphabet referred to as NAPA. There are two versions of NAPA character coding used by linguists, UBC NAPA (University of British Columbia NAPA, see Rosenblum (2015), and UVIC NAPA (University of Victoria NAPA, see Wilson & Henderson (1981c) and Sardinha (2017)). The two most common community orthographies are U'mista (Keyman, 2021a) and NAPA (Keyman, 2021b). U'mista is used in the North Vancouver Island and School District 85. This was developed by the U'mista Society in Alert Bay (U'mista Cultural Society, 2021) and based on the practical writing system in Grubb (1977). UVIC NAPA was adapted to include capitals and punctuation for the Campbell River School District 72 and Port Hardy School District 85 materials during the Native Indian Language Diploma Program (Wilson & Henderson, 1979a) and a Canada Works grant in 1978. At

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<sup>58</sup> Rosenblum (2015), Littell (2016), and Janzen (2015a) use capital letters for most proper names, and Janzen (2015a, p. 75) capitalizes the first letter in narrative sentences.

present, both U'mista and NAPA community orthographies utilize capitalization and punctuation for personal and place names.

### **13.1.2. Study Focus**

This study focuses on phonologically accurate orthographies in two activities: language education and revitalization of place names in traditional territories. Both activities access Kwakwala and |Bakwamkala| (the |Gwa'sala-'Nakwaxdaxw| dialect of Kwakwala) for their work including those written in U'mista, NAPA, and Boas-Hunt methods. The evidence used in the analysis includes curriculum materials developed at Eke Me Xi Learning Centre and materials developed by the place name geomapping/toponymy project of the |Gwa'sala-'Nakwaxdaxw| Nation (GNN) undertaken by the |Gwa'sala-'Nakwaxdaxw| Treaty (GNN-Treaty) department. The examination details the difficulties encountered related to orthographic practices and focuses on the steps taken to improve documentation that led to the development of a computer-based deterministic parsing model to address these problems. A deterministic parsing model is a method where one input can only result in one output.

### **13.1.3. The problems**

The following Kwakwala documentation topics are examined:

- error analysis of written materials,

- conversion between orthographies,
- difficulty utilizing and converting Boas and Hunt works to community orthographies because of the variations in their works (cf. Boas, Kwakiutl Tales 1, 1902a; The Kwakiutl Indian Language, 1911; Geographical Names of the Kwakiutl Indians, 1934; Kwakiutl Grammar with a Glossary of the Suffixes, 1947; Kwakiutl Dictionary, 1948).

#### 13.1.4. The solutions

In order to address the difficulties noted above, this study developed and tested the following:

- conversion utilities to convert between phonologically accurate orthographies
- correction of common keyboard input errors related to Kwakwala diacritics used to code Kwakwala sounds not found in English,
- a Boas-like orthography similar to Boas' later works (1947; 1948) to assist researchers working with written materials by Boas and Hunt. The conversion utilities convert between this orthography and NAPA and U'mista. See Section 22.
- development of an ASCII based orthographic representation based on Grubb (1977). This ASCII orthography uses only ASCII character coding by employing digraphs, e.g., |ts| *alveolar affricate*, trigraphs |t's| *glottalized alveolar affricate*, or quadgraphs, e.g., |khw'|, *uvular glottalized labialized stop*. This system was

developed to enable the display of Kwakwala on computer systems where extended Unicode was not available. This orthography is fully convertible with the two community orthographies (NAPA and U'mista). See Section 13.2.

### **13.2. Online geomapping database**

During the work with the place name project, project staff indicated that their online geomapping database was unable to utilize extended Unicode. This created an additional problem as neither the NAPA nor U'mista orthographic Unicode standard could be utilized. Instead, the staff were using a display method based on a coding method developed at the University of Victoria in the 1970's and 1980's. It is not compliant with current standards. In order to overcome the problems encountered in the land-based program, the land-based documentation team discussed using an English based method of writing Kwakwala. David Wilson suggested that a phonologically accurate ASCII compliant Kwakwala orthography could be developed using diagraphs, trigraphs, and quadgraphs to represent Kwakwala sounds not in English. David then was asked to develop the ASCII-based system of representing Kwakwala that could be used with computer-based applications that were unable to use extended UNICODE.

### 13.3. Adapting the Boas and Hunt orthographies

The Boas and Hunt orthographies were adapted for use in this project based on two of the later works by Boas, "Kwakiutl Grammar" (1947) and "Kwakiutl Dictionary" (1948). See Section 17, Technical Appendix Orthographies, for a comparison between the adapted Boas and Hunt orthography and the original. The adapted orthography was developed to examine the parser's potential to convert the various orthographic conventions found in the Boas-Hunt materials.<sup>59</sup> For the purpose of this study, consonants follow the Boas (1947) method regardless of the original publication, and the vowels are represented based on one character to represent the variations (allophones) of each phoneme. For example, [i, e, ī, ē] found in Boas (1947) are variants of the phoneme /i/. These variants are written as "i" in the converted version of the Boas orthography.

### 13.4. Geomapping and Toponymy

The |Gwa'sala-'Nakwaxdaxw| Treaty department is engaged in researching and documenting the place names and locations in their traditional territories which include "areas south of Blunden Harbor, north to Seymour Inlet to Smith Inlet, including the outlying islands, inland rivers, inlets, bays, lakes, watersheds and mountains" (Gwa'sala-'Nakwaxda'xw Nations, 2019). This work aims to complete an online database of their territories that includes geographed locations, place names, history, and detailed

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<sup>59</sup> Variations in Boas-Hunt orthographies include Boas (1897; 1910; 1911; 1930a; 1930b; 1934; 1947; 1948), Boas and Hunt (1906), and Hunt (1918).

information on the meanings of place names, and historical census information. The project team liaises with the Provincial toponymy office for the purposes of gaining official recognition for settlements and landforms with Bakwámkala names.

The land-based research was based on expertise from community Elders and information from various sources including Boas (Geographical Names of the Kwakiutl Indians, 1934), Galois (Kwakwaka'wakw Settlements, 1775-1920: A Geographical Analysis and Gazetteer, 1994), and Wilson and Henderson (Place Name Charts, 1982a). The research process in which I was involved included |Bak<sup>w</sup>ək<sup>a</sup>l<sup>a</sup>| transcription and conversion from legacy orthographies into NAPA (Unicode UTF-8). The question is: can the conversion be done automatically?

Segments from the map of GNN territories below (Map Segment 1 and Map Segment 2) serve to exemplify the difficulties found in synthesizing data from a variety of sources. Two orthographic methods are used on the map: Reserve names on the map are listed using the English spelling noted in Government of Canada documents and place names from Boas (1934).

## Map Segment 1 Blunden Harbour

The transcription of this place name as |Pahas| is not consistent with Boas nor current usage. The Boas transcription is |baaʰs|



***baaʰs* (D 81 pā-as) Blunden Hrb. 6.23 — III 213.32; R 885.7**

(Boas, 1934, p. 48)

This would be written as |Baʔaʔs| in NAPA or |Ba'a's| in U'mista. Today, the place name is usually pronounced and written as |Baʔas| (NAPA) or |Ba'as| (U'mista). The differences between |Pahas|, |Ba'a's|, and |Ba'as| exemplify the need to review legacy versions of Kwakwaka'wakw place names with the present day to ensure accuracy.

Map segment 2 provides examples of the place names from Boas (1934) that were re-transcribed into UVIC NAPA by the geomapping team.

Map Segment 2 NAPA adaptation from Boas



(Boas, Geographical Names of the Kwakiutl Indians, 1934)

Table 32 Map entry and transcriptions below highlights the errors for the words "alders along point" and "having shelter." The table includes the Map Entry, the keystrokes needed to enter the data, the correct NAPA transcription, and the Boas (1934) entry.

Table 32 Map entry and transcriptions

Map Entry	Keystrokes	NAPA	Boas (1934)	Gloss	Source
Q{ug^#addiy'	Q{ug^#addiy'	Qʉugʁ'adiyʔ	<i>q!õ' gwadē'</i>	'having shelter'	Boas 1934,18:1 06
<{ed+i>balla	<{ed+>balla	ʁedʔiʁbala	ʁ!ädziʁbala	'Alders along point'	Boas 1934,7:10

Analysis of the transcription on the maps reveals that the GNN Map NAPA transcription contains errors which were most likely introduced during the conversion process from the original Boas transcription (1934) into the NAPA character coding. The working hypothesis is that the errors occurred due to the different coding methods for NAPA. The first NAPA coding method was developed before Unicode standards in the late 1970's at the University of Victoria (UVIC NAPA). UVIC NAPA (originally) utilizes the punctuation and number keys to display the NAPA phonetic characters. This system requires a unique Kwakwala font where a key press on the "{" key displays the character |ǫ|. In this method, the underlying ASCII key code for this character is the same as the "{" key. More recently, a NAPA character coding has become available that is compliant with Unicode (UTF-8). This Unicode NAPA version utilizes a keyboard encoder that also places some of the phonetic characters on the number and punctuation keys, but the underlying key codes are in the "extended ASCII" range. Although both the UVIC NAPA and the Unicode NAPA keyboard encoders place Kwakwala characters and diacritics on punctuation and number keys, the underlying coding for each equivalent character is different. It is possible that the wrong font or keyboard encoder was used during data preparation.

Table 33 Keystrokes for the original UVIC NAPA below compares an example from the GNN map with the keystrokes that should result in the correct NAPA characters.

Table 33 Keystrokes for the original UVIC NAPA

Map	Keystrokes	NAPA
Qł	Q{	ᑕ
ğł	<{	ᑭ

Additional Comments:

Other errors on the map include doubled consonants similar to English spelling, as in /Q{ug^#addiy`/. The correct transcription is a single /d/, as in /ᑕuᑭwadiy?/. The source of the consonant doubling is unknown.

The map transcribes most place names with capital letters. This follows GNN Treaty Department standards, where capitalization is used for proper and place names.

**13.5. Eke Me Xi School Program**

Eke Me Xi is like many schools in Indigenous communities, where access to language materials and technology is limited, teaching staff are in the process of learning the language, and student families represent several dialects. This setting has an impact on language programming, where there is a need for developing staff capacity in Kwakwala, as well as creating detailed units of study and supporting documentation based on the curriculum guide.

Eke Me Xi staff are familiar with the U'mista orthography, which was developed by the U'mista cultural society in Alert Bay, as noted above. The U'mista system is coded with a Unicode (UTF-8) standard and has a keyboard encoder for input which is available for both Mac and PC hardware. U'mista characters are best displayed with the Aboriginal Sans font. This font provides additional vertical spacing to account for the diacritics required to code non-English sounds.

Eke Me Xi has three types of computers, Mac's, PC's, and Chromebooks. Mac's and PC's have fonts and keyboard encoders for U'mista; however, the U'mista keyboard encoder and Aboriginal Sans fonts are often not functional due to regular updates which require technicians to reinstall the U'mista keyboards and fonts. In addition, the Chromebooks at Eke Me Xi are not capable of utilizing keyboard input for U'mista.

The curriculum development and implementation of |Bak<sup>w</sup>əm<sup>k</sup>ala| lessons at Eke Me Xi utilized the U'mista orthography, the orthography known to staff. Although teachers and students gained familiarity with reading Kwakwala in the U'mista orthography, they do not use computers for Kwakwala. Student work was written by hand rather than typed.

Error Analysis:

The following documentation from the first year of curriculum development activities at Eke Me Xi serves to exemplify the difficulties found in the materials. These are taken

from the curriculum blog during the 2016-2017 school year (Wilson P. , Our Voices Our Stories, 2020e). Column 2 illustrates the kinds of errors that were found in materials. Corrections are given in column 3. These errors occur because both U'mista and NAPA have specific Unicode values for glottal marking. The use of the ASCII code for a curly "apostrophe," for example, is not compliant with U'mista standards. In addition, glottal marking on sonorants in U'mista occurs before the letter, as in |'n| whereas it occurs on top of the character in NAPA |ṇ|.

Table 34 Weather Terms, errors with glottal marking and font

English	Original	Corrected	Correction Comment
cold	ẉadala	ẉadala	glottal mark before  w
daytime	ḥala	ḥala	glottal mark before  n
drizzle	dzasṭayala	dzasṭayala	glottal mark before  y
rainbow	wagalus	wagalus	use aboriginal sans font
foggy	p̣alx̣ala	p̣alx̣ala	correct
frost	gawisa	gawisa	correct
frost on ground	gawitṣas	gawitṣas	glottal mark between  t  and  s
full moon	naḥsamala	naḥsamala	correct
hot	ṭ'salkwa	ṭ'salkwa	glottal mark between  t  and  s

(Wilson P. , Weather Terms Practice, 2017c)

Table 35 contains errors in capitalization, glottalization, punctuation, and font.

Corrections are provided in the row underneath the original.

Table 35 Weather dialogue and errors with capitalization, punctuation, and font

Question Form		Answer Form
anwadiṁa'uxwda ṁala?	 cloudy	am, anwadiṁuxw
Anwadiṁa'uxwda ṁala?	Corrections	Am, anwadiṁuxw
tḥisalaṁa'uxwda ṁala?	 thunder	ki, tḥanikwaṁuxw
Tḥisalaṁa'uxwda ṁala?	Corrections	Ki, tḥanikwaṁuxw

(Wilson P. , 2017c)

Summary of errors in data:

- issues with the U'mista apostrophes for glottalization: / ǀ ǂ ǃ 'n /
- Microsoft Word language tools set to English displaying glottal markers as apostrophes
- incorrect font resulting in diacritics not being displayed e.g., / a g G K /
- punctuation and capitals not used consistently

### **13.6. Addressing the problems**

In order to evaluate the potential of improving computer-based documentation of Kwakwala, conversion between orthographies, and correction of common keyboard errors, I first examined the potential of using Microsoft Word (MS Word) to address these difficulties. Although MS Word can function with both the NAPA and U'mista keyboard encoders when English proofing tools were turned off, it proved challenging to utilize the macro programming of MS Word to convert from one orthography to another and to correct keying errors. One common keying error, for example, is in the use of glottalization. In NAPA, for example, a glottalized "n" is marked with an apostrophe over the "n" as |ṇ|. In U'mista a glottalized "n" is written with the apostrophe preceding the "n" as |'n|. In this example, the underlying "extended Unicode" UTF-8 code for |ṇ| and |'n| are different, the keystrokes are different, and the keyboarding encoders are different.

### **13.7. Parsing Overview**

The initial Microsoft Word version of the tools I developed proved to be very ineffective to handle the conversion among orthographies and the correction of keying errors. At the time of this work, my son David Wilson was in Port Hardy studying at North Island College. David has expertise as a computer programmer specializing in Haskell programming. This includes developing parsers and natural language-based orthographic coding in computer systems. David joined the place name project team and assisted me

with the development of the tools discussed in this work, as well as the ASCII compliant orthography. The information on the development and overview of the parsers in this dissertation is based on a presentation by Wilson & Wilson (2020a).

The parser addressed two difficulties discussed earlier in this Section: the need to convert from one orthography to another, and the need to fix errors to ensure that materials comply with the canonical forms for each orthographic standard. This includes errors in glottal marking and character codes: see Table 34 and Table 35.

The parsers are programmed in the Functional Programming Language Haskell, using the Attoparsec Parsing Library. Attoparsec is a Monadic Combinator-based parser. Combinator parsing is parsing by combining smaller parsers into larger parsers. “Monadic” means that it is implemented as a monad, which is a common way to structure compositional code in Haskell. Like the majority of Functional Programming, this is a deterministic parsing method, meaning that given the same input, it will always give the same output.

Note that these parsers do not go straight from one orthography to another—they first convert input text to an internal representation (a list of the corresponding phonemes), whose units are then converted into strings and then concatenated together to give the

desired output. This is likewise how orthography standardisation occurs; the parser is more lenient in accepting incorrect but understandable input, which is converted to the underlying representation, and then finally output in the requested orthography using standardised code points and conventions (Unicode UTF-8).

The actual parser is structured somewhat like a deterministic finite automata (DFA) or finite state machine. This means that the parser, in effect, has several states, between which it moves to determine what phoneme it is currently reading (see Illustration 13 below). In essence, the parser matches the current position in input with the longest string that corresponds to a phoneme. An explanation of this process along with program source code is provided in Section 22, Technical Appendix Parser.

Parsing example: converting between orthographies

The parsing application converts one orthography to another. There are four batch files and an executable program compiled from Haskell source code. The user selects the input file and chooses the batch file that matches the input orthography and the desired output orthography. The files must be in Unicode (UTF-8) format.

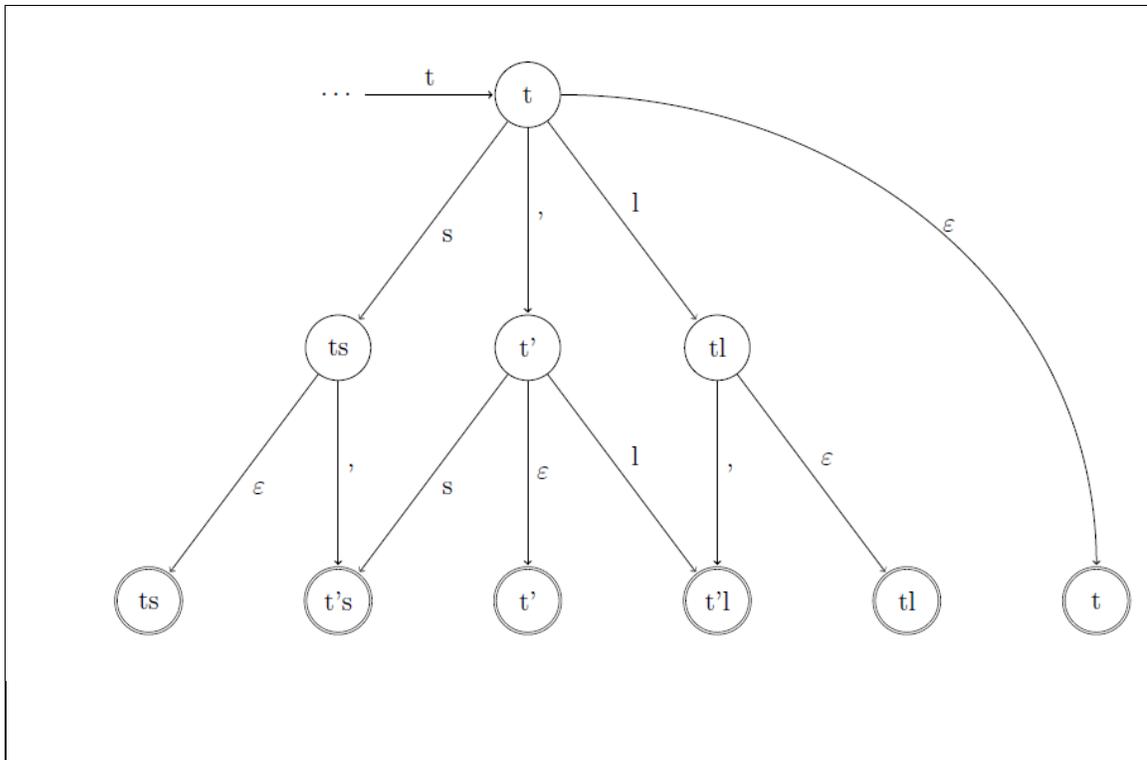
Table 36 Batch Files lists the three batch file names that convert ASCII-based Kwakwala to Boas, NAPA, or U'mista standards.

Table 36 Batch Files

Batch File Name	Result
ASCII-Boas.bat	from ASCII to Boas
ASCII-NAPA.bat	from ASCII to NAPA
ASCII-U'mista.bat	from ASCII to U'mista

Illustration 13 is a graphic representation of how the parser handles input from the batch file in order to convert a character from one orthography to another.

Illustration 13 Stage 1 parsing from the ASCII orthography to U'mista



(Illustration: David Wilson)

In stage 1 the character |t| is read as input and the parser checks to see if the following character is either an |s|, |'|, or |l|. If none of these characters follow, the |t| is sent to the underlying representation (noted in the circles at the bottom of Illustration 13 ("ε" denotes end of operation). In situations where multiple characters represent a single phoneme, the parser has to account for multiple pathways. Illustration 13 shows how a |t| followed by a glottal marker |'| might result in one of three phonemes /t's/, /t'/, or /t'l/. If the third character in the sequence is an |s|, the parser outputs the character string |t's| to the underlying representation. Following the initial conversion of a character or sequence of characters into the underlying representation, parsing stage 2 occurs. Stage 2 takes the underlying representation and converts it to the character or sequence of characters in the requested orthography.

### **13.7.1. Fixing orthographic errors**

The second use of the parser provides basic proofing tools to catch keying errors related to punctuation marking or choice of keyboard encoder. I use this function to check files before submitting them for conversion to another orthography. The errors that are corrected, which are among the errors noted in

Table 34 and Table 35, occur either because the wrong keyboard encoder was used, or the operator chose the wrong diacritic marker. For example, if one is typing in U'mista and enters a glottalized "n" using NAPA as |n̥ala| 'day', this would be incorrect. The correct U'mista form is |nala|. Typically, these kinds of errors are corrected through the built-in proofing tools for languages supported in Windows 10 and macOS operating systems. Proofing tools in MS Office using English, for example, automatically correct apostrophe usage for beginning quotation marks and ending ones. Since the operating systems do not provide proofing or spelling for Kwakwala, it is necessary to build these tools oneself. In this study, David Wilson was able to utilize the conversion parser to provide a basic set of proofing tools that correct keying errors.

The proofing function in the parsing system takes input from a text file in one of the four orthographies and parses it through its own parser. For example, a NAPA text file is parsed by the NAPA parser. This function corrects typical keying errors such as apostrophes and diacritics through the process of converting the input to an internal representation (i.e., the circled characters in Illustration 13 Stage 1 parsing from the ASCII orthography to U'mista) and then converts the internal representation to the desired orthography. Example 33 is the source code for the NAPA batch file "FixNAPA.bat"

Example 33 Fix NAPA batch file

Command	Explanation
@echo off	turn of echoing display
chcp 65001	change to Unicode (UTF-8) code page
Parser.exe -input %1 -fn -tn	input the named file to the NAPA
Parser.exe -input %1 --from NAPA --to NAPA	parser and output in NAPA
Pause	waits for the user to press enter

The parser.exe program outputs the file with corrections and adds the parser name to the file name. For example, the file "mywords.txt" becomes "mywords.napa.txt." Example proofing corrections are listed in the following examples. Examples 34 to 36 demonstrate that the U'mista proofing tool corrects apostrophes and labialization [w] if the entries are made using the NAPA keyboard encoder. Example 37 illustrates that the NAPA entry |c| in |cu<sub>x</sub>wa| is not converted to |tsu<sub>x</sub>wa| (|ts| is the equivalent U'Mista character for |c| in NAPA) because the U'mista parser does not recognize the NAPA character and passes it through.

Table 37 Proofing examples

Example #	Orthography	Correct	Typed	Keyboard encoder	Parser fixed?	Comment
Example 34 Parsing 1	U'mista	'nala	n'ala	NAPA	yes	
Example 35 Parsing 2	U'mista	'nala 'n	ṅala	NAPA	yes	
Example 36 Parsing 3	U'mista	kwikw	k <sup>w</sup> ik <sup>w</sup>	NAPA	yes	
Example 37 Parsing 4	U'mista	tsux <sub>w</sub> a	cux <sub>w</sub> a	NAPA	no	c  not corrected in proofing

### 13.8. Analysis of map data

Table 38 provides a summary of deterministic parsing to address the data. The table contains a description of the data input, comments on parsing, and whether or not the parser was able to convert the data to other orthographies or fix errors.

Table 38 Analysis of map data

Data input	Parsing comments	Parser conversion or correction
IR Reserve Names	Reserve names from Provincial place names or government documents not consistent.	No
NAPA transcription on Map developed from Boas (1934) publication	Checks between the transcription on the map and pronunciation from community Elders revealed a number of differences.	No
Conversion from Boas (1934) to NAPA	Items listed in Boas (1934) cannot be converted because there is no Unicode version of Boas original.	Not possible at present. OCR of Boas publications not available.
Conversion from NAPA, U'mista, or ASCII-revised to Boas-revised orthography	Conversion from NAPA, U'mista, or ASCII-revised to Boas-revised orthography completed.	Yes
Conversion between community-based NAPA and U'mista	Conversion between community-based NAPA and U'mista completed.	Yes
Conversion between linguistic IPA/NAPA to community based U'Mista or NAPA	Conversion to community systems from linguistic works not able to capitalize or insert punctuation.	Characters: Yes Capitalization: No Punctuation: No

### 13.9. Analysis of School Data

Analysis of school data in Table 39 summarizes the results of the parser to correct errors and convert orthographies in the school-based data.

Table 39 Analysis of school data

Data	Parsing Comments	Parser
U'mista punctuation and apostrophes	Errors occur due to keying or interference from English-based proofing tools in applications.	Yes
Wrong font	Choice of font independent of character coding.	No
Capital letters and punctuation in community orthographies	Capital letters and punctuation used in community orthographies can be easily removed for use in linguistic works.	Conversion in word processor
Conversion between community orthographies	Conversion between U'mista and NAPA.	Yes
Conversion between linguistic IPA transcriptions and community orthographies	Conversion between linguistic NAPA and community U'mista and NAPA possible as long as capitals and punctuation are coded.	Characters: Yes Capitalization: No Punctuation: No

### 13.10. Summary: Parsing

The following sections summarize the results of the Parser to address the difficulties associated with the materials.

#### 13.10.1. Parsing is effective

Deterministic parsing was found to be effective to correct characters/code points designated by the orthography as well as convert between the main orthographies used for Kwakwala.

### **13.10.2. Parsing needs intervention**

Texts where English words are used in Kwakwala, and Kwakwala words are used in English will be automatically subject to parsing unless the user is able to signal that text should not be parsed. The protocol used in the program developed during the study and adopted in this work encloses such words in the "pipe" symbol, as in |Bakwamkala|.

### **13.10.3. Parsing is not effective**

Written representations of Kwakwala that are not sufficiently consistent or do not represent all Kwakwala sounds are not suitable for a deterministic parser. This includes examples of Reserve names written in English and computer based legacy orthographies which are not Unicode based. Deterministic parsing is not able to capitalize and punctuate Kwakwala during conversions from linguistic works to community orthographies.

## **13.11. Next Steps: Context sensitive - corpus-based parsing**

Although deterministic parsing is effective to convert and correct Unicode based orthographies and keying errors, it is possible that A/I based machines could be developed to handle more complex conversions. Such conversions would require the "machine" to determine a best choice from among a variety of options. This could include spelling and grammar checking, as well as opening up a larger corpus of data from legacy

orthographies, such as the various systems in the works by Boas and Hunt, where orthographic representations vary from publication to publication. Automatic conversion of both legacy and current works is essential to assist researchers working on place names and those developing materials for schools.

### **13.12. Conclusions, recommendations, and comments**

During the examination and analysis of the data, deterministic parsers were utilized as a means to examine whether the difficulties in the data could be resolved automatically through parsing or required further research and analysis. A summary of the results of data parsing follows.

The analysis of the school and geomapping activities is based on the recognition that all written documents should comply with Unicode standards. The deterministic parsers developed in the project are based on Unicode standards and, therefore, are able to proof for keying errors and convert from one orthographic system to another. Legacy computer-based documents, such as those typed using the original character coding used in the UVIC NAPA, need to be converted to Unicode standards. Unfortunately, it is not known whether original digital versions of the Kwakwaka'wakw documents produced at the University of Victoria are still available.<sup>60</sup> The original entries were made on a CRT terminal that

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<sup>60</sup> The materials produced in digital form by the NILDP program (1978-1982), University of Victoria.

included programmable character capacity. Data processing and storage occurred on a mainframe computer. If these documents were still available, it would be possible to develop a parser to convert such systems to a Unicode standard.

### **13.12.1. Optical character recognition (OCR) challenges**

To my knowledge, there is no effective OCR developed specifically for Kwakwala that scans phonologically accurate printed versions of Kwakwala into digital extended Unicode (UTF-8) coding standards. During the study, I attempted but was not successful in adapting Adobe Acrobat (Adobe Systems, 2020) and ABBYY (ABBYY Group of companies, 2017) software to recognize and convert printed Kwakwala documents to Unicode (UTF-8) coding. This result was expected, as these OCR software packages were not developed to account for Kwakwala. This is based on the understanding that OCR programs utilize AI (artificial intelligence) to handle situations where a given input might result in more than one output. In order to provide accurate results, OCR systems need language specific data (as discussed at ComputEL-2, March 6-7, 2017, University of Hawai'i, Manoa). Among future plans we plan to continue the work on the parsers developed during this study and contribute to OCR development (Wilson & Wilson, 2020a).

**13.12.2. Situations where parsing is effective**

Deterministic parsing was found to be effective to correct characters/code points designated by the orthography as well as convert between the main orthographies used for Kwakwala. Table 40 Examples of the four orthographies in the parsing project presents an example from the geomapping project.

Table 40 Examples of the four orthographies in the parsing project

Boas revised	NAPA	U'mista	ASCII revised	English Name	Description	Boas Map Number
Ba <sup>ε</sup> as	Baʔas	Ba'as	Ba'as	Blunden Harbour	IR#3 Pahas village site in Blunden Harbour	6:23

**13.12.3. Conventions for English in Kwakwala, and Kwakwala in English**

It is common for educational materials to use English names in Kwakwala stories and dialogue and Kwakwala names in English versions of stories. In order to account for these situations, the current parsers are programmed to avoid parsing when words are enclosed by the pipe "|" symbol, as illustrated in Table 41 Kwakwala in an English sentence. In the following example, the English translation contains a Kwakwala proper

name written in U'mista. The example is from a story about a young man named |Xa'na| who is planning to dig clams with his older brother. When the English translation of the story is parsed from U'mista to NAPA, the name |Xa'na| is converted to |ǰǰaǰa|, while the English is not converted by enclosing it with pipe "|" symbols.

Table 41 Kwakwala in an English sentence

U'mista Original:	Latǰeǰsdi ǰaǰa yayaǰ kǰantǰi yaǰa laǰ Dǰǰaksiwi.	' ǰǰaǰa  wants to go dig clams at Cluxsiwi.'
NAPA Parsed:	Laǰeǰsdi ǰǰaǰa yayaǰ qǰnǰi yaǰa laǰ ǰǰaksiwi.	
Boas-revised Parsed	Laǰǰsdi Xa <sup>ε</sup> na yayaǰ qǰnǰi yaǰa laǰ ǰǰεk·siwi.	

(Example from Eke Me Xi (2019))

Table 42 English in a Kwakwala sentence

U'mista Original	'Matsaǰi tsǰawitǰas  John aǰeda 'watse?	'What is John (near 2) going to give to the dog (near 3) (-vis)?'
NAPA Parsed	Mǰaǰaǰi ǰǰwiǰǰs  John aǰeda wǰǰe?	
Boas-revised Parsed	<sup>ε</sup> Mats!aǰi ts! <sup>ε</sup> WILEs  John  <sup>ε</sup> axāda <sup>ε</sup> wats!ǰ?	

(Example from Eke Me Xi (2019)).

Table 42 English in a Kwakwala sentence above illustrates the use of an English name in a Kwakwala sentence. In this example, the name "John" is enclosed in the pipe symbol and is not affected by the parsing, while the Kwakwala U'mista original is converted to NAPA and Boas-revised orthographies. Note also that the place name | Dłąksiwi| in the U'mista orthography is written as Cluxsiwi in English. When there are English versions of Kwakwala names the materials use the English spellings.

#### **13.12.4. Situations where deterministic parsing is not effective**

The example errors in the Map data noted above in Section 13.8 are not sufficiently consistent to rely on a deterministic parser. This includes examples of reserve names written in English and conversion errors from legacy orthographies to Unicode ones. In future, conversion from one orthographic system to another will be more effective when publications begin to utilize one of the two community orthographies.

#### **13.12.5. Data entry to code features for community orthographies**

In order to preserve all the features required in community orthographies, such as capitalization, it is necessary to include these features in the initial transcription. It is relatively easy to eliminate capitals and punctuation to comply with the IPA standards in linguistic publications, whereas it is time consuming to edit transcription to add them. Capitals and punctuation assist learners, teachers, and researchers to decode texts. This is

especially true in a language like Kwakwala, where the form of a proper noun can also occur as a verb, as exemplified in Example 38 and Example 39 below. Both examples present the same word in Kwakwala, Example 38 as a proper noun and Example 39 as a verb.

Example 38 Noun	Example 39 Verb
Dzawadi	dzawadi
dzaw-ad-i	dzaw-ad-i
Dzawadi	eulachon-have-pro3.SBJ.IND
village name ‘Dzawadi’	‘He.she.it has eulachons.’

In addition to assisting students and teachers to decode written Kwakwala, capitalization also serves to ensure that proper names and place names are recognized in formal legal contexts (e.g., Treaty negotiations, compliance with Toponymy).

### 13.12.6. Next Steps: Context sensitive/corpus-based parsing

Although deterministic parsing is effective to convert and correct Unicode based orthographies and keying errors, it is possible that AI based machines could be developed to handle more complex conversions. Such conversions would require the "machine" to determine a best choice from among a variety of options. This could lead to optical character recognition, spelling, and grammar checking, as well as opening a larger corpus

of data from legacy orthographies, such as the various systems in the works by Boas and Hunt, where orthographic representations vary from publication to publication. In addition, parsing documents from legacy orthographies that are not "phonologically accurate" might also be possible through AI development.<sup>61</sup>

### **13.13. Summary**

Revitalizing Indigenous languages benefits from written language data that complies with Unicode standards and follows community practices. Researchers need to consider community practices. This would include converting linguistic orthographies to both community standards and compliance with punctuation and capitalization.

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<sup>61</sup> Updated versions of publications include the U'mista transcriptions of the British and Foreign Bible Society publications in Kwakwala, e.g. "The Acts of the Apostles" (British and Foreign Bible Society, 1897) developed in Alert Bay through a grant from the Anglican Church of Canada in 2016 (Anglican Church of Canada, 2021).

## **14. Review and Conclusions**

The study is situated in the growing demand for Indigenous language revitalization in the midst of a decline in the number of fluent speakers. This has led schools and communities to rely on teachers and researchers who are learning the language they are revitalizing. Previous research leading up to this work demonstrates the need to support researchers and teachers who are learning the language.

This study focused on developing and examining supports for programs that rely on non-fluent teachers and researchers. During the study, I participated in and examined high-school and land-based revitalization improvement initiatives with the Gwa'sala-'Nakwaxda'xw Tsulquate community. At the school, plans include enhancing Kwakwala activities in the language course and across the curriculum, as well as professional development for teachers. In the community, land-based documentation seeks to revitalize placenames in traditional homelands on the mainland of B.C. that are consistent with Indigenous knowledge. In both settings, non-fluent teachers and researchers collaborate with fluent Elders to improve documentation and materials development.

As noted earlier, the study is based on Participatory Action Research and the knowledge claim that a transdisciplinary approach is required to address the complex problems that arise in language revitalization. This recognizes that no one person can do it all and that

no one discipline can singularly solve the complex problems and activities required for successful revitalization. Study activities engaged Gwa'sala-'Nakwaxda'xw Elders, teachers, and community researchers to collaborate and share their expertise. Study activities applied research from linguistics, applied linguistics, education, computational analysis, ethnography, geography, and ethnophysiology.

The transdisciplinary practices were informed through the expert advice from Elders and community members to decolonize and situate documentation and learning for the Gwa'sala-'Nakwaxda'xw community. Development activities included an expanded unit of analysis to ensure documentation accounted for a broad range of communication. The study also recognized that curriculum and documentation improvement initiatives are in a constant state of revision and require methods for review and analysis. The analysis of the materials followed evidence-based analysis of the language in the materials:

1. examining the diversity of language,
2. matching materials to curriculum expectations,
3. coding multimodality in materials for language, visuals, and audio,
4. examining narratives for evidence of required elements,
5. reviewing gaps and difficulties in language documentation and computer-based parsing to address documentation gaps and difficulties.

### **14.1. Conclusions**

The analyses I conducted in the study demonstrate that materials are consistent with curriculum and community expectations. Specifically, the range of language in materials is in accord with language expectations, land-based activities provide Indigenous knowledge and understandings, media supports in materials are situated and reflective of the community, narratives follow Elders' recommendations, and documentation initiatives improve access to written language.

The development activities and analyses undertaken in this study contribute to research examining theories and methods for Indigenous language improvement in schools and communities. This includes the transdisciplinary application of theories and methods to development activities and situated learning and documentation to ensure that language evidence is accurate and reflective of the range of authentic communication. In addition, the application of a word paradigm analysis may provide an alternative to morphological descriptions in educational settings for polysynthetic languages.

### **14.2. General observations: shifting the paradigm**

The transdisciplinary approach used to frame the study integrates Indigenous knowledge and settings, professional association with community Elders, teachers, researchers, and administrators, while accessing best practices from schools and research. This process

shifts the paradigm from a single focussed approach to a multifaceted transdisciplinary one that recognizes and utilizes the knowledge base of a professional learning community.

Although there have been many advances in the development of school-based and land-based materials and documentation for Indigenous languages in British Columbia since the 1970's, there are still numerous areas requiring attention and further development. Many areas of concern are noted in the Ministry review (BCED, 2016c) and Levine's overview of language programming in (1978) that was republished in (2009) with editorial comment that very little had changed in the intervening years.

### **14.3. Commentary word paradigm analysis**

The word paradigm (WP) approach adopted in the study is used to analyze Kwakwala inflections to connect the range of language structures in the materials with curriculum expectations. It is also used to examine the potential of developing paradigm listings for Kwakwala similar to those used in education for other inflected and polysynthetic languages. For the analysis, WP provides an alternative to current research in the language as a method to connect the English-based communicative-experiential curriculum statements to Kwakwala structures. Connections between curriculum expectations and language structures are problematic in British Columbia because the

curriculum framework document is written in English and without specific regard to the languages in the Province (BCED, 2003).<sup>62</sup> In order to overcome this difficulty, English-based curriculum expectations are aligned with the inflectional WP lumps. The WP codes for the inflections on each word detail information to align with curriculum statements. For example, the curriculum requires that students ask and respond to questions. In order to determine if the materials provide a range of language described in the curriculum, the inflectional codes on verbs are compared to determine the distribution of mood (question, statement, command) and person marking (first person, second person etc.). Traditional item and arrangement or item and process analyses, however, describe each morpheme independently of another, making it more difficult to determine the range of combinations that occur. Word paradigm coding of inflectional lumps enables us to ask questions important to educators. For example, do the materials contain the range of language required in the curriculum. Questions can be combinatory or contextual such as the number of "2<sup>nd</sup> person interrogative" compared to the number of "3<sup>rd</sup> person interrogative," or the distribution of proximity marking relative to location.

In summary, WP methods are effective for aligning language structures to communicative-experiential expectations in educational settings. First, WP provides a linguistic approach to the combinatory nature of inflectional structures in polysynthetic

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<sup>62</sup> This Ministry is aware of these difficulties and concludes this is an area in need of improvement (BCED, 2016c).

languages which is not evident in a morpheme by morpheme analysis. Second, it aligns with the development of word paradigm listings preferred by educators. Third, it focusses on developing listings of the combinations of morphemes that occur in communication rather than tables that summarize individual morpheme usage.

#### **14.3.1. NILDP-CW materials vs Eke Me Xi**

A lot has changed since the beginning of Indigenous language revitalization in school and community research activities in the 1970's. At that time, there were no curriculum guides for school programs. There were no geographic methods that integrated Indigenous land-based knowledge and language into place names and territory landforms, i.e., ethnophysiography, from Mark & Turk (2021). Language materials for schools were based on grammatical-functional methods. These materials relied on language descriptions that were developed as part of linguistic analyses rather than pedagogical ones. Scope and sequencing of school materials was based on language complexity and activities were planned "top down" rather than community based.

The context of the current study, however, is significantly different. Curriculum guides for Indigenous languages are available. These were developed through engagement with Indigenous community language experts. These curriculum guides provide structures and

methods to ensure that language activities focus on communicative activities and address the needs of a community, and include Indigenous knowledge and perceptions.

The process of developing materials for schools was also very different. During NILDP and Canada Works programs, I led development activities that focussed on language-based materials that were constrained by complexity of language structure. Functional language examples were developed to illustrate and reinforce the language structures from the lessons. Developing materials for Eke Me Xi, however, was significantly different. At Eke Me Xi, I collaborated directly with teachers and administrators who suggested specific activities for lessons, many of which reinforced and integrated with the other subjects at the school. These suggestions integrated Kwakwala and other courses, as called for in the school improvement plan (Eke Me Xi, 2016). During the NILDP and Canada Words programs, in contrast, Kwakwala language activities were not developed within the context of general curriculum or course goals. The process of gathering language data for the Eke Me Xi lessons was also different from those undertaken during my earlier activities. In NILDP and Canada Works development, I elicited data primarily with Elders either individually or in small groups. At Eke Me Xi development activities included language documentation during on-the-land experiences, such as clam digging, gathering seaweed, and visits to the homelands.

Land-based documentation was also very different. Previously, my work on land-based documentation was largely based on consultation with Elders while looking at maps and charts, see Wilson & Henderson (Place Name Charts, 1982a). During land-based documentation in the study, I was able to collaborate with Elders on trips to the homelands. This provided greater detail and Indigenous knowledge of the ethnophysiology of the locations. The "Foods and Locations at Ba'as" map, for example, was developed from notes and pictures taken during direct observations on site and then transferred onto a chart (Wilson & Henderson, 2018). The result is a listing of food resources and locations at this settlement.

#### **14.3.2. Communicative-experiential and grammatical functional**

Although the analysis of the communicative-experiential based materials at Eke Me Xi provides accurate and authentic language relative to the curriculum and community interests, there is a need to improve connections between language structures and curriculum expectations, as examined in Section 10 Analysis. There is also a need to develop descriptions and lessons to support non-fluent teachers, such as those found in grammatical-functional lessons. For example, teachers need to understand how the sound system of Kwakwala works and how to form questions and answers. There is also a need to address social and cultural aspects of language use. For example, curriculum requirements for senior high school students should include how to use and when to use

polite language, such as formal occasions and feasts. Examples in materials that include polite questions are presented in Section 24.6.1 Cedar and Alder Bark. Asking an Elder if they would like some tea during a feast, for example, would require a polite question such as ‘wouldn't you care for tea?’ |kosa<sub>s</sub> didaga'mas?| versus ‘do you want tea?’ |didagexsda'mas?| Another area requiring further attention is in narratives, where locations and settings of stories need to be situated in the real world and provide details about the characters, as examined in Section 12 Communicative Competence.

In order to improve materials for teachers and researchers who are not fluent, communicative-experiential materials should include links between communicative acts in materials with their Kwakwala structural correlates. In addition, descriptive methods need to be examined for their utility to improve student achievement. Although previous grammatical-functional materials such as Powell, Jensen, Cranmer, & Cook (1981), Wilson & Henderson (Advanced Kwakwala Lessons, 1981c) or Wilson & Henderson (Advanced Kwakwala Lessons 2, 1982c) provide starting points for this development, there is a need to ensure that descriptions utilize a much expanded unit of analysis to include the diversity of communicative acts and account for Indigenous settings and situations.

#### **14.4. Recommendations for schools**

- Link curriculum expectations to all communicative aspects of language including structures, social, cultural, and communicative competence
- Utilize Word Paradigm analysis to connect polysynthetic language structures to communicative-experiential curriculum expectations and develop paradigm lists for students, teachers, and researchers who are not fluent
- Utilize grammatical-functional methods to supplement communicative-experiential curriculum and develop word paradigm tables.
- Develop unit plans to integrate Kwakwala language activities with other curriculum courses.
- Develop language materials that integrate with other course activities with attention to scope, sequence, and grade levels.
- Conduct evidence based research to examine the most effective methods to introduce grammatical concepts for teachers and students.

#### **14.5. Recommendations for school and community research**

- Examine methods to improve situated documentation.
- Examine online data presentation of materials and their utility for teachers, researchers and students. This will need to include methods of handling dialect differences and choice of orthography.

- Develop benchmarks and exemplars for program and student assessment and evaluation.
- Administrators should provide supports for materials development, encourage professional development for the research team, and ensure staff have opportunities to engage regularly with Elders to not only develop materials but also improve language knowledge and fluency.
- Develop dictionary and word paradigm supports based on and linked to curriculum expectations and land-based needs.

#### **14.6. Recommendations for land-based documentation**

- Continue the process of land-based documentation based on a transdisciplinary ethnophysiological approach which focusses on documenting the ways that the [Gwa'sala 'Nakwaxda'xw] "understand the natural world" (Mark & Turk, *Ethnophysiology*, 2003, p. 1). This approach aligns with Situated Documentation proposed in this study and includes on-site documentation with expert Elders and transdisciplinary collaboration among researchers from different disciplines. See also: Mark & Turk (2021), Hiver, Larsen-Freeman, & Al-Hoorie (2021), and Mark, Turk, Burenhult, & Stea (2011).
- Continue the development of computer-based parsing to expand the range of digitized materials in community orthographies.

- Continue to develop strategies to re-publish documents in the community orthographies that originally do not represent the sound system of Kwakwala.
- Liaise with the American Philosophical Society, the American Museum of Natural History, and the Columbia University Special Collections and Archive to make documents accessible for the community.

#### **14.7. Research Recommendations: Inflections**

The focus on Kwakwala inflections in the analysis Section 10 and the overview of inflections found in the Eke Me Xi data in Section 16 demonstrates that there is still further work needed. This includes linguistic descriptions, educational research, and applied studies to support school and community revitalization. From the standpoint of linguistic research, more work is needed to develop word paradigms and analyze possessive structures, deictics, and evidentials. From applied linguistics, research is needed to better connect the language structures to communicative expectations as well as examine the range of structures used in various settings and situations, for example, daily conversations, formal settings, and dialect variations. Within educational contexts, research based on the "spirals of inquiry" is required to begin the process of examining language in materials and classroom practices to improve activities (NOIIE, 2020). From land-based applied studies, research is needed to examine how land-based Kwakwala materials might vary depending on the way in which researcher teams conduct their

investigations, including settings and situations (situated documentation and ethnophysiology).

## 15. Technical Appendix Codes and Abbreviations

Example 11 illustrates the morphological coding used in this work. The coding follows Leipzig practices (Leipzig, 2015) and WP analysis methodology (Blevins, 2016). A sample list of inflectional codes with annotations is found in Section 15.5. In Kwakwala examples, segmented morphemes are separated by a "-" and the lump of inflectional markers are preceded by a dash but are not otherwise segmented. In English glosses, inflectional lumps are described by the various concepts expressed in the inflectional lump. Each code in the lump gloss is separated by a period. Example 11 illustrates this method of coding.

Example 11 Glossing and segmentation

Laʎənʎaʎa kəlwilas.		‘I am going to the store.’
la-ʎ-ənʎaʎa	kəlwilas	
go-fut-pro1.SBJ.IND.pre3.OBJ.PROX3	store.POST3Ø	

In Example 11, the second row contains the individual Kwakwala words in separate columns. Kwakwala morphemes are separated by "-" as in /la-/ ‘to go’ separated from the future tense marker |ʎ|. Lumped codes are not separated in the Kwakwala. The third row contains the English and code analysis of the Kwakwala. Codes that are separated by "-" indicate breaks between morphemes, while those separated by "." indicate morphemes that are described by a "lumped code." In the above example, the code

"pro1.SBJ.IND.pre3.OBJ.PROX3" indicates that the lump of inflections |ənʎaʃa| mark 'first person subject indicative prenominal object proximal to a third person'.<sup>63</sup>

### 15.1. Lumping codes methodology and Kwakwala research

Lumping all the inflectional morphology suffixed to a word is used in the distributional analysis of the range of marking in the materials in Section 10 Analysis, and discussed further in Technical Appendix Word Paradigm Morphology, Section 16. The method of "lumping" the inflectional markers into one descriptive whole is not used in other current Kwakwala linguistic works. These segment all morphemes from each other as exemplified in Example 12 from Littell (2016, p. 622).

Example 12 Morphological description

laʎas laʃa kəlwilas			‘You're going to the store.’, or possibly just ‘You go to the store.’
l = (a)ʎ = as <sup>64</sup>	l = (a)ʃa	klx <sup>w</sup> - <sub>w</sub> ił- <sub>w</sub> as	
go=FUT=2	PREP=ACC	buy-indoors-PLACE	

(Littell, 2016, p. 622).

<sup>63</sup> The grammatical codes follow Word Paradigm practices (Blevins, 2016) discussed in Technical Appendix: Word Paradigms.

<sup>64</sup> In Littell's work, the "-" sign in Kwakwala indicates a break between derivational suffixes, and a "=" sign separates tense, aspect, and inflectional marking (Littell, 2016).

Differences between the word paradigm approach and the IA (Item Arrangement)/IP (Item Process) approaches are noted below. IA and IP morphological practices are common in current Kwakwala linguistic analyses including Littell (2016), Rosenblum (2015), Siemans (2016), Sardinha (2017), and Janzen (2015a).

1. Descriptive glosses in linguistic works do not always provide all of the details for inflectional markers. In Example 11 the gloss for the inflection on the first word indicates person-number but does not indicate mood or case.
2. Morphophonemic variations are sometimes annotated in linguistic works in both the Kwakwala and English. Example 12 marks the epenthetic "(a)" in the first two words and the "weakening effect"<sup>65</sup> of the two derivational suffixes in the third word.
3. Linguistic works often annotate the derivational suffixes rather than the resulting word form used in this work. Example 11 from the Eke Me Xi materials glosses the word |kəlwilas| as 'store,' whereas Example 12 from Littell (2016) provides the derivational analysis of |kəlwilas| as 'buy-indoors-PLACE.'
4. Suffixes that provide information about the following word are usually analyzed as clitics and separated from the word to which they are attached by "=", as in the above example.

In summary, the coding practice in this study adopts the practice of describing all of the grammatical functions for inflectional markers as lumps. Formal descriptions and rules

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<sup>65</sup> See Boas (1947) and Wilson (1976).

for morphophonemic and portmanteau variations are not required as the lumped form is the surface form. Words containing derivational morphology are glossed and analyzed based on the resulting word stem, e.g., ‘store’ not derivation ‘buy-indoor- PLACE’.

## 15.2. Knowledge claim and derivational morphology

I translate the stem-derivational morphemes based on the recommendations of Kwakwala speakers who also speak English. These speakers translate words with English words that more closely represent the resulting use of the word, such as |kəlwilas| as ‘store’ not as ‘buy-indoor- PLACE’ noted above (Littell, 2016). The connection between the stem and a derivational suffix is not always predictable and difficult for non-fluent learners to choose the correct derivation, as noted in Table 41 Derivational examples.

Table 43 Derivational examples

word form	dala	Dalaṭsi	dala'elas	*dalayu
morphology	dala	dala-aṭi	dala-elas	*dal-ayu
gloss	money, dollar	money container	money place	money instrument
literal translation	money, dollar	money container	place for money	NA
accepted translation	‘money, dollar’	‘wallet, purse’	‘bank’	NA

In Table 41, the stem word |dala|, a borrowing from English, exemplifies that the word \*|dalayu| is not acceptable. This mistake happened to me while I was developing a game with Tom Henderson. I used the word \*|dalayu| to refer to a bank as I had forgotten the word |dala'elas| at that moment. Fluent speakers would not typically make this mistake.

Even more complex are words that are lexicalized, where the resulting words no longer carry the literal meanings of the word parts. Table 42 Derivational Morphology provides two additional examples where the resulting word forms are not connected to the literal reading of the stem derivational morpheme combinations.

Table 44 Derivational Morphology

word form	gənanəm	ƛ'wəlayu - ɔ̣'əlayu <sup>32</sup>
morphology	gən-anəm	ƛ'wəl-ayu - ɔ̣'əl-ayu
gloss	to increase-nominal	to live-instrument
literal translation	result of increase	instrument of life
accepted translation	'child, teenager'	'grandchild, one's children'

<sup>32</sup> |Q'əlayu| |ƛ'wəlayu| is presented in a TED talk by Walkas (2015). This provides an exemplar of the social and cultural understanding of Kwakwala words.

Although some stem-derivational morpheme combinations are "analyzable" based on semantic and syntactic combinations, such as spatial derivational markers noted in Rosenblum (2015), the lessons and materials I developed did not teach these as productive. Instead, the lessons and materials translated the resulting words with the "acceptable translations," not the literal ones, as illustrated in Table 41 and Table 42.

The decision to exclude teaching derivational morphology as productive at Eke Me Xi is based on the following statements:

- derivational morphological "word building" is too complex in structure and semantics for non-fluent teachers and introductory materials.
- speakers translate word forms to reflect a clear translation rather than a literal translation of the component parts.
- words that contain derivational morphemes are included in lessons and materials and taught as full words.
- lexicalized words can be taught with their lexicalized acceptable translation, such as |q̣<sup>w</sup>əlayu| - |Ḳ<sup>w</sup>əlayu| noted above.
- the Elders with whom I have worked do not translate lexicalized words literally while developing materials.
- most importantly, there are too many opportunities for non-fluent teachers and students to make word building errors.

### 15.3. List of Grammatical Codes

Code	Description	Additional notes
CAU	causative	
CNJ	conjunction	
DUB	dubitative (expressing doubt)	
IMP	imperative	
IND	indicative	
INT	interrogative	
LOC	locative	
NM	not marked	
OBJ	object	
OTH	other object	instrumental
poss1	possessive 1st person	
poss1exc	possessive 1st person exclusive	
poss1inc	possessive 1st person inclusive	
poss2	possessive 2nd person	
poss3	possessive 3rd person	
POSTØ	postnominal not marked	
pre3	pronominal 3rd person	
pro1	pronominal 1st person	

pro1exec	pronominal 1st person exclusive	
pro1inc	pronominal 1st person inclusive	
pro2	pronominal 2nd person	
pro3	pronominal 3rd person	
pronoun1	pronoun 1st person	
pronoun1exc	pronoun 1st person exclusive	
pronoun1inc	pronoun 1st person inclusive	
pronoun2	pronoun 2nd person	
pronoun3	pronoun 3rd person	
PROX1	proximal to 1st person	
PROX2	proximal to 2nd person	medial
PROX3	proximal to 3rd person	distal
PUR	purpose	
QUOT	quotative	
SBJ	subject	
SF	stem final	
SUB	subordinate	
-VIS or -V	not visible to speaker	not known to speaker
~VIS or ~V	visibility not clearly marked	
+VIS or +V	visible to speaker	known to speaker
∅	null marker	

#### 15.4. Inflectional markers: writing conventions

Depending on the analysis and functions of inflectional markers in Kwakwala, community orthographies and linguistic works vary in writing practices for inflections. In some works, such as those in Boas' publications, inflectional markers are always written attached to the end of a word (Boas, 1947). In other works, such as Rosenblum (2015), and pedagogical materials (Wilson & Henderson, 1981c), inflectional markers that encode information about the following word are written separately, as noted in Janzen (2015b). The following two examples illustrate these different writing conventions, Example 40 illustrates inflections attached to a word and Example 41 an example of the same sentence written with the inflections that refer to the following word written as a separate word.

Example 40 Inflectional markers written as suffixes

L̥a'm̥an h̥anxt̥l̥ant̥l̥ax̥a k̥umat̥si.	'I'm going to boil the dried clams.'
l̥a-'m̥an	go.VER.pro1.SBJ.IND
h̥anx-t̥l̥-ant̥l̥ax̥a	boil-future-pro1.SBJ.IND.pre3.OBJ
k̥umat̥si	dried clams

(Quatsino: AP)<sup>66</sup>

<sup>66</sup> AP is the abbreviation for Alice Peters, a |G̥usgimux̥w| Elder.

Example 41 Inflectional markers written as separate words

Lā'mān hānx-tān t̄axa kumatsi.	'I'm going to boil the dried clams.'
lā-'m-ān	go-VER-pro1-SBJ-IND
hānx-tān	boil-future-pro1.IND.SBJ.IND
t̄axa	pre3.OBJ
kumatsi	dried clams

(Quatsino: AP)

In Example 41 the inflection marker that is written as a separate word is a prenominal that marks third person object for the following word "dried clams." This example is consistent with Wilson & Henderson (Advanced Kwakwala Lessons, 1981c).

For the purposes of this work, writing conventions follow Boas (1947), where inflectional markers are written attached to the end of the word they follow, as exemplified in Example 40 above. This is done to facilitate analysis of the range and distribution of morphology relative to the curriculum expectations and to provide consistency with the materials developed at Eke Me Xi.

## **16. Technical Appendix Word Paradigm Morphology**

In order to examine the concordance between the language in the materials and the communicative expectations in the curriculum, the analysis adopts word paradigm analysis (WP) following Blevins (2016). The WP analysis focusses on the inflectional system in Kwakwala. This system includes person, number, mood/case, deixis, and visibility. WP provides the analytical method to examine Kwakwala inflectional endings on words as a "lumped" descriptive whole. For the most part, English expresses the concepts coded in Kwakwala inflections using words and phrases. An examination of inflectional markers, thereby, provides a window into the accuracy of the materials and interference from English.

A WP approach to examining inflectional markers provides advantages over IA or IP methods in educational settings. First, it most easily adapts to describing Kwakwala using a paradigm approach, a strategy common for the teaching of inflectionally based languages such as Latin and French and is used in educational programs for polysynthetic Indigenous languages as noted in Grenoble & Martin (2019) and exemplified in Baraby & Junker (2014). Second, WP can accommodate the linguistic structures and link to context, setting, and Indigenous ways of knowing, thereby providing a framework that foregrounds and makes visible inherent traditional knowledge, a requirement in Indigenous language programs, as noted in BCED (2016c), Wilson & Hemphill (2017),

and Leonard (2017). Third, it provides a descriptive method that can be used to examine whether or not the materials contain the range of language and their accordance with curriculum expectations. Fourth, WP avoids the complexity of morpho-phonemic processes, where inflectional markers coalesce into portmanteau forms or contain "null" markers.

The WP method also has advantages over traditional Item and Arrangement (IA) and Item and Process (IP) methods in educational settings, as noted in Blevins (2016). IA and IP methods break down inflections into their sub-component parts, but do not directly uncover the relationship between the sub-parts. For example, IA and IP methods provide descriptions of the individual morphemes involved in the inflection systems along with the morphophonotactic rules for polysynthetic languages that combine the forms. WP methods, in distinction, focus on describing the combined forms in paradigm tables.

The analysis used in this work is a distributional analysis of the inflectional markers that are coded using WP morphology. The WP coding facilitates comparison between expectations noted in the curriculum and the materials and provides a framework to check for accuracy with Elders.

In this study, WP analysis codes the inflectional markers. Inflections are described using a "lumped code." A lumped code represents the inflectional information of the group of

inflectional morphemes connected with a word, as in Example 42 WP coding.

Example 42 WP coding

Question:	'Wiksas?	Answer:	lxmān.
'How are you?'	'wiks-as	'I am fine.'	lxm̄-an
	how-pro2.SBJ.INT		fine-pro1.SBJ.IND

In Example 42 WP coding the inflectional "lump" /-as/ is coded as "pro2.SBJ.INT," that is 'second person subject pronominal, question/interrogative'. The period between "pro2" and "INT" indicates that the inflectional form /-as/ includes both "second person" and "question."<sup>67</sup> The data is coded in this manner to facilitate comparison with curriculum expectations, so that it is possible to tabulate the distribution of inflection forms based on their code. The tabulation of various forms is used to ensure that the materials contain the range of language required by the curriculum. For example, the curriculum guide includes the expectations that students learn dialogue, such as how to ask and answer questions. In Kwakwala, there are five indicative (or statement) pronominal forms in the language. These are noted in Table 48.

If, hypothetically speaking, the materials only provide evidence of words in the first-person statement form 'I am going', and no evidence of second person question form

<sup>67</sup> Based on Leipzig rules, (2017). See Appendix 2 for the list of abbreviations and codes used in this work.

‘Are you going?’ students and teachers would have examples of how to answer a question but would not have examples of how to ask a question. If materials do not provide authentic dialogue, they would not meet the expectations of the curriculum. Although this example might seem overly simplistic, gaps between language expectations and class activities are a common enough occurrence. For example, I have observed that language teachers frequently ask questions and students answer, while it is less common that students are encouraged to ask questions. In addition, it is not uncommon for language materials that are based on "grammatical complexity" to avoid language that includes certain sounds or structures if they are deemed to be too complex or difficult for learners. For example, the word for ‘school’ in Kwakwala is /kəkotʔatsi/. This word is difficult for English speakers to pronounce (personal observation) and might not be introduced in an introductory program based on constraining grammatical complexity. However, the word for school would be included in a program based on a communicative-experiential method, where language experiences are based on communicative concerns regardless of complexity.<sup>68</sup>

WP analysis codes inflections are independent of morpho-phonemic variation in a language, or instances where null morphemes exist, such as the third person form in Kwakwala. This method can focus on the communicative aspects of a language, which

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<sup>68</sup> In fact, the word for school is the name of the elementary school located in the |C̣usgimux̣w| Nation.

aligns with communicative-experiential curriculum guides, where expectations are based on communicative rather than structural descriptions.

Compare the following examples contrasting WP with IA methods in Kwakwala descriptions.

Example 43 Morphology Comparison

	Morphological Analysis	Word Paradigm Analysis	Translation
word	Ćoʔənʎaʔənʎaǰʷ.	Ćoʔənʎaʔənʎaǰʷ.	‘Am I going to give it?’
analysis	Ćoʔən- <b>ʎ-aʔ-ənʎ-ǰ-ʷ</b>	Ćoʔən-ʎ- <b>aʔənʎaǰʷ</b>	
code	give-FUT-INT-1sing- TRANS-3sing-PROX2	give-FUT-pro1.SBJ.INT.pro3.OBJ. PROX2	
gloss	give-future-I to it.	give-future-am I to it.	

In traditional analyses, each of the component parts of the inflections (highlighted in bold in row 3 column 2) are described and presented separately (e.g., Boas, 1947). In a WP paradigm, in contrast, the whole inflectional "lump" (see row 3 column 3) is one

paradigm item |*-aʔənλaχʷ*| (following Blevins (2016)). See Technical Appendix 19, Word Paradigms for additional examples of lumped analyses.

## 17. Technical Appendix Orthographies

There are five orthographies discussed and examined in this study. These are U'mista, NAPA, Boas-Hunt, ASCII based on Grubb (1977), and an adaptation of Boas-Hunt. Schools utilize three orthographic conventions, NAPA in School District 72 while U'mista predominates in School District 85. In addition, schools utilize works by Boas and Hunt which contain a variety of orthographic representations that vary by publication date.<sup>69</sup> The place name geomapping project accesses a much larger range of orthographic representations including both accurate (e.g., NAPA, U'mista, Grubb, and Boas-Hunt) and inaccurate representations of Kwakwala. Inaccurate representations include Government publications and maps that represent Kwakwala using English approximations of Kwakwala sounds. During this study, the place-name team asked to have an ASCII version of Kwakwala to use with computer-based applications where extended Unicode was not available.

In order to meet the goal to ensure greater accessibility for teachers and researchers, our research team focussed on developing conversions between the orthographies used to represent Kwakwala in schools and place-name materials, This work also included the development of an ASCII-only based orthography which was based on Grubb (1977) and a pseudo-Boas orthography based on Boas (1947). These two orthographies were developed to represent the sound system of the language accurately while also being

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<sup>69</sup> It is not clear to me what instructional practices are used by teachers in School District 85 to introduce Boas-Hunt orthographic representations. In my own practice, I converted Boas-Hunt to U'mista for materials and class activities.

suitable for conversion between orthographies, as discussed in Wilson & Wilson (2020a). Details of this development are discussed in Section 13, Documentation, which details the conversion utilities, and Section 22, which provides an overview of the program that converts among orthographies and checks for keying errors.

### **17.1. Boas-Hunt orthography based on Boas (1947)**

The Boas-Hunt orthography was developed to assist researchers working with original Boas and Hunt documents. The goal was to create an orthography that conforms to modern phonological representations while maintaining most of the characters found in Boas and Hunt's work. It also compensates for the lack of digitized copies of their work that conform to Unicode (UTF-8) standards. We decided to focus on the orthography from (1947), which is the most recent version of the system he used. See Table 45 Orthographic Examples. The revised orthography merges the various allophones of vowels used in Boas and Hunt works to a single character for each phoneme. For example, high front allophones [ i, e, ī, ē ] in Boas are written as /i/, and the low to mid front allophones [ä, ê, ë] are written as / ä /. Consonant symbols are maintained.

### **17.2. ASCII-based orthography based on Grubb (1977)**

The ASCII orthography was developed to enable computer display of Kwakwala in systems that are not Unicode (UTF8) compliant. This was required by the online

Geomapping database, which was not able to display the Unicode based Kwakwala.

Digraphs, trigraphs, and quadgraphs are used to represent Kwakwala phonemes. Each of the characters and character combinations were developed to uniquely represent one phoneme. For example, the trigraph |xhw| represents |ǰ| in NAPA and |ɣ| in U'mista. |xhw| is otherwise not a character combination in Kwakwala. The vowels are the same as NAPA except that the mid central vowel |ə| is represented as |e| and the mid front tense vowel |e| is |eh|.

I have not tried using this orthography with Eke Me Xi students and the school's Chromebooks. This would require students to learn a second orthographic convention. In addition, the current parser would need to be recompiled on the ChromeOS platform to convert the ASCII-based orthography to U'mista.

### 17.3. Orthography comparisons

Table 45 Orthographic Examples

Description	Boas-Original	Boas-Revised	NAPA	U'mista	ASCII
Vowels					
high front	i, e, ī, ē	i	i	i	i
mid front	ä, ê, ë	ä	e	e	eh
low	a	a	a	a	a
high back	u, o, ô	u	u	u	u
mid back	â	â	o	o	o
central	E, ă, î	E	ə	ə	e
Consonants					
voiceless glottal stop	ɛ	ɛ	ʔ	'	'
voiced bilabial stop	b	b	b	b	b
voiced alveolar stop	d	d	d	d	d
voiced alveolar affricate	dz	dz	dʒ	dz	dz
voiced uvular stop	ɣ	ɣ	ǰ	ɣ	gh
voiced palatal-velar stop	g·	g·	g	g	g
voiced labialized velar stop	g <sup>u</sup> , gw	g <sup>u</sup>	g <sup>w</sup>	gw	gw
voiced labialized uvular stop	ɣ <sup>u</sup> , ɣw	ɣ <sup>u</sup>	ǰ <sup>w</sup>	ɣw	ghw
voiceless glottal fricative	h	h	h	h	h
glottalized labialized velar stop	k! <sup>u</sup> , k! <sup>w</sup>	k! <sup>u</sup>	k <sup>w</sup>	k <sup>w</sup>	kw'
voiceless palatal-velar stop	k·	k·	k	k	k
glottalized palatal-velar stop	k·!	k·!	ḳ	ḳ	k'
voiceless labialized velar stop	k <sup>u</sup> , kw	k <sup>u</sup>	k <sup>w</sup>	kw	kw
voiced alveolar lateral resonant	l	l	l	l	l
voiceless alveolar lateral affricate	L	L	ʎ	tʃ	tl

Description	Boas- original	Boas- Revised	NAPA	U'mista	ASCII
voiceless alveolar lateral resonant	ɬ	ʈ	ɬ	ʈ	lh
voiced alveolar lateral affricate	ɮ	ɮ	λ	dʈ	dl
glottalized alveolar lateral affricate	ɮ!	ɮ!	ʎ	tʈ	tl'
glottalized alveolar lateral resonant	ɛɬ	ɛʈ	ɨ	'l	l'
voiced bilabial nasal	m	m	m	m	m
glottalized voiced bilabial nasal	ɛm	ɛm	m̥	'm	m'
voiced alveolar nasal	n	n	n	n	n
glottalized voiced alveolar nasal	ɛn	ɛn	n̥	'n	n'
voiceless bilabial stop	p	p	p	p	p
glottalized bilabial stop	p!	p!	p̥	p̥	p'
voiceless uvular stop	q	q	q	k̥	kh
glottalized uvular stop	q!	q!	q̥	k̥	kh'
glottalized labialized uvular stop	q! <sup>u</sup> , q! <sup>w</sup>	q! <sup>u</sup>	q̥ <sup>w</sup>	k̥ <sup>w</sup>	xhw'
voiceless labialized uvular stop	q <sup>u</sup> , qw	q <sup>u</sup>	q <sup>w</sup>	k <sup>w</sup>	xhw
voiceless post-alveolar fricative	s	s	s	s	s
voiceless alveolar stop	t	t	t	t	t
glottalized alveolar stop	t!	t!	t̥	t̥	t'
voiceless alveolar affricate	ts	ts	c	ts	ts
glottalized alveolar fricative	ts!	ts!	c̥	t̥s	ts'
voiced bilabial resonant	w	w	w	w	w
glottalized bilabial resonant	ɛw	ɛw	w̥	'w	w'
voiceless uvular fricative	x	x	χ	χ	xh
voiceless palatal fricative	x̣	x̣	x	x	x
voiceless labialized uvular fricative	x <sup>u</sup> , xw	x <sup>u</sup>	χ <sup>w</sup>	χ <sup>w</sup>	xhw
voiceless labialized palatal fricative	x̣ <sup>u</sup> , x̣w	x̣ <sup>u</sup>	x <sup>w</sup>	xw	xw
voiced palatal resonant	y	y	y	y	y
glottalized palatal resonant	ɛy	ɛy	y̥	'y	y'

## 18. Inflectional Markers

This appendix is a descriptive overview of the Kwakwala inflections I examine in Section 10, which analyzes the concordance between the inflections found in the materials and the expectations in the curriculum guide (SD85, 2010). The goal of this appendix is to acquaint the reader with the Word Paradigm (WP) descriptive approach I use to compare Kwakwala inflections found in the materials with curriculum expectations in the “Introduction to Kwakwala 11” course (SD85, 2010).

This appendix is not intended as a complete and thorough investigation of the structures and concepts in Kwakwala, but rather focusses on summarizing some of the key inflectional elements that are a concern relative to the curriculum. The methodology used to describe Kwakwala inflections is based on Word Paradigm (WP) analysis, where lumps of inflections are described as a unit rather than segment morphemes. WP is used to assist with the comparison between the curriculum and Kwakwala inflections, which are often hard to segment into discrete component parts (Blevins, 2016).<sup>70</sup> WP provides a method to describe the grouping of inflectional markers in a meta-language that is used to assist with the comparison between the English-based communicative expectations with the Kwakwala language in the materials. Each "lump" of inflectional markers is described

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<sup>70</sup> Similar to other polysynthetic languages, Kwakwala inflections are often a "portmanteau" groupings of morphemes, that is, a grouping of morphemes that combine into a new form.

based on the language independent concepts that are expressed. This is discussed in Section 16, Technical Appendix: Word Paradigms.

The dataset in this appendix is largely from educational materials developed at Eke Me Xi from 2015 to 2019 and my research on Kwakwala and as sessional lecturer in the Native Indian Language Diploma Program from 1975 to 1982. Other data is included to assist with explanations from the publications, notes, and communications from the collaboration between Boas and Hunt. These additional datasets are used to discuss issues related to Kwakwala data not evident in educational materials. In addition, reference is made to current linguistic descriptions of Kwakwala to discuss various interpretations of language data (Sardinha, 2017; Siemens, 2016; Rosenblum, 2015; Littell, 2016).

### **18.1. Kwakwala Integrated Resource Package (IRP)**

The Kwakwala IRP (SD85, 2010) includes curriculum goals, expectations, and resources from courses ranging from grade 5 to grade 12. Although this study focusses on "Introduction to Kwakwala 11," the scope of language in the IRP ranges from introductory to advanced levels (SD85, 2010). The introductory grade 11 course discussed in this study is similar to the grade 5 course. Both these courses are directed at students who may not have had any previous formal experience with Kwakwala in an educational context. The introductory grade 11 course is different from the non-

introductory grade 11 course, which is based on the expectation that students will have completed the program of studies up to end of grade 10. Materials in the non-introductory grade 11 and 12 courses are advanced and include a wide range of materials and communicative concepts. For example, IRP recommends the use of textual materials by Boas and Hunt (e.g. Boas, 1902a; 1902b; 1902c; and 1934, cited in SD85, 2010, p. B42). Not only are these texts difficult for fluent speakers to interpret, as noted in Wilson (1993), but also recent Kwakwala linguistic studies have indicated discrepancies between the inflectional structures found in Boas' grammars (1911; 1947), and those evident in current language data (Sardinha, 2017; Littell, 2016). Regardless of whether these variations are due to language change, speaker competency, lack of sufficient context, or other factors, it is important for educators to address the need to develop materials far beyond the scope of language descriptions currently available, and for researchers to examine and describe the inflectional systems to account for the full range of data, both current and past.

The primary purpose of this appendix is to provide an overview of the inflection markers based on WP analysis. This analytic convention is used to examine the range of language in the materials relative to curriculum requirements (SD85, 2010).<sup>71</sup> Inflectional markers in particular were chosen for the analysis as they provide a wide range of communicative

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<sup>71</sup> See Section II.1. Analysis of grammatical competency. This is based on the knowledge claim that language materials should provide evidence of the range of language required by the language expectations in the curriculum.

capacity that is required to fulfill course expectations. These are productive and relatively "teachable" at an introductory level compared to the derivational and tense-aspect marking systems, which are subject to semantic constraints as well as morphophonemic variations. In addition, inflections occur on verbs, nouns, and auxiliaries and, thereby, provide an opportunity to examine a wide variety of structures.

The connections between the inflectional markers and the curriculum investigated in this study are person marking (e.g., "I, you, mine,"), mood (e.g., statements and questions), case (e.g., subject or object), deictic marking (location), and visibility marking (e.g., seen or known versus not seen or not known). These inflections are needed to fulfill expectations in the IRP. Table 46 Kwakwala IRP Expectations is an example from the "Introduction to Kwakwala 11" course from the Kwakwala Integrated Resource Package (SD85, 2010). It includes the following expectations from the communicating section:

Table 46 Kwakwala IRP Expectations: communication

use and respond to commands, requests, and suggestions.
ask and respond to questions with question words such as 'ma "what," angwa "who," 'wilakw "when," 'widi' "where," and gans "how many."
exchange information about activities, people, places, and things.
communicate wants, needs, likes, dislikes and emotions, giving simple reasons.
express ability and inability.
ask for specific help.

(SD85, 2010, p. 104)

## 18.2. Word Structure

Words in Kwakwala can have verbal, nominal, or auxiliary functions. Although it is possible to categorize the base form of a word as being either a noun or a verb, most words have both nominal and verbal forms. The word ‘man,’ for example, has a nominal form |bəg<sup>w</sup>anəm| ‘man’ and a verbal form |bəg<sup>w</sup>anəmgila| ‘to make a man.’ Likewise, the word ‘to chop,’ has a verbal form |supa| ‘to chop’ and a nominal form |subayu| ‘axe’. Auxiliaries are words that provide grammatical information such as |laʒa| ‘at the - to the’ or |qa| ‘in order to.’

Words consist of stem and suffix combinations, as noted in the word |subayu| above, which contains the stem ‘chop’ and the suffix |-ayu| ‘instrument’. Kwakwala is a polysynthetic language, where single words may contain many suffixes which require several English words in translation, as exemplified in below in Example 44:

Example 44 Kwakwala Words

mamiʒəmalagəlitən						
ma-	miʒ-	-əm	-ala	-gila	-it	-ən
diminutive	to sleep	"veritas"	continuative	to become	in house	pro1.SNJ.IND
‘I’m standing around in the house half asleep.’						

Example 44 above begins with |mamiḫəməla| which translates as ‘to become sleepy on one's feet’. Although there is no morpheme to suggest that one is on one's feet, the meaning of this word appears to have this lexicalized connotation. For example, in a Dzunuqwa story, children escape from a basket while being carried away by Dzunuqwa. The children sing her a song with the words |mamiḫəməla dzunuqwa| ‘you are becoming sleepy’ |dzunuqwa| while she is carrying them away. When Dzunuqwa sits down to rest, the children escape (Our World (Producer), Alex Heuman (Writer, Director), 2017).

Kwakwala suffixes can be grouped into three categories based on their "closeness" to the word stem with which they are attached. These are:

- derivational suffixes
- time: tense, aspect and veritas suffixes
- inflectional markers

These groups of suffixes occur in this order, as noted in Example 45:

Example 45 Suffixes

guk <sup>w</sup> ilaḫən			
guk <sup>w</sup>	-(g)ila	-ḫ	-ən
house	to make	future	pro subj 1
stem	Group 1 derivational suffix	Group 2 tense, mood, aspect	Group 3 inflection
‘I’m going to make a house.’			

Example 45 above demonstrates a verbal form of the word ‘house’ with the suffix ‘to make’, ‘future tense’, and ‘I (first person subject)’. It also demonstrates a morphophonemic process where the suffix ‘to make’, appears as |*-ila*| when found following a stem that ends in a consonant.

### 18.3. Inflectional markers

Kwakwala inflectional markers are word parts that are suffixed to words and provide grammatical information. Inflectional markers are syntactically "enclitics" as they provide information beyond the boundary of the word. Some inflections in Kwakwala are expressed as full words in English, such as "I, you, this, that." For example, the Kwakwala morpheme |*-an*| is the first person subject indicative pronoun ‘I’, as noted in Example 46.

Example 46 First person pronominal subject indicative inflection

Kwakwala	Coding for   <i>an</i>
Lat <sup>h</sup> <i>an</i> .	I am going.
la-t <sup>h</sup> <i>an</i>	pro1: 1st person pronominal "I"
go-future-pro1.SBJ.IND	SBJ: Subject
‘I am going.’	IND: Indicative (statement)

Other inflections in Kwakwala encode concepts that are expressed in English through the order of words in a sentence, such as the difference between a statement "You are hungry" and a question "Are you hungry?" In Example 47, |-əs| marks the second person indicative (statement) 'you (are)' and |-as| marks second person interrogative (question) '(are) you'.

Example 47 Second person pronominal subject: indicative and interrogative

<p>Question:</p> <p>Pusqam̄as?</p> <p>pusq̄a-m̄-as</p> <p>hungry-VER-pro2.SBJ.INT</p> <p>'Are you hungry?'</p>	<p>Statement:</p> <p>Pusqam̄əs.</p> <p>pusq̄a-m̄-əs</p> <p>hungry-VER-pro2.SBJ.IND</p> <p>'You are hungry.'</p>
<p>Morphological Coding:</p> <p>Ver: verum</p> <p>pro2: 2nd person pronominal "you"</p> <p>SBJ: subject</p> <p>INT: Interrogative (question)</p>	<p>Morphological Coding:</p> <p>Ver: verum</p> <p>pro2: 2nd person pronominal "you"</p> <p>SBJ: subject</p> <p>IND: Indicative (statement)</p>

#### 18.4. Previous Research

The inflectional markers evident in the Eke Me Xi "data set" are similar with those found in pedagogical materials (Wilson & Henderson, 1979a; 1981c; 1982c; Powell, Jensen,

Cranmer, & Cook, 1981), and linguistic analyses (Boas, 1947; Rosenblum, 2015; Siemens, 2016; Littell, 2016; Sardinha, 2017).<sup>72</sup> There are, however, different analyses, variations in descriptions, and different writing conventions. In addition, differences between data sets found in earlier works (Boas, 1911; 1947) and those represented in more recent works have been noted e.g. Littell (2016) and Sardinha (2017).

The following Table 47 introduces the range of concepts expressed by the inflectional markers examined in this study. Brief comments regarding variations in analysis are included in Table 47. These are explained in detail in the overview that follows.

Table 47 List of Inflectional Markers in Kwakwala

Person markers: includes inflected person markers (e.g., "I, you, my"), full word pronouns, and pronominal markers that inflect following nominals.
Mood: indicative (e.g., statements), interrogative (e.g., markers used to form yes/no questions or in WH words) and imperative (e.g., commands).
Case Markers: subject, object, other object (other object is referred to as instrumental in Boas (1911b; 1947)). See Sardinha (2017, p. 13) for an overview of the different analyses and descriptors.

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<sup>72</sup> There is consistency of language found in the data sets between this work, other pedagogical materials, and analyses found in linguistic works. There is a need for corpus analysis to examine the range of diversity found in the Kwakwala language data to ensure a complete overview of these differences in order to determine whether variations occur due to dialect, social register, or language change. See Bach (2007) for a discussion of the range of inflectional markers found in Boas' materials (1911; 1947).

Deixis/Demonstratives: Proximity to 1<sup>st</sup>, 2<sup>nd</sup>, or 3<sup>rd</sup> person (following Boas (1911; 1947)), or proximal, medial, or distal to speaker (Rosenblum, 2015).

Visibility: visible to speaker or not visible to speaker (Boas, 1947; Rosenblum, 2015; Sardinha, 2017), or known/visible to speaker or unknown/not visible to speaker (Wilson P. , 2019).

### 18.5. Inflectional morphology, words, and writing conventions

Inflectional markers are phonologically suffixed to word stems following the time tense, mood, and aspect suffixes. Some of these inflections, however, connect morphologically with the words that follow, as exemplified in Rosenblum (2015), from Shaw (2008) noted below in Example 48:

Example 48: Inflectional markers: information about the following word

<i>hənʔʔidi da</i>	<i>bəg<sup>w</sup>ánəmaχa</i>	<i>χayisa</i>	<i>hənλəmi.</i>
hənλ-(x)ʔid=i=da	bəg <sup>w</sup> anəma=χa	χay <sup>i</sup> =sa	hənλəm=i
shoot-MOM=SBJ=DEF	man=OBJ1	black_bear=OBJ2	gun=T.DEM
V	S	O <sub>1</sub>	O <sub>2</sub>
‘The man shot the black bear with a gun.’		(Shaw: 2008_07_21_003DS)	

(Rosenblum, 2017, p. 108)<sup>73</sup>

It is common to see inflection markers written as separate words when they provide information about the following word. The convention of writing the inflection markers as separate words is found in early draft materials from my work in the NILDP-CW

<sup>73</sup> Rosenblum uses the "=" sign to separate clitics from suffixes. The |=da| is a determiner and is coded as "DET" in this work.

program. Example 49 illustrates the determiner |-da| inflection written separately on the first word in the sentence but attached to the fourth word.

Example 49 |-da| written as a separate word

ləq <sup>w</sup> əlaʎu <sup>w</sup>	<b>da</b>	gəngənanəmə	la <sup>w</sup> o <sup>w</sup> da	ʎəwi <sup>w</sup> ak <sup>w</sup> əs	la <sup>w</sup> a	ʎu <sup>w</sup> olis
ləq <sup>w</sup> -əla-ʎ-u <sup>w</sup>	da	gəngənanəmə.ə	la <sup>w</sup> .o <sup>w</sup> da	ʎəwi <sup>w</sup> ak <sup>w</sup> əs	la.ə <sup>w</sup> a	ʎu <sup>w</sup> olis
fire/to camp- CONT-FUT- pre3.SBJ. IND.PROX3	DET	children.v+	AUX- PROX2. DET	open ground	AUX- PROX2	bay
‘The children are going to camp at that open ground in that bay.’						

(Wilson and Henderson, 1981, p. 4.2)

Example 50 |-əa| written as a separate word

laʎən	qə <sup>w</sup> əa <sup>w</sup>	<b>əa</b>	qə <sup>w</sup> əa <sup>w</sup> ʎ	qa <sup>w</sup> ənc	ləq <sup>w</sup> əs <sup>w</sup> li <sup>w</sup>
la-ʎ-ən	qə <sup>w</sup> əa- <sup>w</sup>	əa	qə <sup>w</sup> əa <sup>w</sup> - <sup>w</sup>	qa- <sup>w</sup> ənc	ləq <sup>w</sup> əs--.i <sup>w</sup>
go-FUT- pro1.SBJ. IND	find something- FUT	OBJ	something looked for- v-.FUT	AUX. POSS1inc	fire on ground- FUT.v+
‘I’m going to find something that can be used (e.g., driftwood) for our fire.’					

(Wilson and Henderson, 1981, p. 4.2)

In Example 50 the word |ḍeḥaḥ| (column 2) precedes the pronominal object marker |ḥa| (column 3). |ḥa| introduces the following nominal |ḍeḥaḥ| as the object and is written as a separate word.

During the NILDP-CW program, Elders preferred to break inflections following syllable boundaries rather than at morpheme boundaries. Example 51 breaks the first person subject transitive pronominal |-ənḥ| from the |-aḥa| pronominal object marker between the |ən| and the |ḥ|.

Example 51 |-ən ḥaḥa| not |-ənḥ aḥa|

laḥ.ən ḥaḥa kəlwilas			‘I’m going to the store.’
la.ḥ.ən	ḥaḥa	kəlwilas	
go-FUT-pro1.SBJ.IND	pre3.OBJ.p0	store	

In this study, inflectional markers are attached "phonologically" as suffixes to the verbs and nouns that precede them. This "lump" of inflections is considered as a "portmanteau" of morphemes that are often difficult to segment. Boas justified separating the inflectional markers from the following words and attaching them to the preceding word on the basis of the "phonetic character of the sentence" (1911, p. 528). Boas illustrates this structure with the English sentence ‘the man struck the boy with a stick.’ as "struck--he--the man--him--the boy-with-it--the stick" (1911, p. 528).<sup>74</sup> Example 52 from Boas (1911, p. 538) is

<sup>74</sup> Boas does not provide a Kwakwala version of this sentence.

a sentence with a similar structure. The example includes the Boas adapted orthography along with U'Mista and NAPA.

Example 52 Inflections referring to the following word

K <sup>uix</sup> idida bEg <sup>u</sup> anEMxa q!asäsa t!Elwagayu. (Boas adapted)			
Kwix'idida bagwanamxa kasesa talwagayu. (U'mista)			
K <sup>wix</sup> ?idida bag <sup>w</sup> anämxa qasesa talwağayu. (NAPA)			
Kwix'id-ida	bagwanam-xa	kase-sa	talwagayu
struck-MOM- pre3.SBJ.IND.PROX3.DET	man-pre3.OBJ.	Sea otter. pre3.OTH	club
struck he	the man at it	the sea otter with	the club
'The man struck the sea otter with a club.'			

(Boas, 1911, p. 538)

If one were to translate the deictic and visibility-evidential marking that is required in a Kwakwala sentence as noted in Boas (1911) and (1947), it would render Example 52 as follows (where the underlined portions in the English analysis indicates inflections that refer to the following word, not the word to which they are attached).

[word 1 struck-he-distal or proximal to a third-person]

[word 2 the man-at it]

[word 3 a sea otter with it]

[word 4 a stick]<sup>75</sup>

The location and visibility marking indicate that:

- the man is proximal to a third person (i.e., not near the speaker or listener)
- the sea otter is not marked for location or visibility
- the stick is not marked for location or visibility

## 18.6. Person Markers

There are three different structures in Kwakwala that provide person marking information: pronouns, pronominals, and prenominals. Pronouns are separate words that mark person. Pronominals are "lumped" with the other inflections to mark person.

Prenominals are inflected forms that occur on words preceding a nominal and introduce information about the following nominal.<sup>76</sup> In order to differentiate between these three person marking structures, the coding uses "pronoun" for independent words, "pro" for pronominals, and "pre" for prenominals.

Example 53 illustrates the difference between inflected pronominals and a full word pronoun form from NILDP-CW data.

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<sup>75</sup> In this example, the underlined deictic inflections are "pre-nominal" markers, and the visibility inflections are "post-nominal" markers. Visible to third person post nominal is unmarked (Boas, 1947, p. 252 Table 2).

<sup>76</sup> This terminology originates from Boas (1911; 1947).



Example 54 Prenominal |-i|

3rd person	Kəlx <sup>w</sup> aʎi Ğəna laħa kəlwilas.				‘ Ğəna  is going to the store.’
	Kəlx <sup>w</sup> a-ʎ-i	Ğəna	laħa	kəlwilas	
	shop-FUT-pre3.SBJ.PROX3	Ğəna	to the	store	

Table 48 provides examples of the subject inflectional forms for the pronominal markers from Eke Me Xi materials. These forms combine with other inflections to form object, other object, and possessive forms.

Table 48 Pronominal Forms (Intransitive examples):

Subject	Code	Description	Example	Translation
-an	pro1.SBJ.IND	first person; indicative	Latʎan.	‘I am going.’
-ants	pro1inc.SBJ.IND	first person inclusive (i.e., speaker and listeners); indicative	Latʎants.	‘We (speaker and listener) are going.’
-anu'xw	pro1exc.SBJ.IND	first person exclusive (i.e., speaker and others); indicative	Latʎanu'xw.	‘We (speaker and others) are going.’
-as	pro2.SBJ.IND	second person (sg. or pl.); indicative	Latʎas.	‘You (listeners) are going.’

-	pro3.SBJ.IND	third person (sg. or pl.); indicative (unmarked)	Latla.	'3rd person is/are going.'
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(Eke Me Xi, 2021k)

### 18.6.1. Pronominal Exceptions

Pronominal first-person objects and other objects (singular, inclusive, and exclusive) are not found as inflected forms (Boas, 1947, p. 253). Instead, they are formed as full words based on the stem |gax-|"to come" with the pronominal first-person markers suffixed to the stem, as exemplified in Example 55 below.

Example 55 2nd person subject 1st person object

Tsolats kadayo gaxan.			'Give me a pen.'
tsola.ts	kadayo	gaxan	
give.pro2.SBJ.IMP.pre3.OTH	pen.V-	to me	

Example 56 3rd person subject 1st person object

Dukwala'muxw gaxan.		'He, she, it, they see(s) me.'
dukwala'muxw	gaxan	
see.CONT.VER.pro3.SBJ.IND.PROX3	to me	

### 18.6.2. Comparison with Boas

The forms in the educational materials are similar to those found in Boas (1947).

Inconsistencies with the inflectional tables in Boas (1947, pp. 252-258) include the use of the pronoun 2nd. person object form |lot| instead of the inflected portmanteau form 1st.

person subject and 2nd. person object form |-antlot| from Boas (1947, p. 253). The

following example is from the NILDP-CW data.

Example 57 Pronoun form instead of pronominal

Ćoʎənʎasgada kadayux <sup>w</sup> loʎ.			‘I’m going to give this pen to you.’
ćo.ʎ-ənʎasgada	kadayux <sup>w</sup>	loʎ	
give.FUT-pro1.SBJ.IND.PROX1.DET	pen-V+	pronoun.OBJ	

### 18.6.3. Pronoun Forms

Full word pronouns provide the same 5 forms and include verbal, subject, object, and possessive forms. Examples from the Eke Me Xi materials are listed in Table 49 . The

first column in the table lists person and number for each example.

Table 49: Examples of full word pronouns verbal forms

1sg.	Nugwa'man k̄aok̄wa.		‘I’m going to split some wood.’
	nugwa-'m-an	k̄aok̄wa	
	I am-VER-pronoun1.SBJ.IND	split wood	

1exc.	Nugwam <sub>ḡ</sub> anu'xw Ixm <sub>ḡ</sub> axi.		'We (exclusive) are Eke Me Xi (e.g., staff member talking on the phone).'
	Nugwam- <sub>ḡ</sub> anu'xw	Ixm <sub>ḡ</sub> axi	
	We (exc.)-pronoun   exc.SBJ.IND	Eke Me Xi	
1inc.	Nugwam <sub>ḡ</sub> ants ixm <sub>ḡ</sub> axi.		'We (inclusive) are Eke Me Xi (e.g., teacher talking to a class).'
	nugwam- <sub>ḡ</sub> ants	Ixm <sub>ḡ</sub> axi	
	We (inc.)-pronoun   exc.SBJ.IND	Eke Me Xi	
2	Sut <sub>ḡ</sub> i.		'It's your turn (near 3rd person).'
	su-t <sub>ḡ</sub> -i		
	you-FUT.PROX3		
3	Yut <sub>ḡ</sub> uxw.		'It will be here (near 2nd person).'
	yu-t <sub>ḡ</sub> -uxw		
	it-FUT-PROX2		

(Eke Me Xi, 2021)

#### 18.6.4. Possessive Forms

Possessive marking in Kwakwala is marked pronominally and pronominally with forms similar to the basic forms. Possessives can be marked pre-nominally, post-nominally, or both.

The use of both pre- and post-nominal forms is optional, as noted in Boas (1947). Boas notes the following distribution of possessive marking in relation to Table V(a) and V(b) (1947, p. 254).

- In the first person, inclusive and exclusive, the suffix forms are permissible
- in the second person obligatory,
- in the third person prenominal only when the subject and possessor are the same.

(Boas, 1947, p. 254)

Example 58 has prenominal marking for 1st person possessive and proximal to a 3rd person (i.e., distal) and the postnominal marking for 1st person possessive and not visible to the speaker.

Example 58: First person possessive: prenominal marking only

Kuḵw'iḡaṅ gugwaḡuxw.		‘It is broken my foot/leg.’
kuḵw'i-ḡaṅ	gugwaḡu-xw	
break-pro3.SBJ.IND.POSS1.PROX1	foot/leg-POST3.v+	

Example 59 is marked for 1st person possessive proximal to 3rd person on the prenominal |-ḡaṅ| and 1st person possessive on the postnominal |-ḡaṅ|. There is no clear visibility marking on the nominal. Table V in (Boas, 1947, p. 254) would predict a |-Ø| postnominal for ‘visible’ or an |-e| for ‘not visible’.

Example 59: First person possessive: pre- and post-nominals

Ikakəlan 'nula'ən.		‘My older sibling is feeling well.’
ikakəl-ən	'nula-'ən	
to be well-pro3.SBJ.IND.POSS1.PROX3	older sibling-POSS1	

Example 60 is marked for 2nd person possessive on the prenominal |-us| and 2nd person possessive and "visible" on the postnominal |-kus|.

Example 60: Second person possessive: pre- and post-nominals

Gwix'ida'as'nuxw'məs t̥sosus kadayokus gaxən?		‘Can you give your pencil to me?’
gwix'id-a'-as 'nuxw-'m-əs	t̥so-sus	
try-pro2.SBJ.INT something.VER.POSS2	give-pre2.OBJ.POSS2	
kadayo-kus	gaxən	
pencil-POST3.v+	to me	

Example 61 has 2nd person possessive pre- and postnominal possessive marking: prenominal 2nd person |-us| and postnominal 2nd person |-kus|.

Example 61 Second person possessive: pre- and post-nominals

Bagwansasus anitsakus laxeda t'saxka'atsi.		‘Visit your aunt at the hospital.’
bagwans-asus	anitsa-kus	
visit- pro2.SBJ.IMP.pre3.OTH.POSS2	aunt-POSS2.v+	
lax-eda	t'saxka'atsi-Ø	
AUX-prox3.DET	hospital-v0	

Example 62 provides an example of two possessive constructions in the sentence "Your dog ate your socks." In this example, the possessive constructions do not have post possessive markers. This violates the rule noted in Boas (1947, p. 254).

Example 62 No post-possessive marking

Həmxʔidus waciχus dagənsi.		‘Your dog ate your socks.’
həm-xʔid-us	waci-χus	
eat-INC-pre3.SBJ.IND. PROX2.POSS2	dog-pre3.OBJ.PROX2.POSS2	
dagəns-i		
,socks.POST3.-v		

Example 63 and Example 64 exemplify nominal subjects with prenominal possessive markers. The examples have no postnominal marking on the possessed nominals.

Example 63 Prenominal possessive marker 1

Ḳānoḵw Ḡanaḵus ḡwiḡḡwela.			‘ Ḡana  is sewing her clothes.’
Ḳan-oḵw	ḡana-ḵus	ḡwiḡḡwela	
sew- pre3.SBJ.IND.PROX2	Ḡana -pre3. OBJ.POSS3.PROX2	clothes-v0	

Example 64 Prenominal possessive marker 2

Giḵa Ḫa'naḵus ḵaldayu.		‘ Ḫa'na  sharpens his saw.’
giḵa	Ḫa'naḵus	
sharp-pro3.SBJ.IND	Ḫa'na -pre3.OBJ.POSS3.PROX2	
ḵaldayu-vØ		
saw.v0		

Example 65 has a pronominal subject with prenominal possessive marker.

Example 65: Pronominal subject with prenominal possessive marker

3rd	Yəlkʷoḵʷsus gugʷəy̆u.		‘He has hurt his foot.’
	Yəlkʷoḵʷ-sus	gugʷ-əy̆u	
	hurt-pro3.SBJ.IND.PROX2. OTH.POSS3.PROX2	foot-v0	

The above examples support the Boas statement that third person possessives can be marked solely on the prenominal as long as the possessor is the subject of the sentence. Example 66, however, exemplifies a possessor nominal (John) that is not the subject of the sentence and does not have postnominal marking (cf. Boas, 1947, p. 254, Table Vb).

Example 66: Possessor not subject of sentence (Boas 1947)<sup>78</sup>

Tsoṭṭantṭasga kadayugas  John  lax  Mary .		'I'm going to give John's pencil to Mary.'
Tso-tṭ-antṭasga	kadayu-gas	
give-pro1.SBJ.IND.pre3.OTH.PROX1	pencil/pen- pre3.POSS3.PROX1.+v	
John ∅	lax	
John	AUX "to" Mary	

### 18.7. Inflectional marking: mood

Kwakwala inflections in the educational materials provide examples of three moods, indicative, interrogative, and imperative. As noted earlier, the "Introduction to Kwakwala 11" course includes expectations requiring these moods including "use and respond to commands, requests, and suggestions" and "ask and respond to questions with question

<sup>78</sup> Littell (2016) suggests that the rule should refer to "topic of sentence" rather than "subject of sentence." Littell's analysis would account for the morphology applied in this sentence if we could establish that "John's pencil" is the topic of the sentence.

words such as 'ma “what,” angwa “who,” 'wilakw “when,” 'widi’ “where,” and gans “how many.” (SD85, 2010, p. 104).

The dataset from Eke Me Xi includes three inflected moods and is consistent with Boas (1947). Boas also presents information on other moods which are not part of the inflectional system and, therefore, not discussed in this study (Boas, 1947, p. 266-270). As noted in Boas, the difference between indicative and interrogative is "characterized by the suffix a" (Boas, 1947, p. 260), which is generally realized as a phonological change from |a| to |a| in second person and the addition of |a| before first and third person structures. Table 50: Examples of Indicative and Interrogative illustrates these structures:

Table 50: Examples of Indicative and Interrogative

	Indicative	Translation	Interrogative	Translation
1st	ix'm <u>a</u> n	I am fine.	ix'ma'a <u>n</u>	‘Am I fine?’
1st inc	ix'm <u>a</u> nts	We (inc) are fine.	ix'ma'a <u>nts</u>	‘Are we (inc) fine?’
1st exc	ix'm <u>a</u> nu'xw	We (exc) are fine.	ix'ma'a <u>nu'xw</u>	‘Are we (exc) fine?’
2nd	ix'm <u>a</u> s.	You are fine.	ix'ma	‘Are you fine?’
3rd	ix'm <u>a</u> xw	He is fine.	ix'ma'a <u>xw</u>	‘Is he fine?’

(Eke Me Xi, 2021m)

The 3rd person forms in Kwakwala are not marked, as noted in the last row of Table 50:

Examples of Indicative and Interrogative. The inflectional forms in the last row are the

deictic marker |-u<sub>x</sub>w| ‘proximal to 2nd person’ bolded in column 2 and the interrogative and proximal to 2nd person lump |-a'u<sub>x</sub>w| bolded in column 4.

Imperative structures found in the Eke Me Xi materials focus on commands to second person. The second person imperative form is not marked, as exemplified in Table 51: Examples of second person commands from the Eke Me Xi data.. This is similar to a command in English where the pronoun "you" is not used, such as in the command "go!"

Table 51: Examples of second person commands from the Eke Me Xi data.

1	Laxw'walsalaga.		‘Go and make a fire!’
	laxw'w-als-ala-ga		
	make fire.on beach.CONT.pro2NM.SBJ.IMP.PROX3		
2	Halaga ban'abo'mas.		‘Go down to the lower area!’
	hala-ga	ban'abo'mas	
	go-pro2NM.SBJ.IMP	lower area	
3	Dukwa'malaxeda Bakwas.		‘Watch out for the  bakwas !’
	dukwa-'m-ala-xe.da	bakwas	
	see-VER-CONT-pro2NM.SBJ.IMP. OBJ.PROX3.DET	wild man of the woods	

4	Tɬilak <sub>us</sub> tsa'yagak <sub>us</sub> .		‘Bring along your younger sister!’
	tɬila-k <sub>us</sub>	tsa'yaga-k <sub>us</sub>	
	bring back-pro2NM.SBJ.IMP. pre3.OBJ.POSS2	younger sister.POST3.POSS2	

(Eke Me Xi, 2021n)

Although the second person subject imperative form is not marked, the code "pro2NM.SBJ.IMP" is used to alert the reader that commands to second person omit the second person pronominal.

### 18.8. Inflectional Marking: Case

There are three inflected cases in Kwakwala. These are referred to in this work as subject, object, and other object, and coded as SBJ, OBJ, and OTH respectively. Object and other object are described using different terminology in linguistic works depending on the focus of the analysis.<sup>79</sup> Structurally, however, the forms are: subjects are not marked, objects can be identified in inflectional lumps either by |-ǰ| or |-q|, and other objects with |-s|. As in other polysynthetic languages, the inflectional group or lump is often difficult to segment and is considered as a "portmanteau" in the WP descriptions used in this study. Example 67: Prenominal object marker and nominal object (Eke Me Xi data)

<sup>79</sup> See Sardinha (2017) for an overview of the various linguistic analyses.

below illustrates a prenominal object marker with a nominal object.<sup>80</sup> Example 68 and Example 69 illustrate a pronoun object form and a prenominal object form respectively.

### 18.8.1. |-ǰ| and |-q| Objects

Example 67: Prenominal object marker and nominal object (Eke Me Xi data)

Duḵw <sub>al</sub> ant <sub>ta</sub> ḵ 'wats'es Wisa.			'I see  Wisa 's dog.'
Duḵw <sub>al</sub> ant <sub>ta</sub> ḵ	'wats'es	Wisa.	
SEE-CONT-pro1.SBJ.IND.pre3.OBJ	dog.POST3.POSS3.+V	Wisa	

Example 68: Pronoun object (Eke Me Xi data)

Am <sub>ta</sub> -xda'ḵw lak.		'They go there to play.'
am <sub>ta</sub> -xda'ḵw-∅	lak	
play-PLURAL-pro3.SBJ.IND	pronoun3-OBJ.PROX3.+v	

<sup>80</sup> Example 67 exemplifies the difficulty identifying |-s| other objects from possessive constructions, which also contain |-s| based forms. The |-s| on the word 'dog' is a possessive form, not an "other object" marker.

Example 69: Pronominal object (NILDP-CW data)

Duḵwala'mānu'xwāk.			‘We see him-her-it.’
duḵwala-'m.ānu'xw.āk			
see-CONT-VER-pro1exc.SBJ.IND.pro3.OBJ.PROX3.+v			

Example 68 occurs with the PLURAL derivational marker  $|-xdaʔx^w|$  and is unmarked for "pro3.SBJ.IND" as expected. The pronoun object  $|laq|$  is a fused form and is consistent with the nominal object form, proximal to 3rd person and visible in the table of Verbal and Nominal pronouns (Boas, 1947, p. 258). Example 69 provides an example of the 3rd person pronominal object form  $|əq|$ . This is consistent with the pronominal object form, proximal to 3rd person and visible in Table IIa (Boas, 1947, p. 252).

**18.8.2.  $|-s|$  Other Objects**

Example 70 to Example 72 illustrate the  $|-s|$  other objects.

Example 70 Other objects

Kistlas wāntlaʔsida yalayu.			‘Don't go deep with the clam fork.’
kis-tʔ-as	wāntlaʔ-sida	yalayu	
don't-FUT-pro2.SBJ.IND	deep-pre3.OTH.DET	clam fork	

Example 71 Other Objects

'Waniḱa Gḱana sa 'yugwa.			‘ Gḱana  doesn't like the rain.’
'waniḱa	Gḱana.sa	'yugwa	
dislike-pre3.SBJ.IND	Gḱana -pre3.OTH	rain	

Example 72 Other objects

angwilatḱa tḱsoḱsida ḱak laḱa 'watḱ.			‘Who is going to give the dog a bone?’
angw-ila-tḱ-a	tḱsoḱs-i-da	ḱak	
who-make-FUT- pre3.SBJ.INT	give-pre3.OTH.DET	bone	
Laḱa	'watḱ		
"to the"	dog		

**18.8.3. Sentences with verbal elements incorporated into nominals**

Kwakwala nominals can result in verbal forms that derive from a combination of the nominal and a verbal suffix. Example 73 combines the nominal ‘berry basket’ with the

suffix ‘to have’. The resulting word is inflected as a verbal and the nominal ‘berry basket’ is not inflected as either object or other object.

Example 73: Verbal element incorporated into nominal

H̄amyatsinuxw'm̄an.	‘I have a berry basket.’
h̄amy-at̄si-nuxw-'m̄-an	
berry-container-have-VER-pro1.SBJ.IND	

#### 18.8.4. Sentences with verbal elements incorporated into nominals

Verbal elements that incorporate nominal suffixes translate the nominal suffixes as objects in English. Example 74: Body part incorporated into verbal contains a body part suffix which translates as an object.

Example 74: Body part incorporated into verbal

Kuḡwsis'w̄aḡan	‘I broke my leg (previously).’
kuḡw.sis.'w̄aḡ.an	
break.foot or leg.remote past.pro1.SBJ.IND	

Although examples from the Eke Me Xi materials contain a number of incorporating body part suffixes, these structures are not investigated in the inflectional analysis.

## 18.9. Inflectional marking: location and visibility

Boas describes Kwakwala as a language that provides a high focus on location. He notes:

The contents of the Kwakiutl sentence are characterized primarily by an exuberant development of localization.

(Boas, 1911b, p. 446)

The inflectional markers Boas referred to as "demonstrative" are among the structures that convey concepts related to location (Boas, 1947, p. 252, Tables II and II(a)).<sup>81</sup>

Demonstrative inflections convey information regarding the location of speech act participants. These are marked preminally for location proximal to the speaker (PROX1), the listener (PROX2), or a third person (PROX3).<sup>82</sup> Recent studies, in distinction, describe the location marking system as speaker centered, using the terms proximal, medial, or distal to the speaker (Rosenblum, 2015; Littell, 2016; Sardinha, 2017). Boas also describes Kwakwala structures in regard to the state of mind of the speaker:

Furthermore, the psychological relation of the sentence to the state of mind of the speaker or contents of the preceding sentences is expressed with great care.

(Boas, 1911, p. 446)

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<sup>81</sup> Other structures include the locational suffixes such as 'in the house', 'on the top of the forehead'.

<sup>82</sup> The analysis in this work is based on Boas, where location is seen relative to speech act participants rather than relative to speakers (cf. Boas, 1947 and Rosenblum, 2015).

The analysis presented in this study adopts the claim that visibility markers are evidentials which indicate the speakers "state of mind" relative to the information provided. This is claim is based on:

- previous research on Kwakwala and North Wakashan suggesting an evidential basis for visibility marking (Bach, 2007)
- examples where vision is polysemous with knowing (Wilson P. , 2016c)
- examples where non-visible objects and people are marked as visible when they are known to exist, and visible objects and people are marked not visible when their existence is metaphorically in doubt (Wilson P. , 2016c).

Example 75 Pre- and Post-Nominal Marking provides an example where an object that is hidden but the speaker is sure that it is there is marked with the visible inflection |-k|.

Example 75 Pre- and Post-Nominal Marking

Isan dukwaxgada kadayuk.			‘I can’t see this pen (near 1 +v).’
Is.an	dukwaxgada	kadayuk.	
Not.I	see.CONT.pre3.OBJ.PROX1.DET	pen,v+	

The locational-visibility marking for nominals contains both prenominal and postnominal elements, as noted above, where the prenominal |-ga| provides the location, and the postnominal |-k| indicates visibility. The following sections examine the

demonstrative and visibility marking found in the educational materials in prenominal markers, postnominal markers, and pronominals.

### 18.9.1. Prenominal locational markers

Prenominal location markers are suffixed to the word preceding a nominal and locate the nominal relative to proximity to the speaker, the listener, or a third person.

Example 76, Example 77, and Example 78 exemplify prenominal subject marking for each of the deictic distinctions: proximal to 1st, 2nd, and 3rd person.

Example 76 Prenominal subject proximal to 1st person

Prox to 1st	Tłum'eyp̄aga  coffee .		'This coffee tastes good.'
	tłum'ey-p̄a-ga  coffee	coffee	
	coffee-taste-pre3.SBJ.IND.PROX1	coffee-v0	

Example 77: Prenominal subject proximal to 2nd person

Prox to 2nd	Dłax̄wałam̄ux̄wda baḡwanam̄x̄.		'The man is standing.'
	dłax̄w-ał̄a-m̄-ux̄w.da	baḡwanam̄-x̄.	
	stand-CONT-VER-pre3.SBJ.IND.PROX2.DET	man-POST3.v+	

Example 78: Prenominal subject proximal to 3rd person

Prox to 3rd	Yayaṭi Xaṅa.		‘ Xaṅa  digs clams.’
	yayaṭ-i	Xaṅa	
	dig clams-pre3.SBJ.IND.PROX3	Xaṅa -v0	

Example 79 to Example 84 include objects marked for the three prenominal object locations respectively, i.e., proximal to 1st, proximal to 2nd, and proximal to 3rd.

Example 79 Prenominal object proximal to 1st person

Object Prox 1	La'maṅ tsuxwiga gawiḡanaṃ.			‘I washed this clam.’
	la-'m-aṅ	tsuxwi-ga	gawiḡanaṃ	
	AUX.VER.pro1.SBJ.IND	wash.pre3.OBJ.PROX1	clam.V+	

Example 80 Prenominal object proximal to 2nd person

Object Prox2	Kaḡxwatḡa'mastḡaxoxda tsitsagwanu.		‘You shop for eggs.’
	kaḡxwa-tḡ-a'm-as.tḡaxox.da	tsitsagwanu	
	shop.FUT.VER.pro2.SBJ.IND.pre3.PROX2.DET	eggs.V0	

Example 81 Prenominal object proximal to 3rd person

Object Prox 3	Duḵwā'malaxeda Bāk'wās.			'Watch out for the  Bək'wəs .'
	duḵwā-'m-ala-xe.da	Bāk'wās		
	see-VER-CONT-pro2.SBJ.IMP.pre3.OBJ.DET	"wild man"		

Example 82 Prenominal other object proximal to 3rd person

Other Object Proximal to 3rd	Duḵwāla'māsa xikāla.			'Do you see the fire over there?'
	duḵw-āla-'m-āsa	xikāla		
	see-CONT.VER.pro2.SBJ.INT. pre3.OTH.PROX3	fire		

The following examples illustrate verbs that take the "other object" case marking. Three locations are provided: proximal to 1st, proximal to 2nd, and proximal to 3rd.

Example 83 Prenominal other object proximal to 1st person

Other Object Proximal to 1st	Tsoḥantāsgada kādayuxw lotḥ.			'I'm going to give you this pencil.'
	tso-tḥ-antāsgada	kādayu-xw	lotḥ	
	give-FUT-pro1.SBJ.IND. pre2.OTH.PROX1.DET	pencil- POST.+V	pronoun2.OBJ	

Example 84 Prenominal other object proximal to 2nd person

Other	Mayadasitsux̣  John x̣.		‘How are you related to John?’
Object	mayad-asitsux̣	John -x̣	
Proximal to 2nd	to be related- pro2.SBJ.INT.pre3.OTH.PROX2.POSS2	John.+V	

Example 85 Prenominal other object proximal to 3rd person

Other	Duḵwala'masạ xikạla.		‘Do you see the fire over there?’
Object	duḵw-ala-'m-asạ	xikạla	
Proximal to 3rd	see-CONT.VER.pro2.SBJ.INT. pre3.OTH.PROX3	fire	

### 18.9.2. Postnominal Marking

Visibility is marked post nominally and completes the visibility function of the locational-visibility structures. Postnominals are marked for *visible* (v+), *not-visible* (v-), or *not marked* (v0). Table 52 Post-Nominal markers from Boas (Boas, 1947, p. 252) and reproduced below in three writing systems: Boas, NAPA, and U'mista illustrates these markers.

Table 52 Post-Nominal markers

Demonstrative of			
<i>character set</i>	Boas	NAPA	U'mista
1st person, visible	-g·	-g	-g
1st person, invisible	-g·a	-ga	-ga
2nd person, visible	-ix	-iǰ	-ix
2nd person, invisible	-ax or -aq!	-aǰ or -aq̇	-ax or -ak̇
3rd person, visible	-Ø (v0) or -i	-Ø (v0) or -i	-Ø (v0) or -i
3rd person, invisible	-a or -i	-a or -i	-a or -i

(Boas, 1947, p. 252)

Table 52 rows 7 and 8 indicate that 3rd. person visible is not consistently marked when proximal to 3rd. person. Visible is either not marked or marked with  $|-i|$ , and not visible is marked with  $|-a|$  or  $|-i|$ . This analysis assumes that a "non" marked nominal is proximal to 3rd person and visible. However, examples from Eke Me Xi and NILDP-CW occur where visibility is not marked when the referent is proximal to first and second persons. Compare Example 86 where visibility is not marked on 'fish' with Example 87 where visibility is marked on 'pencil' but not marked on 'John'. Both 'fish' and 'John' should be marked with the suffix  $|-g|$  'visible to 1st person' (based on Boas (1947, p. 254).

Example 86 Visibility Not Marked

PROX1	Kwax'it'ant'axgada kutala.		‘I am going to cut open this fish.’
	kwax.i-t'ant'axgada	kutala. Ø	
V0	cut fish-MOM-FUT- pro1.SBJ.IND.pre3.OBJ.PROX1.DET	fish.V0	

Example 87 Visible nominal object prox. to 1st person

PROX1	Tsot'ant'asgan kadayuxw lax  John .		‘I'm going to give my pencil to John <sup>83</sup> .’
	Tsot'ant'asgan	kadayu.xw	
V+ and V0	give-FUT-pro1.SBJ.IND. pre3.OTH.PROX1.POSS1	pencil,V+	
	lax	John .	
	AUX.OBJ ("to")	John.V0	

Example 88 provides an example of a "visible" object that the speaker knows is close by but is unable to see. In this example, the speaker's knowledge of the object is highly evident "as if" it were visible.

<sup>83</sup> Example 87 occurs in a classroom, where the speaker, the listener, and the recipient of the gift are all located close to one another.

Example 88 Visible nominal object prox. to 1st person

PROX1	Isan dukwalaɣgada kadayuk.			‘I can't see this pen.’
V+	Is.an	dukwalaɣgada	kadayuk.	
	Not.I	see.CONT.pre3.OBJ.PROX1.DET	pen,V+	

Example 89 illustrates an example of a nominal marked prenominally "near second person" and post nominally "visible to the speaker." This is consistent with the pattern in Boas (1947, p. 252). This is an author generated sentence based on the table in Boas (1947, p. 252).

Example 89 Sentence with nominal marking based on Boas Table

	Tsoʔantʂasgan kadayuxw laxox  John iɣ.			‘I'm going to give my pencil to John.’
PROX1	Tso-tʂ-antʂasgan		kadayu-xw	
V+	give-FUT- pro1.SBJ.IND.pre3.OTH.PROX1.POSS1		pencil-V+	
	lax		John iɣ.	
	"to" (AUX-PROX2)		John.V+	

Boas notes that postnominal possessive marking is required when the possessor is not the subject of the sentence. Example 90 illustrates a sentence that does not comply with the expectations laid out in Boas' tables, where ‘John’, the owner of the pencil but not the subject of the sentence, is not marked but should be based on Boas (1947, pp. 252-254).

The sentence ‘I’m going to give John’s pencil to Mary.’ occurs in the context of a classroom, where the speaker and Mary are both near one another, while John is not present. John’s pencil is in the speaker’s possession. The speaker is telling the teacher and the class that he is going to give John’s pencil to Mary.

Example 90 Comparison with Boas

PROX1	T̥sot̥ʰant̥ʰasga k̥adayugas  John  lax  Mary .			‘I’m going to give John’s pencil (near 1) to Mary.’
V-	T̥so-t̥ʰ-ant̥ʰasga	k̥adayu-gas		
V0	give-FUT-pro1.SBJ.IND.	Pencil-POST3.PROX1.		
V0	pre3.OTH.PROX1	v-.POSS3		
	John ∅	lax	Mary ∅	
	John, <u>v0</u>	"to"	Mary, <u>v0</u>	

The locational and visibility marking in both the NILDP-CW materials developed from 1978 to 1981 and the Eke Mi Xi data from 2015 to 2019 exhibit similar variation from the tables and descriptions provided in Boas (1911) and (1947). My working hypothesis is that the variation is due to the context of the speech event including the situation, the topic, and the focus of the communicative acts.

### 18.9.3. Location and visibility marking

Boas describes the location and visibility-evidential markers as demonstrative. These mark subjects, objects, and other objects relative to proximity to first person, second person, or third person and visibility relative to the speaker. See Example 91.

Example 91 Pronominal demonstratives, Boas (1947, p. 252) (U'mista)

Yu'ám ax'exsdá'u'sák		‘This (near 2nd) is wished by this one (near 2nd p. invisible).’
yu'ám	ax'exsd-á'u'sák	
this	to want-pro3.SBJ.PROX2.V-.pro3.OTH.PROX1.V+	

In Example 91, |u'| marks ‘near 2nd person subject not visible’ and |-sák| marks ‘near 1st person other object visible’. Boas lists the markers in Table IIa in Boas (1947, p. 252) which is reproduced below in three writing systems: Boas, NAPA, and U'mista in Table 53 Pronominal Demonstrative Suffixes.

Table 53 Pronominal Demonstrative Suffixes

Demonstrative of	Subjective			Objective			Instrumental		
	Boas	NAPA	U'mista	Boas	NAPA	U'mista	Boas	NAPA	U'mista
<i>character set</i>									
1st person, visible	-k·	-k	-k	-qEK·	-qək	-kək	-sEK·	-sək	-sək
1st person, invisible	-g·a <sup>ε</sup>	-gaʔ	-ga'	-xg·a	-ǰga	-xga	-sg·a <sup>ε</sup>	-sgaʔ	-sga'
2nd person, visible	-ux	-uǰ	-uǰ	-q <sup>u</sup>	-q <sup>w</sup>	-kw	-sux	-suǰ	-suǰ
2nd person, invisible	-u <sup>ε</sup>	-uʔ	-u'	-q! <sup>u</sup> -qâ <sup>ε</sup>	-q! <sup>w</sup> -quʔ	-kw -ku'	-su <sup>ε</sup>	-suʔ	-su'
3rd person, visible	-eq	-iq	-ek	-q	-q	-k	-s	-s	-s
3rd person, invisible	-e <sup>ε</sup>	-iʔ	-i'	-qä	-qe	-ke	-se	-si	-si

(Boas, 1947, p. 252)

Table 53 Pronominal Demonstrative Suffixes is misleading, however, first, because it suggests that it is possible to find examples of demonstrative marking for all three cases.

It is, in fact, rare to find all three pronominals in the same sentence<sup>84</sup> and, second, because the demonstrative suffixes are usually only applied on the last item in the inflectional group.

Boas provides the following example which contains a pronominal subject, object, and other object in Example 92 Pronominal Inflections. In this example, the subject and object inflections do not contain demonstrative marking. Example 92 is provided in three writing conventions, Boas, from the original, as well as NAPA and U'mista.

<sup>84</sup> This is noted in Boas (1911, p. 536).

Example 92 Pronominal Inflections

mix·EnLULas	Boas	
Məxənλuλas.	NAPA	‘I strike thee with it.’
<b>Məxəntʰutʰas.</b>	U'mista	
Məx-ənλuλas		
strike-pro1.SBJ.IND.pro2.OBJ.PRO3.OTH.PROX3.v +		

(Boas, 1911, p. 536)

In Example 92 there are three pronominal markers, 1st person subject, 2nd person object, and 3rd person other object. In this example, demonstrative markers only occur on the last marker, the OTH final inflection  $|-as|$ .  $|-as|$  indicates that the other object is proximal to a third person and visible (see Table 53 Pronominal Demonstrative Suffixes).

Example 93, Example 94, Example 95, and Example 96 compare object pronominal forms to object pronominal third person forms. Variations in data sets occur between third person pronominal forms between  $|-ǰ|$  and  $|-ǰ̇|$ , and  $|-ǰ^w|$  and  $|-q^w|$ .<sup>85</sup>

<sup>85</sup> This is also noted in Boas (1947, pp. 252-254).

Example 93 Prenominal object proximal to 2nd person visible

Duq <sup>w</sup> əlamənʎaχoχ <sup>w</sup> da kadayuχ <sup>w</sup> .		‘I can see that pen.’
duq <sup>w</sup> -əla-m-ənʎaχoχ <sup>w</sup> da kadayu-χ <sup>w</sup>	kadayuχ <sup>w</sup> .	
see-CONT-VER-pro1.SBJ.IND.pre3.OBJ.PROX2.DET	pen-pencil.V+	

Example 94 Pronominal object proximal to 2nd person visible

Duq <sup>w</sup> əlamənʎaq <sup>w</sup> .		‘I can see it.’
duq <sup>w</sup> -əla-m-ənʎaq <sup>w</sup>		
see-CONT-VER-pro1.SBJ.IND.pro3.OBJ.PROX2.V+		

Example 95 Pronominal Subject and pronominal object

Duq <sup>w</sup> ələnʎaχida waci-x.		‘I see the dog.’
duq <sup>w</sup> -əl-ənʎaχida	waci-x	
see-CONT-pro1.SBJ.IND.pro3.OBJ.PROX3.V+	dog.V+	

Example 96 Pronominal object proximal to 3rd person visible

Duq <sup>w</sup> əlamənʎaχ.		‘I see it.’
duq <sup>w</sup> -əla-m-ənʎaχ.		
see.CONT-pro1.SBJ.IND.pro3.OBJ.PROX3.V+		

#### 18.9.4. Demonstratives: Location, Grammar, or Discourse?

Boas (1947) used the term "demonstrative" to refer to the locational suffixes. It is possible, however, that these markers might be best understood as grammatical markers that provide location but do not "draw attention" to a location. Evidence from language lessons, where students often engage in dialogue pointing things out, suggests that there are variant forms that may function to "point objects out." Example 97 and Example 98 exemplify this contrast. The locational marker in Example 97 does not use the labialized variant and does not draw attention to any particular 'eggs'. In contrast, Example 98 does use the labialized variant in the sentence "I always fall into that hole" thereby indicating which particular hole is the one in question.

Example 97 (consistent with Boas, 1947)

Object	Kəlxwatł'a'mastłaxoɣda t'sitsagwānu.		‘You shop for eggs.’
Proximal	kəlxwa-tł-a'm-astłaxoɣda	t'sitsagwānu	
to 2nd	shop-FUT-VER-pro2.OBJ.PROX2.DET	eggs.v0	

Example 98 (not consistent with Boas, 1947)

Object	Hayulisən k <sup>w</sup> ixbətalaǰoǰ <sup>w</sup> da ǰ <sup>w</sup> əpəsiǰ.			‘I always fall into that hole.’
Proximal	hayulis-ən	k <sup>w</sup> ixbət-ala-ǰoǰ <sup>w</sup> da	ǰ <sup>w</sup> əpəsi-ǰ	
to 2nd	always-pro1.SBJ.IND	fall-CONT- pre2.OBJ.PROX2	hole-V+	

Example 97 has the locational | -ǰoǰda| (PROX2.DET). This form is consistent with the forms in "demonstrative of 2nd person" in Table IV (Boas, 1947, p. 253). The form | -ǰoǰ<sup>w</sup>da| in Example 98, however, has the labialized variant of the locational marker. The labialized variants are not consistent with Boas (1947, p. 253). The majority of the proximal to second person forms in educational materials (both NILDP-CW and Eke Me Xi) contain the labialized form variants noted in Example 98. This is true for all three cases: subject, object, and other object. In a database of sentences containing 3000 words, 150 prenominal objects are inflected with the labialized forms of | -ǰoǰ<sup>w</sup>da| and | -uǰ<sup>w</sup>|, whereas two examples of | -ǰoǰda| and one for | -uǰ| were found.

Example 99 and Example 100 exemplify the difference between the two forms | -ǰ<sup>w</sup>a| and | -ǰa|.

Example 99 (NILDP-CW data, K<sup>w</sup>akwala speaker)

	Ṃaçałuxdə giçolaḥ <sup>w</sup> a heməʔaci.				‘What is inside of that basin?’
	Ṃaçał-uḥdə	giço	La-ḥ <sup>w</sup> a	heməʔaci	
	What-pro3.PROX2.DET	inside	LOC-PROX2	basin	

Example 99 has two locational markers, |-uḥ| on the first word without the labialization and |-ḥ<sup>w</sup>a| on |laḥ<sup>w</sup>a| with labialization. In this example, the speaker is indicating or pointing out the basin in question.

Example 100 (Eke Me Xi data, G<sup>w</sup>açala speaker)

	'Wigiluxda gälax loḥ?			‘What is the bear doing over there?’
	'Wigil-uḥda	gala.x	lo-ḥ	
	what doing-pre3.SBJ.INT.PROX3.DET	bear-V+	pronoun3.V+	

Example 100 does not use the labialized form, suggesting that the speaker does not need to "point out" which bear is the one in question.

Unlike the Eke Me Xi and NILDP-CW data, Boas' demonstrative tables only include object second person labialized forms (Boas, 1947, p. 252, Table II(a) and p. 253 Table IV). Table 54 summarizes the form alternatives listed in Boas (1947).

Table 54: Labialized demonstrative suffixes from Boas:

	Pronominal Demonstrative Objects (Boas, 1947, p. 252)	Prenominal Demonstrative Objects (Boas, 1947, p. 253)
Prox 2 V+	-q <sup>w</sup>	-ǰoǰda or -ǰ <sup>w</sup> a
Prox 2 v-	-ǰ <sup>w</sup> or -qoʔ	-ǰoǰ or -ǰ <sup>w</sup>

Sardinha (2017), following Black (2011), suggests the labialized versions of these markers are part of an existential category of locational markers that are similar in grammatical meaning to a pointing gesture (Sardinha, 2017, pp. 5-6). This analysis is consistent with the examples presented above. Although the analysis provides a reasonable explanation for the Eke Me Xi and NILDP-CW corpus, where the labialized forms predominate, it does not correspond with the First Voices online examples of phrases (First Voices, 2021). The First Voices dataset, in contrast to the Eke Me Xi data, provides examples of non-labialized forms, including those that suggest pointing or demonstrative information. The First Voices data is based on the |Kwakwala| dialect from Fort Rupert, whereas the Eke Me Xi data is based on |Bakwamkala|. Further research is needed to examine whether the variations in the educationally focussed data are due to free variation, dialect variation, discourse variation, or signal a difference between a "grammatical" location marker and a "grammatical" location marker with a "demonstrative focus."<sup>86</sup>

<sup>86</sup> I was not able to explore this further due to the on-site restrictions of Covid 19.

In addition to the questions raised above regarding of the demonstrative focus of locational markers, I also examine discourse variations in locational and visibility-evidential markers in Technical Appendix Section 21.3.6. The examination follows up on the results of the post-nominal inflectional analysis in Section 10.11, which concludes that postnominal marking varies depending on word position in a sentence (see Section 10.13, Table 20 and Section 10.14).

## **19. Language analysis**

In this appendix, I examine strategies to approach grammatical analysis and awareness for teachers and researchers developing materials. The focus of the discussion is on the Kwakwala aspectual marker |-x'id|. Section 19 examines morphological - morphophonemic descriptions from Sardinha (2020) and Boas (1947), and Section 20 contrasts these with the word paradigm WP analysis used in this study that is based on Blevins (2016). Section 20 reviews the strategies I developed to introduce grammatical awareness at Eke Me Xi, and the transition I made from the morphological - morphophonemic approach to WP.

### **19.1. Kwakwala aspect marker |x'id|**

The suffix |-x'id| is an aspectual marker that signals a transition from one state to another, for example, 'become hungry, became a man'. This marker exemplifies the difficulties teachers and researchers encounter in developing language lessons for Indigenous languages, where there is a need for more support materials. The first challenge is that there are several variant forms of |-x'id| which are determined by the morphophonemic environment. Researchers note that there are 7 to 10 variants of |-x'id| (cf. Boas, 1947, p. 365 and Sardinha, 2020, p. 266). The second challenge is determining when to use |-x'id| rather than another aspect marker, or no aspectual at all. This section provides an overview of two analyses of |-x'id| (Sardinha, 2020; Boas, 1947), reviews the pedagogical

suggestions in Sardinha (2020, p. 284), and discusses potential teaching strategies for aspectual markers.<sup>87</sup>

Boas describes  $|-x'id|$  as "a momentary aspect, generally an inchoative" and provides an overview of the various forms of the suffix (Boas, 1947, p. 365). Sardinha (2020, p. 266) analyzes  $|-x'id|$  and comments on pedagogy. Sardinha summarizes its function as:

In summary,  $/-x'id/$  patterns morpho syntactically as a suffix and attaches to every category of lexical root. Semantically,  $/-x'id/$  marks a category of event type known as transitions, and its use requires that the event in question began, but was not necessarily completed, during the reference time of the utterance.

(Sardinha, Aspectual  $/-x'id/$  in Modern Kwak'wala, 2020, p. 273)

Boas (1947, pp. 365-366) lists five variants of  $|x?id|$ ,<sup>88</sup> ( $|-x?id$ ,  $-?id$  -nd, -od, -d) and describes the environments in which they occur. Sardinha lists ten variants of  $|-x?id|$ , as noted below in Table 56  $|x'id|$  variants in Sardinha along with an overview of their environments.

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<sup>87</sup> I discuss both Boas and Sardinha as the research literature suggests changes in the language regarding  $|-x'id|$  (cf. Boas, 1947; Sardinha, 2020; Littell, 2016). Since the Kwakwala IRP requires students to study Boas and Hunt works, it is important for educators to account for both "modern" and "early" documentation (SD85, 2010).

<sup>88</sup> Boas refers to  $|x?id|$  as  $|-[x]?id|$  to code two variants  $|-x?id|$  and  $|-?id|$ .

Table 55 and Table 56 below are the descriptions of the variants of  $|-x'id|$  in Boas (1947) and Sardinha (2020) respectively.

Table 55  $|x?id|$  variants in Boas (1947)

<p><math>-[x]?id</math>, Accent type: When <math>x</math> is dropped the glottal stop is retained and changes <math>p</math> and <math>t</math> to <math>p̣</math> and <math>ṭ</math>; (in Bella Bella to <math>ṃ</math> and <math>ɬ̣</math>). All voiceless stops and affricates become spirants followed by glottal stop. <math>-əy</math> and <math>-əw</math> retain <math>x</math> and change to <math>e</math> and <math>o</math>.</p> <p>After vowels: <math>dax'id</math> "to take"</p> <p>After <math>m, n, l</math>: <math>təmx?id</math> "to sew"; <math>-wənx?id</math> "to drill"; <math>-gəlx?id</math> "to walk on four feet"</p>
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(Boas, 1947, p. 365)

Table 56  $|x'id|$  variants in Sardinha (2020)

<p>a. <math>-nd, -ud, -d</math> After lexical suffixes</p> <p>b. <math>-x'id, -'id</math> On stems without lexical suffixes</p> <p>c. <math>-x'i, -'i, -n, -u, -\emptyset</math> Arises due to optional <math>d</math> loss syllable-finally</p>
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(Sardinha, Aspectual  $/-x'id/$  in Modern Kwakwala, 2020, p. 273)

Table 57 Summary: The morphophonology of  $/-x'id/$  from Sardinha (2020, p. 283)

summarizes  $|-x'id|$  morphophonemic rules.

Table 57 Summary: The morphophonology of /-x'id/

The morphophonology of /-x'id/ in modern Kwakwala is presented below for easy reference.

If a stem contains one or more lexical suffixes:

- A. Realize [-*d*] when the rightmost lexical suffix ends in *m* or *n*.
- B. Realize [-*ud*] when the rightmost lexical suffix ends in a rounded vowel or semi-vowel (*u*, *o*, or *ɔw*), and convert the rounded vowel or semi-vowel to *u*.
- C. Realize [-*nd*] elsewhere after lexical suffixes, and apply the following three additional rules:
  - a. If the stem ends in a consonant (other than *m* or *n*), insert *ɔ* before *-nd*.
  - b. If the stem ends in a non-rounded vowel (*a*, *i*, or *e*), shorten this vowel to *ɔ*.
  - c. If the stem ends in an obstruent, soften the obstruent (e.g., *s* → *dz*, *k* → *g*, *k* → *g*).

If the stem does not contain any lexical suffixes:

- A. Realize [-*x'id*] when the stem ends in a vowel {*a*, *e*, *i*, *o*, *u*, *ɔ*}, or one of the following consonants: {*m*, *n*, *l*, *m̥*, *n̥*, *l̥*}.
- B. Realize [-*x'id*] when the stem ends in {*y*, *w*, *y̥*, *w̥*} and change these semi-vowels to a corresponding vowel: *y* → *i*, *w* → *o*, *y̥* → *i*, *w̥* → *u*.
- C. Insert *ɔ* after the stem and realize [-*x'id*] when the stem ends in a glottalized plosive {*p̥*, *t̥*, *k̥*, *k̥w*, *k̥*, *k̥w*, *t̥s*, *t̥l*, ' } or voiced plosive {*b*, *d*, *g*, *gw*, *g*, *gw*, *dz*, *dl*}.
- D. Elsewhere, initial *x* is lost and [-'id] is realized, along with the following additional changes to the final stem consonant:
  - a. The glottal stop in [-'id] fuses with stem-final *p* and *t* (*p* → *p̥*, *t* → *t̥*).
  - b. Stem final velars, uvulars, and the unvoiced lateral affricate undergo spirantization (*k* → *x*, *kʷ* → *xw*, *k̥* → *x̥*, *k̥w* → *x̥w*, *t̥* → *l*).<sup>21</sup>
  - c. There is no change to the final stem consonant when it is a fricative {*s*, *x*, *xw*, *x̥*, *x̥w*, *l*}

When a stem with /-x'id/ is used in a sentence, the rule of *d* deletion is optionally applied:

***d* deletion:**  $d \rightarrow \emptyset / [C V (C) \_ ]$  (*d* is deleted syllable-finally)

(Sardinha, 2020, p. 283)

Sardinha's analysis differentiates between two groups of morpho-phonemic variants of |x'id|. There are three variants, /-d/, /-ud/ and /-nd/, following lexical suffixes, and seven variants when there are no lexical suffixes. On stems without lexical suffixes, it occurs as /-x'id/, /-id/, and optionally as /-x'i/, /-i/, /-n/, /-u/, and -/Ø/ in syllable-final position.

Table 58 and Table 59 Examples of |x'id| without lexical suffixes include examples from Eke Me Xi materials and reference rules from Sardinha (2020, p. 283).

Table 58 Eke Me Xi examples of |x'id| with lexical suffixes

Ca	tʃakaxst̩and	‘slap rear end’
	tʃak-axst̩-and	
	slap-rear end-x'id	
Cb	napʃsanand	‘hit hand with
	nap-ʃsana-x'id	stone’
	hit with stone-hand-x'id	
Cc	supiganda	‘to put a handle on
	supa-ik-x'id	an axe’
	chop-axe-neck	

(Sardinha 2020, p. 283)

Table 59 Examples of |x'id| without lexical suffixes

Rule	Examples without lexical suffixes	
Rule Da	Saḷtída'maṇ. saḷta-x'id-a'm-aṇ calm-x'id-VER-pro 1.SBJ.IND	'I am calm now.'
Rule A	pusk̄ax'id hungry-x'id	'hungry'
Rule Db	La'ams waḡ'ida. waḡ-x'id-a thank-x'id-SF <sup>89</sup>	'Thank you for your help.'
Rule A	O'am uḁax'idi dugwaṭses Johnaḡs 'la'e waṅs'id. uda-x'id-i suddenly-x'id-PROX3 waṅs-'id	'John's troller sank all of a sudden.'
Rule Dc	sink-x'id-PROX3	

(Sardinha 2020, p. 283)

The data in the materials developed at Eke Me Xi are consistent with Kwakwala |x'id| in Sardinha (2020).

<sup>89</sup> SF abbreviates "stem final."

Sardinha provides commentary regarding teaching  $|-x?id|$ . She indicates that the morpho-phonemic rules are regular and "can be precisely taught and studied" (2020, p. 284). She also considers whether to teach the  $/-nd, -ud,$  and  $-d/$  variants, which are variably replaced by the  $/-x?id/$  and  $/-id/$  variants, and questions how to teach the optional  $/-d/$  deletion rule (Sardinha, 2020, p. 284). She suggests that the answer is best left to "the next generation of speakers" (Sardinha, 2020, p. 284).

Although the morpho-phonemic rules in Sardinha (2020) provide a clear analysis of the  $|-x'id|$  variants, Sardinha does not provide suggestions for teaching these rules nor a general pedagogical approach to aspect marking in general.<sup>90</sup> Aspect markers in Kwakwala present difficulties for Kwakwala learners because it is not always clear which aspect marker to use (e.g., the change of state aspect  $|-x'id|$ , continuative aspect, or no aspect). Example 101  $|-x'id|$ , 102 and Example 103  $|-x'i$  illustrate  $|-x'id|$  with 'eat' and 'warm.'

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<sup>90</sup> See Sardinha (2018, p. 241) for a proposal that there are "three lexical aspectual classes: States, Processes, and Transitions".

Example 101 |-x'id|

Wix̣ans ḥamxi'da.		‘Let’s go to eat.’
Wix̣-ans	ḥam-xi'da.	
go-pro 1inc	eat-x'id	

Example 102 |-x'id|

Ḥamx'idus watsix̣us dagansi.			‘Your dog ate your socks.’
ḥam-x'id-us	watsi-x̣us	dagans-i	
eat-x'id-pre3.SBJ.IND.POSS2	dog.OBJ.POSS2	socks-VIS-	

Example 103 |-x'id|

t'salx̣w'ida	‘to warm something up’
t'salx̣w'ida	
warm-x'id.	

Example 104 illustrates an instance of ‘sad’ without an aspect marker. This indicates a general state of "sadness."

Example 104 No aspectual<sup>91</sup>

Wosa'maṅ noḱe.		‘I have sad feelings.’
wos-a'm-aṅ	noḱe.	
sad-VER.pro1	mind	

Variation in aspectual use can be noted between dialects in Example 105 and Example 106.

Example 105 Continuative aspect

Miḱa'malaṅ.		‘I'm sleepy.’
miḱa-'m-al-aṅ		Bakwamkala
sleep-VER-CONT-pro1.SBJ.IND.		dialect

Example Example 105 is from the Bakwamkala dialect and uses the continuative aspect, while Example 106 is from the Quatsino dialect and does not use an aspect marker.

Example 106 No aspectual Quatsino Dialect

Kalkaṅ.		‘I'm sleepy.’
kalkaṅ		Quatsino dialect
sleep-pro1.SBJ.IND		

<sup>91</sup> The |-m| "VER" (veritas) marker provides epistemic/evidential information rather than aspectual information. See Littell (2016).

## 19.2. Communicative-experiential curriculum and grammar

Although communicative-experiential methods focus on authentic language activities, teachers may choose to utilize grammatical descriptions to support learners, as noted in the framework document (BCED, 2003) and the school district curriculum (SD85, 2010). Sardinha's description of the morphophonemic variations in Kwakwala for |-x'id| is clear and consistent with current usage. What is not clear, however, is whether Sardinha's method is effective in providing a school-based method for teaching the variants of |-x'id| or robust enough to handle the semantic properties of Kwakwala aspect (semantic in the sense that a learner will need to know when it is appropriate to use one aspectual or another). Further research is required to assist non-fluent teachers and researchers to develop classroom activities that meet curriculum expectations and effective teaching methods. Such research would include:

- a semantic description of aspectual marker usage (i.e., when to use which aspect)
- methods to include aspectual usage in dictionary entries and/or word paradigm tables
- research to determine the most efficient method to describe aspect marking in classrooms
- example activities for classrooms
- analysis of the scope and sequence regarding grade level activities
- dialect variation

In the following section, I present example materials I developed to raise awareness of Kwakwala word structures with regards to inflections, tense, and aspect. These materials were developed for the Senior Kwakwala class.

## **20. Materials, morphology, and word paradigms**

In this section, I examine materials I developed to raise awareness of Kwakwala word structure. Two areas are examined, first, lessons focusing on tense, aspect, and lumped inflections,<sup>92</sup> and second, word paradigm tables for use in school programs. The purpose of these activities was to explore methods to introduce grammatical analysis activities and methods of developing support materials for Kwakwala.

### **20.1. Example morphology awareness strategies**

During the first year of the study, teachers and students asked questions about the meanings of words. For example, students asked about the meanings behind their Kwakwala names. Teachers asked questions about orthography, pronunciation, and language structures. During these initial stages, my answers to these questions were based on morphological and morphophonemic practices found in linguistic analyses, for example Boas (1947) and Rosenblum (2015) and pedagogical materials I developed with James Henderson (Wilson & Henderson, 1981c; 1982c).

Following the initial gaming activity (see Section 8.6), I developed materials which included information on tense, aspect, and inflections. An example of initial activities

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<sup>92</sup> Although the curriculum document does not specifically note the requirement for aspectual marking, it does require tense (SD85, 2010).

includes pattern practice activities where students asked and responded to Yes/No and WH questions. Examples of these activities are included in Section 24.2. These were intended to enable student dialogue and included questions and answers related to the gaming activities (e.g., Lesson Example 30) or everyday questions and answers (e.g., Lesson Example 31 and Lesson Example 32).

Lesson Example 1 (Excerpt from Lesson Example 20)<sup>93</sup>

Amłamas?	Are you playing?	Amłaman.	I'm playing.
Hełaxamas?	Are you lucky?	Hełaxaman.	I'm lucky.

Lesson Example 2 (Excerpt from Lesson Example 31)

Ixmas?	Are you well?	Ixman	I'm well.
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Lesson Example 3 illustrates the difference between interrogative and indicative forms that accompanied Lesson Example 31 (see Section 18.7 for a brief overview of mood).

Lesson Example 3 question and statement forms

Ixmas?	Are you well?	Question form
Ixmas.	You are well.	Statement form

<sup>93</sup> Highlighting was used to draw attention between Kwakwala and English equivalents.

During this early stage in Kwakwala lessons I used the terms "question form" and "statement form" in the materials rather than "interrogative" and "indicative." A second example I developed for first year materials is Lesson Example 4, which summarized person and location markers.

Lesson Example 4 Person, location, and tense markers

Person Markers      kátida'sx̄us d̄igamos \_\_\_\_\_

I	-an	lx'man.	I am well.
I	-ant̄	Dukw̄alaxdant̄f̄ax̄a gwa'wina.	I saw a raven.
we (inclusive)	-ants	Wat̄f̄alaxdants̄x̄a kaḵalaga.	We (inclusive) heard a crow. includes listener
we (exclusive)	-a'nu'xw	Mis̄alaxdanu'xw̄x̄a d̄amsxe.	We (exclusive) smelled the ocean. excludes listener
you	-as	Ḷixw̄itaxdas̄x̄a gawiḵanam.	You touched a butter clam.
he/she/it	not marked	Ḷasa lax̄a kaḵwilas.	He/she is walking to the store.
he/she/it	-i (not near)	Ḷasaxdi lax̄a kaḵwilas.	He/she (not near) walked to the store.
he/she/it	-ux̄w (near)	Lat̄ux̄w lax̄a kaḵwilas.	He/she (near listener) is going to walk to the store.

(Eke Me Xi, 2021q)

Additional information was included in the following table on direct object, locative, past tense and future tense.

Lesson Example 5 Direct object, locative, and tense

object marker	-x̣a	Ẉaṭʔalaxḍanṭʔax̣a tsik'wi.	I heard a seagull.
"to the ..."	-laḵa	Laṭʔaṇ laḵa dala'elas.	I am going to the bank.
past tense	-xd	Laxḍanu'xw laḵa hama'elas.	We (exclusive) went to the restaurant.
future tense	-tʔ	laṭʔants laḵa amlilas	We (inclusive) are going to the play place.

(Eke Me Xi, 2021j)

### 20.1.1. Word Paradigms

In the second year of the study, I chose to utilize the Word Paradigm (WP) method to design activities to promote an awareness of Kwakwala morphology (from Blevins (2016)). Morphological awareness activities were based on dividing Kwakwala words into three divisions: stems, tense-aspect-verum, and inflections. Stems include roots, derivational suffixes, and reduplicated root forms. Tense and aspect include tense marking, aspect, and the verum evidential marker. Inflectional segments include the

pronominal person markers, mood, locational suffixes, and pronominal markers.<sup>94</sup> The focus of the word-based awareness materials was tense-aspect and inflections. These are productive relative to the derivational markers.

Although the inflectional markers are productive, Rosenblum notes that the inflectional deictic markers in the language (location and visible evidentials) are "embedded in speech" (2015, p. 5). This makes it difficult for speakers to articulate why they have chosen one form over another (2015, p. 5). This observation is significant not only for linguists attempting to collect accurate data, but also for non-fluent teachers and researchers, who will need support developing materials with Elders who may not be able to describe why they have used one deictic marker rather than another.

Rosenblum's observation (2015, p. 5) also motivates the method developed to situate documentation in authentic locations presented in Section 3.4. This method accommodates for the needs of teachers and researchers who are not fluent in the language and may not have training in formal linguistic semantic methodology, such as the method used in Sardinha (2017) and based on Matthewson (2004). Situated documentation ensures that locational and evidential forms are accurate.

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<sup>94</sup> The inflectional component of a word includes pronominal markers that refer to a following word. See Section 15.4 for further discussion.

### **20.1.2. Rationale for Word Paradigm Morphology**

I chose WP for three reasons. First, the success of WP in the teaching of inflected and polysynthetic languages (Baraby & Junker, 2014; Prior & Wohberg, 1995; Grenoble & Martin, Workshop: Multilingualism, contact and documenting endangered Languages, 2019). Second, to align class activities with the accordance analysis in Section 10. This enabled me to focus both the analysis activities and classroom activities on the same descriptive methodology. Third, to examine how a listing of words with inflectional forms in paradigms might be suitable for non-fluent speakers and teachers. This is based on the hypothesis that inflectional paradigms have the potential to mitigate the difficulties associated with polysynthetic morphology for English first language Kwakwala learners.

A WP approach is an alternative to Item Arrangement (IA) and Item Process (IP) methods to morphology (Blevins, 2016). Materials based on IA or IP approaches provide lessons on Kwakwala morphology and morphophonemics using rules and constraints such as those proposed in Sardinha (2020) and used in the materials I developed for the NILDP and CW program. Instead, a WP approach utilizes paradigm listings with fully formed words (i.e., words with stems, tense-aspect, and inflections). For example, instead of students learning the  $|-x'id|$  rules developed by Sardinha (2020), verbs would be listed in paradigms with the aspectual form usage for each verb. This method also ensures that

teachers and researchers who are not fluent would be able to look up the correct forms and usage for each stem + tense-aspect combination.

### **20.1.3. Educational goals**

The educational goal of the awareness activities was intended to assist students to acquire Kwakwala meta-knowledge and an understanding of the differences between Kwakwala and English, such as Kwakwala words are morphologically more complex than those in English. This was important in particular to provide students with the knowledge to avoid utilizing dictionary stem word forms to create sentences with syntactic patterns like English. Activities also included a comparison between English word order and Kwakwala word order. In addition, awareness activities included instructions on utilizing support materials. For example, one lesson included a discussion on the difference between the First Voices Dictionary, where words are mainly uninflected (First Voices, 2017), and the lesson word lists, where words are listed as they occur in the lesson materials.

The research goal of the morphological awareness activities was also intended to assess the difficulty in developing materials to assist students, teachers, and researchers to gain meta-linguistic knowledge of the language. It also provided opportunities for me to assess future development of grammar-based activities that might be helpful in language classes

with non-fluent teachers. In addition, it gave me the opportunity to explore grammar-based activities in communicative lessons.

#### **20.1.4. Introduction to the activities**

During the second year at Eke Me Xi, I used the WP method of lumping groups of morphemes to develop morphological awareness materials, as opposed to my earlier work, as exemplified above in Lesson Example 4, which described Kwakwala morphology based on individual morphemes with morphophonemic rules. The lumps focussed on three groups that comprise Kwakwala words.

1. stems with or without derivations
2. tense, aspect, verum
3. inflections

The WP based morphological awareness activities were developed in collaboration with Leah Hubbard, the senior class teacher and Principal of Eke Me Xi. Together we to developed WP strategies to accompany communicative-experiential activities in Kwakwala. The focus of the initial materials was on morphological awareness. We utilized previous materials from short stories and dialogue used with the Senior class to develop activities with three stages of difficulty. First level activities focussed on differentiating one lump from another. Second level activities required students to

identify the three word parts, stem, tense-aspect, and inflection for each word. A word list supplemented the activity which included the full word along with translation. Third level activities also required students to identify the three word parts, however, the accompanying word list reduced the amount of inflectional information in the lists. This was done to acquaint the students with dictionary style entries, where inflections and tense-aspect are not ordinarily included in entries.<sup>95</sup>

During activities, students used different highlight markers to identify the required items. The utilization of previous materials and highlighting of word parts reduced the cognitive load for the activity and enabled students to focus on the task. Use of previous materials also mediated the activity by using Kwakwala words and settings with which the students were already familiar.

#### **20.1.5. Stage 1**

First stage activities were developed using dialogue and stories from communicative activities from earlier lessons. Each lesson was preceded by a review of the story/dialogue and a brief introduction of the task and focus. Students were given a copy of the worksheet without highlights which was also displayed on the overhead.

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<sup>95</sup> This is examined in Section 10.12, which concludes that only 2% of the entries in the First Voices Dictionary (First Voices, 2017) are inflected.

The example activity below, was developed from a worksheet originally designed to reinforce the WH question word |'wi-|. In the revised version, students first reviewed the WH question word |'wi-| by completing the Kwakwala translations. The students were then given instruction in English on Kwakwala past and future tense. The overhead projection was then used to highlight the tense markers as noted below. The students then completed the highlighting on their sheets.

The choice of items in the following examples focussed on future or past tense where the tense-aspect-verum "lump" contained only one item. The focus on the middle lump of inflections was specifically chosen to provide students with a starting point to recognize the three groups of morpheme lumps which compose a Kwakwala word.

Lesson example 6 Past and Future tenses

<b>Vocabulary:</b>			
<b>kəlwilas</b>	store	<b>ikútas</b>	higher area
<b>hamá'elas</b>	restaurant	<b>banúlas</b>	lower area at  Tsalgwadi
<b>amlilas</b>	hall – play place	<b>galgas</b>	swimming area
<b>pa'axt'a</b>	bridge	<b>tʔasagwis</b>	beach
<p>Answer the following questions in Kwakwala in the first column based on the English in the second column. Highlight the past marker <b> -xd </b> and the future marker <b> -tʔ </b> in pink. The example sentences are completed for you.</p>			
<b>Wíxdas le?</b>		Where have you been?	
Laxdan laxa kəlwilas.		I went to the store.	
Laxdan laxa _____.		I went to the restaurant.	
		I went to the hall-play place.	
		I went to the bridge.	
<b>Wítʔas le?</b>		Where are you going?	
Latʔan laxa amlilʔas.		I'm going to the hall-play place.	
		I'm going to the swimming area.	
		I'm going to the higher area.	

(Eke Me Xi, 2021q)

When the students finished their work, the teacher filled in the missing Kwakwala and encouraged students to participate in highlighting the tense markers on the overhead.

#### **20.1.6. Stage 2**

The next step in the development of morphophonemic awareness activities led to the differentiation of three morphological groups: stems (root with derivational suffixes), tense/aspect, and inflections. The following example Lesson Example 7 is a short dialogue which was used previously in dialogue activities. It was adapted and re-elicited from NILDP-CW (Wilson & Henderson, Advanced Kwakwala Lessons 2, 1982c). This illustrates the second groups of lessons, where students highlighted stems in one colour, tense and aspect markers in another, and inflections in a third colour. During the lesson I used the terms for lumped groups of morphemes: stem, tense-aspect, and inflections, and explained what each lump included.

The setting in Lesson Example 7 is based on locations around Tsulquate and the dialogue was adapted by Mary Henderson. The question ‘Have you seen my kids?’ is reasonable, as are the answers which indicate that the kids are down at the beach walking around (a common activity at low tide). The last two sentences exemplify a polite invitation from |Ada| and reply from |Ganadzi|. Lesson Example 7 is accompanied by a vocabulary list

intended to assist students by providing a word-by-word list with translations.

Lesson Example 7 Grammar Lessons -Transitive 2 Dialogue 1

Grammar Lessons -Transitive 2 Dialogue 1		
1. Highlight the stem word in <b>yellow</b> _____ 2. Highlight the tense and aspect markers in <b>pink</b> _____ 3. Highlight the person, location, and visibility markers in <b>blue</b> _____		
	Yaḱaṅtala Ada dlu Gaṅadzi	Ada and Gaṅadzi are talking.
Ada	'saṣ dukwalaḱan sasama'an?	Haven't you seen my kids?
Gaṅadzi	E, dukwala'amxdantḱaxis sasama'os laḱa t'ḱasagwis.	Yes, I saw them at the beach.
Ada	'Wigilaxda'ḱwi?	What were they doing?
Gaṅadzi	Oḱala'am kasi'le.	They were just walking around.
Ada	Amḱaxda'ḱw laḱ.	They always go there to play.
Ada	Kwaṅsaxdantḱaxwa 'nalax, gela la'itḱ kaṣ paḱ'ida'usaḱan alumasix kwaṅikw.	I was baking bread today, come in and taste some of my new bread.
Gaṅadzi	Olaḱalis ikis waḱdamos, ḱaxgan he'mix tḱuma ix'aga'i alumas kwaṅikw.	What you say is very good, because I really like fresh bread.

(Eke Me Xi, 2021q)

Like the first example, neither the student worksheets nor the worksheet projected on a white board contained highlighting. The teacher reviews the activity by highlighting the projected worksheet with the correct colours. The worksheet listed above is highlighted for the reader's convenience.

The word list in Lesson Example 9 includes the stem, tense/aspect, and some inflectional marking.

#### Lesson Example 8 Vocabulary

Vocabulary			
yak <sub>1</sub> ant <sub>1</sub> ala	talk	wa <sub>1</sub> dam	words
du <sub>1</sub> kw <sub>1</sub> ala	to see	t' <sub>1</sub> fasagwis	beach
l's <sub>1</sub> as	haven't you	he'mix	it is
sa <sub>1</sub> sam	children (same family)	t <sub>1</sub> tuma	very, really
ga <sub>1</sub> mg <sub>1</sub> alis <sub>1</sub> ala	walking around	ix'aga'i	good
kw <sub>1</sub> ansa	to make bread	p <sub>1</sub> ax'id	taste
g <sub>1</sub> ela	come (with me)	alumas	new, fresh
la'it <sub>1</sub>	go into house	kw <sub>1</sub> anikw	bread

(Eke Me Xi, 2021q)

### 20.1.7. Stage 3

A third activity is found in Lesson Example 9 Grammar Lessons - Transitive 2 Dialogue 2. In this dialogue, the speakers use the present tense, which is not marked in Kwakwala. The dialogue also uses inflectional marking proximal to third person not visible when referring to |Ada|’s husband and to |G̃anadzi|’s husband. The third activity represents a third stage in the development as the words listed in the supplementary word list do not contain many words marked with inflections. This word list is more similar to a dictionary style entry where inflections or tense/aspect marking are not (usually) indicated, such as the First Voices Kwakwala Dictionary (First Voices, 2017).

The instructional technique used in this three stage process is "scaffolding" (Bruner, 1983, p. 60). Scaffolding is a common educational technique where teachers provide supports for student learning (the scaffold) and then pull back the supports as a student becomes "skillful enough to manage" the activity (Bruner, 1983, p. 60). The first word lists students encounter contain the exact same words as the ones in the example sentences (the fully inflected word forms are the scaffold). Over time, the word lists begin to utilize the "base" forms of words that students have already seen. Finally, when the students have the knowledge of the relationships between fully inflected word forms and base forms, the word lists contain only the base forms, thereby removing the scaffold. See Section 29.23 for additional information as well as similar methods often

conflated with Scaffolding: Mediation 29.20 and Spotighting 29.25.

Lesson Example 9 Grammar Lessons - Transitive 2 Dialogue 2

Grammar Lessons - Transitive 2 Dialogue 2		
1. Highlight the stem word in <b>yellow</b> _____ 2. Highlight the tense and aspect markers in <b>pink</b> _____ 3. Highlight the person, location, and visibility markers in <b>blue</b> ____		
Ada	Ya <sub>ka</sub> ntala Ada dlu Ga <sub>na</sub> dzi la <sub>x</sub> eda gukwasa Ada.	Ada and Ga <sub>na</sub> dzi are talking in Ada's house.
Ga <sub>na</sub> dzi	'Wigiles ta'wanamos?	What's your husband doing?
Ada	La'mi he <sub>ta</sub> xis dugwa <sub>tsi</sub> , tuma galxe dugwa <sub>tses</sub> .	He is fixing (make better) his troller, his troller is really leaking.
Ga <sub>na</sub> dzi	He'am ik he <sub>ta</sub> xdamaxa dugwa <sub>tses</sub> , la'e d <sub>ta</sub> nigakwida duk'wanx.	It's a good time to fix the troller, the trolling season is closed.
Ada	'Wigilatis ta'wanama'us ugwaka?	What is your husband doing also?
Ga <sub>na</sub> dzi	Le la <sub>x</sub> Vancouver, alex sixwdamxsa ka'es kwamyatsi.	He went to Vancouver, to look for an engine for his purse seiner.
Ga <sub>na</sub> dzi	I's la <sub>x</sub> as didaga'e <sub>x</sub> sda <sub>la</sub> ?	Wouldn't you care for some tea?
Ada	Ke <sub>t</sub> , olakala'as ik.	Of course, that's really good of you.

(Eke Me Xi, 2021q)

## Lesson example 10 Vocabulary

Vocabulary			
ła'wānam	husband, wife,	ugwaka	also, as well
heła	make better	alex	look for
dugwałsi	troller	sixwdam	engine
galxa	leak in boat	k'wamyatsi	purse seiner
He'am	It's a	l's laxas	Wouldn't you care for ...
dłanigakw	not available, closed	didaga'exsdala	want some tea
dukwanx	trolling season	Keł	Yes, of course

(Eke Me Xi, 2021q)

### 20.1.8. Commentary

The morphological awareness WP activities that we developed for the Senior class provided students with a first step into Kwakwala grammar and dictionary methods where stems are often listed without tense-aspect and inflectional entries. Whenever possible, I used materials from our earlier activities. This was done to scaffold<sup>96</sup> the introduction of new concepts to support learning by drawing on previous activities, as well as ensure that the language in the lessons was situated and contained authentic language.

<sup>96</sup> From Bruner (1983, p. 60).

The concept of using communicative-experiential materials to provide language data for learning about Kwakwala grammar is not without challenges, however. Examples from the materials include difficulties with stem-derivations, tense-aspect-*veritas*, and inflections. For example, the tense-aspect section in Lesson Example 7 row 3 (see below) includes three markers: continuative, *veritas*, and past tense. In this example, *veritas* provides epistemic information that informs the listener that the speaker is very sure that she saw the children at the beach. In addition, the use of continuative aspect indicates that the speaker observed the children for a continuing period of time.

Lesson example 11 Three tense-aspect markers		
E, dukwala'amxdantłaxis sasama'os laxa t'łasagwis.		
e,	dukw-ala-'am-xd-antłaxis	
Yes	See-CONT-VER-Past- pro1.SBJ.INT.OBJ.POSS2	
sasama'os	laxa	t'łasagwis
children-Vis-POSS2	at the	beach
Yes, I saw them at the beach.		

(Eke Me Xi, 2021q)

Lesson example 11 (from Lesson Example 7 row 4) exemplifies three areas that might cause difficulty for Kwakwala learners. First, the plural marker  $|-xda'xw|$  is unusual

because it occurs after tense-aspect marking but before inflectional marking. Second |lak| (third person object pronoun) is used instead of an inflected pronominal suffix (enclitic). Third, there is no present tense marker in Kwakwala, and the translation indicates that the children ‘always’ play at the beach, suggesting a “continuative or habitual” action. Boas describes the lack of present tense as “The verb without a specific tense suffix does not imply time” (1947, p. 288).<sup>97</sup>

Lesson example 12 no tense marker		
Amlaxda'xw lak.		They always play there.
amla-xda'xw	lak	
play-plural	AUX-pro3.PROX3	

(Eke Me Xi, 2021q)

Kwakwala learners need to acquire the competency to identify when to use the plural marker, when to use pronominal forms versus pronoun forms, and how to interpret the lack of tense-aspect-verum markers in some words, as noted in Lesson example 11.

Learning Kwakwala from materials that are not constrained or focussed to specific structural types provides students with authentic and situated language, however, these

<sup>97</sup> Littell notes “There are three main non-present tenses in Kwak’wala, =λ (future), =xd (recent past), and =u† ~ =wə† (distant past) (2016, p. 554).

materials require supports to assist non-fluent teachers and learners. For example, learners need to be aware that a sentence without tense marking conveys a general sense of time including present, continuative, past, and future, such as Lesson example 12, “They always play there.”<sup>98</sup> Listings of verb paradigms, for example, need to include usage information related to tense and aspect marking. In the following section, I examine the potential of word paradigms to support Kwakwala learners, teachers, and researchers. I also detail the challenges of creating word paradigms within a program focussed on communicative-experiential activities.

## **20.2. Dictionaries and word lists**

NILDP-CW and Eke Me Xi materials included word lists to accompany materials but did not develop formal dictionaries. In both of these programs, word lists were automatically compiled from the words used in the materials (See 21.7 for an overview of the initial development of this method). Although these lists may appear like those in a dictionary, word lists have less formal organization and include separate entries for word stems and word stems with tense-aspect and inflections. In the NILDP-CW programs, the resulting word lists were coded to reference lesson and semantic categories.

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<sup>98</sup> See Littell (2016, pp. 554-555) for further discussion on tense.

In distinction, most other Kwakwala works listing words take a different approach. The approach is based on dictionary forms. The unpublished Kwakiutl Dictionary by Boas (1948) amalgamates all word derivations based on the word stem. For example, the NILDP-CW and Eke Me Xi word lists for |q̣'əla| "to live, to be alive" and |q̣'əlayu| "grandchild, reason for living" are separate entries, whereas Boas lists subentries for |q̣'əla| including |q̣'əlb'i| "game is not killed by first shot" and |q̣'əla'iqala| "not to care about or to feel in favour of" (1948, p. 366). Other approaches also contrast with NILDP-CW and Eke Me Xi words. Rath (1981), for example, indicates the following editorial note for Heiltsuk (a language closely related and just North-West of mainland Kwakwala):

The majority of the dictionary entries do not contain category B suffixes [i.e., tense, aspect, verum], and no entry contains a category C suffix [i.e., inflectional markers]

(Rath, 1981, p. 146).

Other Kwakwala Dictionaries include a small number of inflected entries. These are First Voices (2017), Grubb (1977), and Shaw (2006a; 2006b).

### **20.3. Word paradigms in language education**

Word paradigm tables are one method to provide support for inflected and polysynthetic languages such as Kwakwala. Paradigms can be used to "enumerate" a variety of

paradigmatic relationships in a language including inflections, derivations, and phonology (Bauer, 2019, p. 153). For educational purposes, however, most paradigms focus on tense, aspect, and inflections when resulting forms are not consistent (i.e., not easily predictable). Paradigms in educational settings are listed in tables which are arranged into groups that exhibit similar forms. In European languages, word paradigms are commonly used to develop student supports for inflected languages. Examples include Latin (Prior & Wohberg, 1995) German (Listen, Di Donato, & Franklin, 2005), and French (Kendris & Kendris, 2007). Publications include word paradigms in table format that list stem+suffix combinations. Tables in Latin, for example, list verbs (conjugations) and nouns (declensions). Table 60 and Table 61 exemplify the Latin word-forms for "girl" and "boy" when they are used as subject or object (examples from Griffin (1992, p. 9)).

Table 60 Latin nouns: paradigm for puella "girl" feminine, declension 1

nominative subject form	puella "girl" (singular)	puellae "girls" (plural)
accusative object form	puellam "girl" (singular)	puellās "girls" (plural)

(Griffin, 1992, p. 9)

Table 61 Latin noun paradigm for puer "boy" masculine, declension 2

nominative subject form	puer "boy" (singular)	pueri "boy" (plural)
accusative object form	puerum "boy" (singular)	puerōs "boys" (plural)

(Griffin, 1992, p. 9)

Table 60 and Table 61 exemplify some of the differences between the stem-suffix combinations between declensions 1 and 2. For example, the subject plural form for ‘girls’ in the sentence ‘the **girls** came to school’ adds the suffix "-a" to the stem for ‘girl’, while the sentence ‘the **boys** came to school’ adds the suffix "-ōs" to the stem for ‘boy’. Latin students, therefore, have guides that list groupings of words in table form.

Paradigm tables are considered an effective strategy for Indigenous languages by language teachers. This topic was discussed at the 2019 Linguistic Society Association workshop: "Multilingualism, contact and documenting endangered Languages" meeting (Grenoble & Martin, 2019). Participants at the workshop indicated that their language teacher associates found paradigm resource lists helpful in their practices. Examples of word paradigms for Kwakwala are included in Boas' Kwakiutl Grammar (1947, pp. 261-263). Paradigm tables are used to illustrate deictic marking for Heiltsuk, a closely related

language to Kwakwala (Rath, 1981, pp. Vol1 133-143). Online word paradigm tables for use in educational settings include Innu (Baraby & Junker, 2014).

Although paradigm tables are helpful for language teachers and researchers engaged in lesson and materials development, the process of developing paradigm tables and dictionaries requires a sophisticated knowledge of the language. Not only does one need to account for morphophonological variations that occur through the combinations of stems, derivations, tense/aspect, and inflections, but also whether or not there are other grammatical or semantic constraints that occur. In addition, decisions need to determine what is/are the stem form(s) for each word. Word paradigm supports for Kwakwala are particularly difficult due to the many words that are lexicalized. Lexicalized words are stems where the root-derivational suffix combinations have derived meanings that are not connected with the meaning of the parts, see Section 15.2.

Dictionaries are the companion to word paradigms. Bilingual dictionaries include "stem" forms of words, translations, and usage examples. The stem forms found in dictionaries provide the basic information of a word while the paradigm tables list the words that result from stem-inflection combinations. For example, a beginner's Latin dictionary entry for 'girl' might include "puella *girl* feminine, declension 1." A paradigm table for 'girl' will list all of the various stem-suffix forms for 'girl'.

### 20.3.1. Boas verb paradigms

Boas' verb paradigm analysis and tables exemplify the various morphophonemic variations that occur when inflections are suffixed to Kwakwala verbs. The basic paradigm of pronominal suffixes is listed in Tables I, II, and II (a) (Boas, 1947, p. 252). These tables include the inflectional forms that code for person, mood, and location. If the various inflections noted in Tables I, II, and II (a) (Boas, 1947, p. 252) never varied regardless of the verb to which they attached, we would still have a paradigm, but would only need one paradigm table to exemplify all of the various inflections. As in many languages, however, when Kwakwala inflections occur on verbs the forms vary from verb to verb.

Boas' analyzed Kwakwala verb inflections combinations into six paradigms (1947, pp. 260-263). Boas provides a table-based listing of example words that illustrate the morphophonemic interaction between stems and inflections. This section includes a brief overview of Boas' paradigms and provides comments on what we might learn from his analysis. Each of the six paradigm groups represent verbs that share similarities in morphophonemics and/or semantics.

Boas' verb paradigms include pronominal, location, and visibility marking as well as indicative and interrogative moods. Paradigm 1 is the general rule and conforms to the

tables in (Boas, 1947, p. 252) which are summarized in Table 62. No examples are provided for this table; however, one would anticipate that the Paradigm 1 inflections would apply to any verb that does not meet the criteria of the other 5 paradigm types.

Boas notes the following about Paradigm 1:

The first class add the pronouns to the terminal consonant. When an impossible combination occurs like dk, a very short vowel is introduced: dak.

(Boas, 1947, p. 260)

Table 62 List of inflections relevant to paradigm tables

Indicative	Description
-an	1st person subject indicative
-as	2nd person subject indicative
-k	3rd person subject indicative proximal to 1st person visible
-ga	3rd person subject indicative proximal to 1st person not visible
-ux	3rd person subject indicative proximal to 2nd person visible
-u'	3rd person subject indicative proximal to 2nd person not visible
-iq	3rd person proximal to 2nd person visible
-i'	3rd person subject indicative proximal to 2nd person not visible

(Boas, 1947, p. 252)

Table 63 lists the Paradigm 2 table for *máx'id* "to strike," Boas (1947, p. 261). These entries are the same as Paradigm 1 (Boas, 1947, p. 252) except for the forms for third person proximal to third person (highlighted). Columns 1, 3 and 5 have been added for additional information and Row 3 provides the morphological breakdown for the first entry. Entries are in the U'mista orthography.

Table 63 Verb paradigm 2 for *m̄ax'id* 'to strike'

inflection lump	indicative		interrogative	
(1) pro1.SBJ.IND/INT	<i>m̄ax'id̄an</i>	I strike.	<i>m̄ax'ida'ān</i>	Do I strike?
	<i>m̄ax-x'id-ān</i> strike-x'id-pro1.SBJ.IND		<i>m̄ax-x'id-a'ān</i> strike-x'id-pro1.SBJ.INT	
(2) pro2.SBJ.IND/INT	<i>m̄ax'id̄as</i>  ( <i>m̄ax'idits</i> ) <sup>99</sup>	You  strike.	<i>m̄ax'id̄as</i>	Did you  strike?
(3) pro3.SBJ.IND/INT. PROX.1.V+	<i>m̄ax'id̄ak</i>	He-she  strikes.	<i>m̄ax'ida'ik</i>	Does he-she  strike?
(4) pro3.SBJ.IND/INT. PROX.1.V-	<i>m̄ax'idga'</i>	He-she  strikes.	<i>m̄ax'ida'iga</i>	Does he-she  strike?
(5) pro3.SBJ.IND/INT. PROX2.V+	<i>m̄ax'idūxw</i>	He-she  strikes.	<i>m̄ax'idūxw</i>	Does he-she  strike?
(6) pro3.SBJ.IND/INT. PROX2.V-	<i>m̄ax'idu'</i>	He-she  strikes.	<i>m̄ax'ida'u'</i>	Does he-she  strike?
(7) pro3.SBJ.IND/INT. PROX3.V+	<i>m̄ax'ide'</i>	He-she  strikes.	<i>m̄ax'ida'e</i>	Does he-she  strike?
(8) pro3.SBJ.IND/INT. PROX3.V-	<i>m̄ax'ida'</i>	He-she  strikes.	<i>m̄ax'ida'ya</i>	Does he-she  strike?

(Boas, 1947, p. 261)

<sup>99</sup> No note is provided regarding this alternate variation in Boas (1947, p. 261).

Differences between paradigm 1 and paradigm 2 are in third person forms. In Paradigm 1, third person subject indicative proximal to third person visible is |-ik| and third person subject indicative proximal to third person not visible is |-i| (Boas, 1947, p. 252). Instead, the endings in Paradigm 2 above end in |-i'| and |a'| respectively (i.e., |māx'idi'| and |māx'ida'| (Boas, 1947, p. 261). Boas includes a second class of Paradigm 2 verbs to account for monosyllabic stems. Variations from Paradigm 1 are highlighted.

Table 64 Verb Paradigm 2 alternate for |la| ‘to go’

person	indicative		interrogative	
(1) pro1.SBJ.IND/INT	la <sub>n</sub>	I go.	la'a <sub>n</sub> (a)	Do I go?
	la-a <sub>n</sub> go-pro 1.SBJ.IND		la-a'a <sub>n</sub> go-pro 1.SBJ.INT	
(2) pro2.SBJ.IND/INT	las	You go.	lasa	Did you go?
(3) pro3.SBJ.IND/INT. PROX.1.V+	lak	He-she goes.	la'ik	Does he-she go?
(4) pro3.SBJ.IND/INT . PROX.1.V-	lik	He-she goes.	No entry	
(5) pro3.SBJ.IND/INT. PROX2.V+	lox	He-she goes.	la'oxw	Does he-she go?
(6) pro3.SBJ.IND/INT PROX2.V-	No entry		No entry	
(7) pro3.SBJ. IND/INT. PROX3.V+	le	He-she goes.	la'e	Does he-she go?
(8) pro3.SBJ.IND/INT. PROX3.V-	la'a'	He-she goes.	la'e'ya	Dose he-she go?

(Boas, 1947, p. 261)

Similar to Paradigm 2, Paradigm 3, 4, and 6 verbs show morphophonemic variations in various phonological environments.

Paradigm 5 verbs form a paradigm class that share the same endings. Boas does not identify specific morphophonemic properties for this group and lists the criteria for Paradigm 5 as stems containing:

passives |-ayu|, |-ano|, and |-su|  
|-gu| "meeting"  
body parts |-xu| "neck" |-stu| "eye"  
|-hi'gwi'su| "to break unintentionally," |-hoʔo| "to attack" |-giʔsu| "to beg"  
|-qasu| "to promise a feast" and |-tʔa'yu| "to change places. Also included are some stems with final |-u|

(Boas, 1947, p. 262)

### 20.3.2. Commentary: Boas verb paradigms

Although the analysis of six types of verb paradigms describes the variations that occur, the environment descriptors that accompany the tables are not sufficiently clear. For example, Boas states for the first paradigm "The first class add the pronouns to the terminal consonant" (1947, p. 260). It would be difficult, therefore, to predict which paradigm type a stem (or stem with tense-aspect markers) might fit. In addition,

inflectional variations in dialect and differences noted in present-day Kwakwala will require a further review of Boas' inflectional analysis.<sup>100</sup>

Despite the shortcomings of the verb paradigm tables in Boas (1947, pp. 252-263), Boas' work does provide a starting point in developing verb paradigm tables. These include:

- Morphophonemic variations have some degree of predictability between inflectional markers and the preceding stems or stems with tense-aspect markers.
- Morphophonemic variations affect the lump of inflections, not just the pronominal markers, as can be noted in Table 63.
- Paradigm 1 |-ik| (third person subject indicative proximal to third person visible) is realized as |-i| in Paradigm 2; and Paradigm 1 |-i'| (third person subject indicative proximal to third person not visible) is realized as |a'| in Paradigm 2.
- Paradigm tables can be grouped to account for inflectional variations.

Inflection variations are evident and occur based on the preceding stem or stem aspect-tense forms (when present). For example, |m̥ax'id| 'to strike' (strike + x'id) as in Paradigm 2, and |m̥axa| 'to strike with fist' in Paradigm 3, as illustrated in Table 65.

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<sup>100</sup> See, for example, Sardinha (2020) and Littell (2016).

Table 65 Variations in verb paradigm types

Paradigm	Stem (tense-aspect)	Form	Translation
Paradigm 2	m̄ax'id	m̄ax'id̄as	'you strike'
Paradigm 3	m̄axa	m̄axas	'you strike with fist'

(Boas, 1947, p. 261)

- Verb paradigm tables should include the lump of inflections including person, mood, locational and visibility marking.
- Verb paradigm tables will need to account for the differences between verb stems and verb stems with tense and aspect marking.
- Further analysis is needed to determine whether the morphophonemic variations in verb morphology are predictable through the general rules in the language or are unique to the morphophonemics related to stem, tense-aspect, and inflection usage.

#### 20.4. Example word paradigm lists

The example word paradigms in Sections 20.5.1 to 20.5.4 are based on data from my research and activities for the NILDP-CW program in the Port Hardy and Campbell River areas.<sup>101</sup> The focus on communicative-experiential activities at Eke Me Xi did not

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<sup>101</sup> Items written in the NAPA orthography are from the NILDP material, and those written in U'mista are from Eke Me Xi materials (unless otherwise noted).

provide opportunities to develop the same range of paradigms as those developed during the NILDP-CW activities, which focussed on a grammatical-functional approach. In addition, the data I collected from 1974 to the present does not contain the full range of deictic inflectional marking as those presented in Boas (1947) in Table IIa Pronominal Demonstrative Suffixes in Boas (1947, p. 252 Table IIa). See Section 18.9.3 for a discussion on demonstrative marking. For example, there is no evidence in NILDP-CW or Eke Me Xi data of deictic marking on first or second person subject pronominals on words that precede other pronominals (i.e., object or other object).<sup>102</sup>

#### **20.4.1. Word paradigms and dictionaries**

The challenge in developing paradigms is determining the form (or forms) to "represent" the base word, as in a dictionary entry. Boas, for example, uses the third person base singular form unmarked for tense, aspect, or verum: |la| 'to go' (1947, p. 261). However, as the third person pronominal is not marked and rarely used in speech acts, it may not be an effective form to solely represent a word in a dictionary for students. Boas includes verb bases with aspectual marking in addition to the base forms for some entries in Kwakiutl Dictionary (1948). For example, |buł(ala)| 'to swell' [to swell + continuative

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<sup>102</sup> I have not been able to fully review the Boas' notes regarding pronominals and demonstratives contained in Boas' notebooks (Boas, 2020), which are currently being digitized at the American Philosophical Society. The examples contained in Boas (1947) do not provide the range of examples and usage notes to verify his analysis.

aspect] (1948, p. 118). Determining the most effective method of listing verbal forms in dictionaries for Kwakwala learners is an area for further research.

## **20.5. Word paradigms and situated documentation**

Developing paradigm tables for a full range of verbs requires a large corpus of data. This is particularly true when one is developing materials based on a communicative model and situated documentation, where the researcher may not have opportunities to elicit all forms at the same time. The tables that follow include examples of paradigms relating to inflectional marking and verb-tense-aspect.

### **20.5.1. Intransitive**

Table 66 is a paradigm for the verb ‘to go’ developed for “Introduction to Kwakwala 11” (SD85, 2010). The table includes the three first person pronominals, the second person pronominal, and four forms for the third person: the base form which is not marked, and three forms with location markers: proximal to 1st person, 2nd person, and third person.

Table 66 Intransitive indicative examples in future tense

Subject	Code	Example	Translation
(1) - <u>an</u>	pro1.SBJ.IND	Lat <u>an</u> .	I am going.
(2) - <u>ants</u>	pro1inc.SBJ.IND	Lat <u>ants</u> .	We (speaker and listener) are going.
(3) - <u>anu'xw</u>	pro1exc.SBJ.IND	Lat <u>anu'xw</u> .	We (speaker and others) are going.
(4) - <u>as</u>	pro2.SBJ.IND	Lat <u>as</u> .	You (listeners) are going.
(5) - <u>∅</u>	pro3.SBJ.IND	Lat <u>ta</u> .	He-she-it-they is/are going.
(6) -x or -k	pre3.SBJ.IND.PROX1.V+	Lat <u>ax</u> .	He-she is going.
(7) - <u>uxw</u>	pre3.SBJ.IND.PROX2.V+	Lat <u>uxw</u> .	He-she is going.
(8) -i	pre3.SBJ.IND.PROX3.V+	Lat <u>ti</u> .	He-she is going.

(Eke Me Xi, 2021b)

Table 66 differs from Boas (1947, p. 261) by including all three first person markers and limiting the third person locational markers to "visible." This table is designed for classroom-based activities that would initially involve dialogue with visible referents.

### **20.5.2. Transitive**

Table 67 provides examples of 1st person subject and 3rd person object pronominal forms for the verb 'to see'. The transitive data mainly come from NILDP-CW activities.<sup>103</sup> In these examples, the verb |duq<sup>w</sup>a| 'to see' is followed by the continuative suffix |-əla| and the veritas suffix |-m̃|. The inflection markers are presented in portmanteau form as well as subject and object components. For example, the portmanteau form in Table 67 (1) |-ənλaχ<sup>w</sup>| includes a subject component |-ənλ| 'first person subject indicative' and an object component |-aχ<sup>w</sup>| 'third person object proximal to second person and visible to the speaker'.

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<sup>103</sup> As noted earlier, examples written in the NAPA orthography are taken from NILDP-CW data, whereas examples in the U'mista orthography are from Eke Me Xi data.

Table 67 Transitive 1st person subject pronominal - 3rd person object pronominal

Verbal form	Trans.	Portmanteau form	Subject component	Object component
(1) Duqəlamənλaǰʷ.	I see him-her-it (near 2nd visible).	-ənλaǰʷ	-ənλ pro1.SBJ.IND	-aǰʷ pro3.OBJ.PRO X2.V+
(2) Duqʷəlamənλaǰ.	I see him-her-it (near 3rd visible).	-ənλaǰ	-ənλ pro1.SBJ.IND.	-aǰ pro3.OBJ.PRO X3.V+
(3) Duqʷəlaməncaqʷ.	We see (inc) her-him-it (near 2nd visible).	-əncaqʷ	-ənc pro1inc.SBJ.IND.	-aqʷ pro3.OBJ.PRO X2.V+
(4) Duqʷəlamənuʔxʷəqʷ.	We (exc) see him-her-it (near 2nd visible).	-ənuʔxʷəqʷ	-əqʷ pro1exc.SBJ.IND.	-əqʷ pro3.OBJ.PRO X2.V+
(5) Duqʷəlamənuʔxʷəq	We (exc) see him-her-it (near 3rd visible).	-ənuʔxʷəq	ənuʔxʷ pro1exc.SBJ.IND.	-əq pro3.OBJ.PRO X3.V+

(Eke Me Xi, 2021b)

Table 68 provides examples of transitive sentences where the object is a nominal. In these examples, the pronominal inflection contains portmanteau forms that include first person subject and object marking.

Table 68 Transitive 1st person subject pronominal - third person pronominal object

Verbal form	Trans.	Portmanteau form	Subject component	Object component
(1) Duḱwala'mantłaxgada ḱadayuk.	I can see this pen (near 1 visible).	-antłaxgada	-antł pro1.SBJ.IND	-xgada pre3.OBJ.PROX1.DET
(2) Duq <sup>w</sup> ələnłaxo <sup>w</sup> da waci <sup>ł</sup> .	I see the dog (near 2 visible).	-ənłaxo <sup>w</sup> da	-ənł pro1.SBJ.IND	-xo <sup>w</sup> da pre3.OBJ.PROX2.DET
(3) Duq <sup>w</sup> ələnłaxida waci <sup>x</sup> .	I see the dog (near 3 visible).	-ənłaxida	-ənł pro1.SBJ.IND	-xida pre3.OBJ.PROX3.DET

(Eke Me Xi, 2021b)

The nominals in each of the examples include postnominal visibility marking indicating visible to speaker, examples (1) and (2) |ḱadayuk| and |waci<sup>ł</sup>| are marked with |-k| and |-ł| respectively. These forms are the same as those in (Boas, 1947, p. 252 Table II). Example (3) in Table 68, however, uses the postnominal |-x| for 'visible near 3rd person'. This is not the same as the form found in Boas, which lists either |-e| or "not marked" (Boas, 1947, p. 252 Table II).

Table 69 below exemplifies second person subject pronominals and third person object pronominals with the verb ‘to give’: | Ċoʔəmλ-| ((Tso-'əm-tł-) "give-VER-FUT."

Table 69 2nd person subject pronominal and third person object pronominal

verbal form	translation	portmanteau	subject	other object
(1) Ċoʔəmλəsiq <sup>w</sup> .	You give it to him/her (near 2 visible).	-əsiq <sup>w</sup>	-əs pro2.SBJ.IMP	-siq <sup>w</sup> OTH.PROX2.V+
(2) Ċoʔəmλəsiq.	You give it to him/her (near 3 visible).	-əsiq	-əs pro2.SBJ.IMP	-siq OTH.PROX3.V+

(Eke Me Xi, 2021b)

Table 67, Table 68, and Table 69 above illustrate that deictic marking is found on object/other object markers in transitive sentences but not on first person or second person subjects.

### **20.5.3. Paradigms for tense-aspect-verum**

Paradigm tables can also be used for tense, aspect, and veritas listings. Table 70 exemplifies a paradigm with tense (past, recent past, present (not marked) and future), aspect (continuative, change of state, continuative state or action), and verum. From a language learner perspective, it is important to have a resource that provides information on when to use these markers and in which combinations.

Table 70 Paradigms with tense, aspect, and veritas

Tense-Aspect-VER	Example	Translation	Dialect
no marking	Pu'yān.	I'm hungry.	B
-m  verum	Pu'y'amañ.	I am hungry (it is true).	B
-x'id  change of state	Puskax'idān.	I just became hungry.	K
-x'id  change of state	Hamx'idaxda'xw.	They are eating now.	K
-m  verum  -x'id  change of state	Kitse'mas hamx'ida?	Have you not eaten?	B
-x'id  recent past <sup>104</sup>  -x'id  change of state	Hamx'ididus 'watsixus dagansi.	Your dog ate your socks.	B
-ala  continuative	Gukwalañ lax Tsalgwadi.	I live at Tsulquate.	B
-ala  continuative (position or action)	Manxwaxuxw Wisa.	Wisa is smiling.	B
-ala  continuative (position or action)  -ala  continuative	Kakatama laxa gəngənanəm mənx <sup>w</sup> aʔala.	He-she is taking pictures of the smiling children.	Q
-tʃ  future tense	Latʃan tseʃ.	I am going to get water.	Q
-xd  past tense	La'amxdan tsantsankwa.	I have washed my hands.	K

(Eke Me Xi, 2021b)

<sup>104</sup> The recent past tense marker |-x'id| is not frequent in the NILDP-CW or Eke Me Xi corpus and is difficult to distinguish from |-x'id| 'change of state,' e.g., |Aʔam kwax'id | 'it grew just lately.' Recent past |-x'id| does not undergo the same morphophonemic variations as |-x'id| 'change of state.' See Boas (1947, p. 366) for environment variations.

#### 20.5.4. Paradigms and deictic marking

The following tables include example "transitive" paradigms that include deictic marking with subject and  $|\text{-}\check{x}|$  objects and then with  $|\text{-s}|$  other objects.

Table 71 provides examples of 3rd person subjects and objects with deictic marking. The examples begin with the same stem-tense/aspectual combination  $|\text{Duq}^w\text{-}\check{\text{a}}\text{la-}\check{\text{m}}\text{-}|$  "see-CONT-VER" and are followed by third person subject inflections with deictic marking. The deictic markers in Table 71 use the labialized variant  $|\text{-u}\check{x}^w|$  for proximal to second person and spirantized variant  $|\text{-i}\check{x}|$  for proximal to third person. Boas (1947, p. 252 Table II) lists these as  $|\text{-u}\check{x}|$  and  $|\text{-iq}|$  respectively.

Table 72 has example sentences with verbs 'walk, feel, taste, see, hear' and full word body parts, for example, 'I feel with my fingers'. These sentences illustrate the use of the other object marker  $|\text{-sa}|$  in these constructions.

Table 73 contains example sentences from game playing and dialogue materials. These include a variety of inflections including  $|\text{-}\check{x}\text{a}|$  objects and  $|\text{-sa}|$  other objects, demonstratives, and possessives. These examples illustrate the range of structures that occur in communicative activities developed for Eke Me Xi.

Table 71 Transitive third person subject and pronominal object with demonstratives

Verbal form	Trans.	Portmanteau	Subject	Object
(1) Duq <sup>w</sup> əlamuχ <sup>w</sup> aq <sup>w</sup> .  Duq <sup>w</sup> -əla-n̄- see-CONT-VER	he-she  sees him-  her	-uχ <sup>w</sup> aq <sup>w</sup>	-uχ <sup>w</sup>  pro3.SBJ.IND.  PROX2.V+	-aq <sup>w</sup>  pro3.OBJ.  PROX2.V+
(2) Duq <sup>w</sup> əlamuχ <sup>w</sup> aq.	he-she  sees him-  her	-uχ <sup>w</sup> aq	-uχ <sup>w</sup>  pro3.SBJ.IND.  PROX2.V+	-aq  pro3.OBJ.  PROX3.V+
(3) Duq <sup>w</sup> əlamixaq <sup>w</sup> .	he-she  sees him-  her	-ixaq <sup>w</sup>	-ix  pro3.SBJ.IND.  PROX3.V+	-aq <sup>w</sup>  pro3.OBJ.  PROX2.V+
(4) Duq <sup>w</sup> əlamixaq.	he-she  sees him-  her	-ixaq	-ix  pro3.SBJ.IND.  PROX3	-aq  pro3.OBJ.  PROX3.V+
(5) Duq <sup>w</sup> əlaxda?χ <sup>w</sup> m̄uχ <sup>w</sup> əq <sup>w</sup> .	they see it	-uχ <sup>w</sup> əq <sup>w</sup>	-uχ <sup>w</sup>  pro2.SBJ.IND.  PROX2.V+	-əq <sup>w</sup>  pro3.OBJ.  PROX2.V+

(Eke Me Xi, 2021b)

Table 72 Eke Me Xi examples: body parts

Kwakwala	English
Kasantłasan gugagwa'yu.	I walk with my feet “it is walking with my feet.”
Pixw'itantłasan k'wakwaxtsani.	I feel with my fingers.
Hamx'iditłasan k'wakwaxtsani.	I eat with my fingers.
Gansgas dugwałgos tsamalaxtsani.	How many fingers do you see?
Paqalantłasan sams.	I taste with my mouth.
'Watłalantłasan paspa'yu.	I hear with my ears.
Pixwalantłasan a'yasu.	I feel with my hands.

(Eke Me Xi, 2021b)

Table 73 Eke Me Xi examples from games and stories

Kwakwala	English
Bagwānsasus ānitsakus laxeda t̄saxka'atsi.	Visit your aunt at the hospital.
Wat̄ta'masuxwe 'nule'os laxeda Ham'e ka's kaxwa.	Ask your older brother at the Ham'e for your shopping.
Wal̄it̄ta'masuxwa āmlanx laxeda āmlilas.	Find out the schedule at the play place.
Ḡwet̄a'asan laxan d̄lid̄ad̄tola.	That is the way I am to my relatives.
Ka' xakwamas kan habstanda'atsan kadakw.	For the bark to dye my cedar bark.
Ax̄ax̄tudzosus tsep̄idziyakus.	Put on your dance apron.
Bo'want̄as  Peter  laxa pa'ax̄tala.	I'm going to leave Peter at the bridge.
Ḡwix'ida'mas kad̄adzuda'asan waḏam.	Can you try to write my words?
Bax̄batamasant̄asan kuyayu.	I cut myself with a razor.

(Eke Me Xi, 2021b)

## 21. Technical Appendix: Word lists and databases

The "Word lists and databases" appendix includes background information on the word lists and databases I developed and referenced during the study. Details for each are included in the sub-sections below. The main database serves as the central repository for study data. I developed this to house the language materials for the study from class materials and place names in MS Access. The entries include Eke Me Xi materials and my previous research relevant to the development of the Eke Me Xi materials and the place name study. Data from the main database were used in four separate special purpose databases. These are:

- MS Access relational database for sentence examples developed for the concordance analysis inflections and the curriculum in Section 10, and the variations in post nominal marking examined in Section 10.13.
- NVivo database housing the ethnographic coding of the multimodal data from 2013 and 2018 videos examined in Section 11.
- The Geomapping database of the territories of the |Gwa'sala-'Na'kwaxda'xw| developed by the place name project research team (Gwaʔsəla-Ŋakʷaxdaʔxʷ Treaty Department, 2021).
- The online database housed on the "Our Voices Our Stories" website which is accessible to the school and the community (Wilson P. , 2020e).

The first three above are discussed in this section and the online database is presented in Section 25, Online access to study materials.

Data included in the main database and used in the analysis come from my own records and notes. Data includes |Bakwámkala|, |Kwakwala| and |Gutsala| word lists and materials from the Canada Works project (1978-1979), research notes (1974-1986), and draft NILDP-CW materials in School Districts 72 and 85. Word lists include:

- Wilson and Johnny: Gwa'sala children's dictionary and fishing terms (1978)
- Wilson and Walkas: Xa'isala word list (1978b).
- Wilson & Henderson: Kwakwala Word List (1982b).
- Wilson, Wallas, & Peters Ĝuĉala Word List (1982b).

Place name data includes notes and activities from the geomapping project activities and research with James Henderson.

- Gwaʔsəla-Ñakʷaxdaʔǰʷ Treaty Department: Gwaʔsəla-Ñakʷaxdaʔǰʷ Territory Map (2015), Draft list of Gwaʔsəla-Ñakʷaxdaʔǰʷ place names (2020).
- Wilson and Henderson: Place Name Charts (1982a).

Word lists and dictionaries referenced in the study are listed below. These works were not integrated into the database.

- First Voices Kwakwala Dictionary (First Voices, 2017).

- Grubb: A Practical Kwakwala Orthography and Dictionary (Grubb, 1977).
- Updated wordlist based on Grubb (1977) developed by Shaw (2006a).
- Boas: Kwakiutl Dictionary (Boas, 1948), and Geographical Names of the Kwakiutl Indians (Boas, 1934).
- Lincoln & Rath: North Wakashan Comparative Root List (Lincoln & Rath, 1980).
- Rath: A Practical Heiltsuk-English Dictionary (Rath, 1981)

### 21.1. Main Relational Database

The main MS Access relational database contains words and sentences from lessons, stories, geomapping activities, and general elicitation including those from my current and earlier research. The data is coded for all speaker colleagues and dates. It also contains semantic codes and grammatical coding to indicate whether an entry has one or more inflections (i.e., not a base form of the word).<sup>105</sup> The database was developed to house the data resulting from the study including place names and the lessons and stories developed for Eke Me Xi. It also contains word lists and sentence examples from word list data that were used in lesson development and the analysis. Data is coded for three dialects |Kwakwala|, |Gutsala|, and |Bakwamkala| and two subdialects of |Bakwamkala|: |Nakwala| and |Gwatsala| (for the |'Nakwaxda'xw| and |Gwa'sala| respectively).

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<sup>105</sup> The inflection code (#IN) was used to differentiate between inflected words and base codes for first round coding in Section 10.12.

## 21.2. Inflection database

The main MS Access database was adapted to assist with the analysis examining the range of inflections in school materials and connections with the curriculum. I developed the resulting inflection database in order to connect words with a table of inflections. It also provides coding for word position in sentences. The resulting inflection database was used to examine three different questions:

1. First round coding examined the differences between the degree of inflectional marking in the word lists developed from the grammatical-functional NILDP-CW materials (Wilson & Henderson, Kwakwala Word List, 1982b) and the communicative-experiential materials developed in the Eke Me Xi materials (Wilson P. , Bakwamkala Word List, 2017a). Additional comments regarding the entries in the First Voices Kwakwala dictionary (First Voices, 2017) result from Eke Me Xi class activities designed to teach students how to use the resource.<sup>106</sup>
2. Second round coding examined the percentage of inflected words versus uninflected words in NILDP-CW and Eke Me Xi sentence examples. The samples from NILDP-CW and Eke Me Xi materials are compared to examine the range of inflections and whether or not the language materials demonstrate any changes between the 40-year difference in materials.

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<sup>106</sup> The class activities which utilized the First Voices Dictionary occurred in 2017 and reflect the website at that moment in time. The First Voices Kwakwala site continues to evolve. For example, the current site includes Kwakwala phrases (First Voices, 2021).

3. Third round coding examined the range of inflections for each inflectional category in NILDP-CW and Eke Mi Xi sentence examples. As noted in 10.13, this examines the evidence in order to:
  - to uncover how effectively the activities reflected a range of language,
  - to compare the materials to curriculum requirements,
  - to determine whether differences in language structures might be noted between the NILDP-CW and Eke Me Xi data sets.

In summary, I hypothesized that the three coding rounds would support the following conclusions:

- a. Both NILDP-CW and Eke Me Xi word lists would contain a diversity of inflections.
- b. NILDP-CW word lists would contain a greater range of inflections and Eke Me Xi materials would focus on curriculum expectations (SD85, 2010).
- c. NILDP-CW materials would provide a wider diversity of inflections than Eke Me Xi based on the grammatical-functional focus in the NILPD-CW materials, which were developed with attention to grammatical structure rather than communicative activities.

In addition, I anticipated that all three coding rounds might uncover dialect differences.

### 21.3. Inflectional analysis sentence database

The analysis of the word inflections in third round coding in Section 10 was developed by creating a separate data table from the example sentences in the main database and a relational data table to code WP inflectional lumps.

#### 21.3.1. Format and Field Codes

Table 74 contains a capture from the first group of fields in the main database. Following the table are explanations of the field codes.

Table 74 Example from main database (section 1)

ID	SH	NS-root1	NS-root2	NAPA	Boas-1940s	Nak-KwaWord	Engpul	Eng
2114	12	galka	galka	ǵəlqa	ǵəlqa	galka	swim	swim: to swim
2116	12	galka	galka	ǵəlǵas	ǵəlǵas	galgas	swim	swimming place
2117	12	galka	galka	ǵəlǵas	ǵəlǵas	galgas	swim	swimming area.
2118	12	galka	galka	ǵəlǵəs	ǵəlǵəs	galgas	swim	swimming place (e.g. pond, small lake)
2119	12	galka	galka	ǵəlǵəs	ǵəlǵəs	galgas	pond	pond, small lake
2120	12	galka	galka	ǵəlqalən	ǵəlqalən	galkatlan	swim	swim
2121	12	galka	galka	ǵəlqaləsən	ǵəlqaləsən	galkatlasən	swim	Swim: I swim
2122	10	galka	galka	ǵəlqaxdən	ǵəlqaxdən	galkaxdan	swim	swim: I swam
2123	12	galka	galka	ǵəlqaxdi	ǵəlqaxdi	galkaxdi	swim	Swim: He went (recent past) swimming.
2124	12	galka	galka	ǵəlxaxdi	ǵəlxaxdi	galxaxdi	swim	swim: he-she (recent past)

#### Field Codes

- ID: database record identifier code
- SH: secondary sort handle for arranging stems
- NS-root1: Stem form without derivational suffixes
- NS-root2: Stem form with derivational suffixes

- NAPA: NAPA orthography
- Boas-1040's: Boas adapted orthography
- Nak-Kwaword: U'mista orthography
- [Paperclip]: pictures and illustrations (work in progress)
- Engpull: English sort handle for searching and English-Kwakwala sorting
- English: translation and notes

Table 75 is a screen capture from the second group of fields in the main database. In addition to the data codes, it also contains sentence examples for some entries.

Table 75 Example from main database (section 2) sentences and codes

ID	EG-Nak-Kwa	EG-Eng	d	d1	t	c	code	cdate
2114			n	tk	[	s	#VT	2017-11-15 ]
2116			n	tk	[	j	#GE #AL	2017-11-06 ]
2117	Latlan laxa galgas.	I'm going to the swimming area. (future)	n	tk	[	s	#GE #VT #EG #IN	2017-11-08 ]
2118			n	tk	[	s	#QU #DI #STW1 #BE	2016-11-03 ]
2119			n	tk	[	s	#ST #BE	2016-10-28 ]
2120			n	tk	[	s	#VT	2017-11-15 ]
2121	Galkatlasan e'aya'su dlawida gugagwayu. I swim with my hands and feet		n	tk	[	J	#BP #EG #IN	2018-01-22 ]
2122			n	tk	[	s	#VT	2017-11-15 ]
2123			n	tk	[	s	#VT #GE	2017-11-15 ]
2124	Galkaxdi.	He-she went swimming. (recent past)	n	tk	[	s	#VT #VB #EG #IN	2017-11-15 ]

### Field Codes

- EG-Nak-Kwa: sentence example in Kwakwala,
- EG-Eng: sentence example translation (speaker's translation)
- d: dialect
- d1: speaker code

- c: class code
- code: semantic and grammatical codes
- cdate: date of acquisition or documentation
- ([ and ] delimiters for code area)

### 21.3.2. Sentence Data table

The sentence data table includes the reference numbers from the main database, NAPA and U'mista orthographies, and English translations. Codes for dialect were included along with item numbers from the main database. The following example is a partial screen capture from the sentence database that includes the sentences in NAPA, English translation, and dialect.

Screen capture 1 Example of Sentence Database

Guk <sup>w</sup> ala x̣aŋa laḥ čəlg <sup>w</sup> adi laḥes gigaʔuʔnuk <sup>w</sup> .	Xaŋa lives at Tsulquate with his family.	n
Guk <sup>w</sup> alam̄as laḥ čəlg <sup>w</sup> adi?	Do you live at Tsulquate?	n
Guk <sup>w</sup> alam̄as laḥ Caxis?	Do you live at Fort Rupert?	n
Guk <sup>w</sup> alam̄as laḥus gigaʔuʔnuk <sup>w</sup> os.	Do you live with your family?	n
Guk <sup>w</sup> alam̄as laḥ ʔikuʔas laḥ čəlg <sup>w</sup> adi?	Do you live at the higher area at Tsulquate?	n
Guk <sup>w</sup> alam̄as laḥus gigaʔuʔnuk <sup>w</sup> os?	Are you living with your family?	n
ʔE, Guk <sup>w</sup> alən laḥən gigaʔuʔnuk <sup>w</sup> .	Yes, I am living with my family.	n
Gux <sup>w</sup> siwalis laḥa wa laḥ nəw̄idi.	They lived at the river at Nahwitti.	gu

Codes for dialect are "n" for the |'Nakwala| subdialect of |Bakwamkala| and "gu" for |Gutsala|.

### 21.3.3. Inflection Data table

The relational inflection data table contains inflection forms, WP codes, and notes.

Inflectional forms are listed and coded for WP inflection lumps for data including Boas

(1947), Eke Me Xi, and NILDP-CW. Fields in the inflection data table include a

reference number, inflection form, dialect code, and notes. Screen capture 2 and Screen

capture 3 show the reference number, inflection form, WP code, and dialect. Entries are

sorted by inflection form and illustrate first person singular with other objects (OTH) and

objects (OBJ). NAPA character coding is used in this table.

Screen capture 2 Inflection database other objects

533	-ənłasa	pro 1;SBJ;IND;pre3;OTH;-VIS	c data
194	-ənłasən	pro 1;SBJ;IND;pre3;OTH;POSS 1	PH data
346	-ənłasga	pro 1;SBJ;Q;pre3;OTH;PROX 1	C data
337	-ənłasgada	pro 1;SBJ;IND;pre3;OTH;PROX 1	C data

Screen capture 3 Inflection database objects

504	-ənłax̃a	pro 1;SBJ;IND;pre3;OBJ	c data
499	-ənłax̃eda	pro 1exc;SBJ;IND;pre3;OBJ;PROX 3	c data
263	-ənłax̃ən	pro 1;SBJ;IND;pre3;OBJ;POSS 1	PH data
592	-ənłax̃ənc	pro 1;SBJ;IND;pre3;OBJ;POSS 1inc	c data
593	-ənłax̃ənuʔuxw	pro 1;SBJ;IND;pre3;OBJ;POSS 1exc	c data
478	-ənłax̃gada	pro 1;SBJ;IND;pre3;SBJ;PROX 1	n data
497	-ənłax̃ida	pro 1;SBJ;IND;pre3;OBJ;PROX 3	c data

Dialect codes in the above are "c" (Kwakwala from NILDP-CW) "PH data"

|Bakwamkala| "n" |'Nakwala| and "PH data gw" |Gwaṣala|. WP lumps are separated by ";" (semi-colon) to avoid conflict with the commas used in the online comma separated fields upload. Sub-dialect codes were aggregated to one of the three dialects. For example, subdialect codes "n" and "PH data gw" were aggregated to "B" for |Bakwamkala|.

#### **21.3.4. Inflection query form**

Following the creation of the two data tables, I created a query form to code each word in a sentence. Drop down boxes enter the inflectional forms and descriptions pulled from the inflection data table. Coding entry included word position in a sentence and word type. The coding was restricted to sentences no longer than eight words. Screen capture 4 exemplifies inflection coding for a sentence with two words.



- "nom 1" first nominal in the sentence

The fourth column contains the inflectional descriptors for the WP forms and the fifth column has the drop-down box that lists inflectional forms. The inflectional forms are displayed in the order sorted in the Inflectional data table. The resulting inflectional form is displayed following the choice. In the above examples, |-aʔuǰda| for word 1 and |-iǰ| for word 2. The last column provides an alternate method of choosing inflectional forms using a drop-down box with inflection number codes. This was used for inflections that occur frequently. The comment box is not displayed in the above example. I used this during the coding process to make notes when I was unsure of the coding or to comment on differences between dialects or contrasts with Boas entries (1947).

### 21.3.5. Data Analysis

Screen capture 5 below illustrates the data analysis table during the statistical analysis of the inflections in the data. Each word in a sentence is a record in the data analysis table.

Fields included Kwakwala, English, word number, word type, inflection ID code, inflection description, and word inflection form, as noted in the columns below.

Screen capture 5 Data Analysis Table

EG-NAK-KWA-NAPA	EG-Eng	IDMAIN	Word	IDV	Word1InfDes	Word1Inf
Bagʷənsasus ʔənikaqus laxəda čəxqʔaʔaci.	Visit your aunt at the hospital.	1860	1 verb 1	181	pro2;SB;IND;pre3;OTH;POSS2;PROX2	-asus
Bagʷənsasus ʔənikaqus laxəda čəxqʔaʔaci.	Visit your aunt at the hospital.	1860	2 nom1	143	post3;POSS2;+VIS	-qus
Bagʷənsasus ʔənikaqus laxəda čəxqʔaʔaci.	Visit your aunt at the hospital.	1860	3 Laqa1	505	LOC;PROX3	laxəda
Bagʷənsasus ʔənikaqus laxəda čəxqʔaʔaci.	Visit your aunt at the hospital.	1860	4 nom2	178	post3(NM)	--

The data analysis table was used to complete third round coding. For example, the data in Table 76 Possessives below (repeated from Section 10.13) was developed by filtering the data analysis table for entries with the "POSS" (possessive) code and "Kwakwala" codes.<sup>107</sup> The result indicated a total of 158 words with possessive inflections in the |Kwakwala| data set. This process was repeated for each of the various possessive inflections in both dialects to complete the entries listed in Table 25. For example, in order to find the number of entries for |Bakwamkala| first person singular, the filters included the codes for the |Bakwamkala| entries and "POSS1;" (the ";" after "POSS1" excludes the "POSS1inc" and "POSS1exc" entries).

Table 76 Possessives

Data Possessives	# Words	1sg	1inc	1exc	2	3
(2b) NILDP-CW	158	53	2	2	73	28
(3b) Eke Me Xi	197	54	2	3	110	35

### 21.3.6. Word position, inflections, and discourse

In addition to coding for the range of inflections, the coding of "word position" enabled an examination of inflection variations in sentences based on a word's position in a sentence. The results comparing post nominal marking discussed in Section 10.13 (Table 29 Post-Nominal marking and Table 30 Post-nominal marking on words 4-8) demonstrate

<sup>107</sup> Dialect and sub-dialect codes were aggregated to either |Kwakwala| or |Bakwamkala|.

fewer post nominal markers on nominals that are "further" from the verbal elements at the beginning of the sentence. I had hypothesized that fewer post-nominal markers would occur once the deictic environment was established. This hypothesis was based on an informal observation I had noted in the data, where nominals seemed to be less frequently marked towards the end of communicative speech. If this is generally the case in Kwakwala, the data suggest that deictic inflections (location and visibility-evidential) are discourse markers rather than grammatical ones, where dietic markers are used to establish the appropriate locational and evidential setting during the initial part of a communicative event, and then not required to be repeated. Further work to examine this hypothesis is ongoing.<sup>108</sup>

#### **21.4. Nvivo database**

The Nvivo database contains the timeline coding of the videos reviewed in the analysis.

Two databases were created: one to handle language, where use of Kwakwala was contrasted with the use of English, the other to examine multimedia.

##### **21.4.1. Language coding**

Language coding examined the percentage of time on the timeline that English or

---

<sup>108</sup> It has not been possible to conduct situated collaboration with fluent speakers to test out this hypothesis during COVID-19.

Kwakwala were used. Codes in the analysis differentiated between written, spoken, and background language usage. First round coding differentiated between various language uses. For example, students speaking English, students speaking Kwakwala, Elders speaking English, and Elders speaking Kwakwala. Codes for Translanguaging described code switching during communicative acts. For example, an English sentence with Kwakwala proper names or place names. Second round coding aggregated first round language codes, for example, aggregating spoken language from Elders and students. Successive coding rounds aggregated codes, for example, spoken Kwakwala with subtitles in Kwakwala. Coding methods followed ethnographic coding from Saldaña (2016).

#### **21.4.2. Multimodal Coding and Simultaneous Coding**

Multimodal coding was developed based on simultaneous coding (Saldaña, 2016) using Nvivo (QSR International, LLC , 2020). The multimodal data was analyzed to examine whether the various modalities on the video timeline were consistent with |Gwa'sala- 'Nakwaxda'xw| communities and worldview, as well as determine whether the modalities were consistent and foreground the presentation (Norris, 2004; Van Leeuwen, 2005). In this sense, consistent overlapping modalities foreground or call attention to the significance of the data. First round coding developed separate codes for each modality in the video. For example, a code for "authentic story setting visual - elaboration" is used to

code whenever the film provides authentic visuals related to the storyline, while "authentic story setting visual –extension" provides information on the background setting, from Van Leeuwen (2005, p. 255). Similarly, "background music traditional -elaboration" codes traditional |Gwa's̩ala-'Na'kwaxda'xw| music that is used to code music central to the video, while " background music traditional – extension" is used to code music that provides a general background audio track.

Once each occurrence of the various modalities was coded, successive coding examined instances where codes overlapped, for example, a picture of a rowboat and background noise of oars splashing. If both the visual and the background audio provide authentic representation of |Gwa's̩ala-'Na'kwaxda'xw| settings and traditions, they are consistent and foreground the |Gwa's̩ala-'Na'kwaxda'xw| traditions. If, on the other hand, the visual is traditional while the background audio is Western music, then the "overlapping modalities" might not be consistent with |Gwa's̩ala-'Na'kwaxda'xw| traditions. In such cases, the analysis needs to consider the "transcultural" nature of overlapping modalities where traditional and non-traditional modal information occurs.

### **21.4.3. Transcultural multimodal coding**

Transcultural multimodal coding was used to code multimodality where there appears to be a mismatch between one modality and another. This is analogous to the

Translanguaging coding for code-switching between Kwakwaka'wakw and English during a speech act. The mixed use of Kwakwaka'wakw overlapping modes enabled me to examine modes for consistency of message. For example, consider a video that contains a four second clip of a 1950's picture of |Ba'as|<sup>109</sup> that overlaps with background music. If the picture is coded as "authentic story setting visual – elaboration" and the music is coded "background music Western-extension," we might conclude that overlapping modalities are not consistent and do not foreground a traditional worldview. However, if the purpose of the music is to draw attention to the use of Western music, the coding would change to "background music Western-elaboration." In this situation, the researcher would need to investigate whether to use a transcultural code to indicate whether the music foregrounds |Gwa'sala-'Nakwaxda'xw| traditions. Successive rounds of coding provide the researcher with insight into "transcultural" discursive practices in multimodal documentation. In the second example, the video foregrounds changes in social and cultural activities that occurred through contact.

### 21.5. Geomapping database

The geomapping database under development by the Treaty Department of the |Gwa'sala-'Nakwaxda'xw| Band is an MS-Access database for online access. My

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<sup>109</sup> |Ba'as| is a traditional |'Nakwaxda'xw| settlement on the mainland at Blunden Harbour. Residents were forcibly removed in 1964 and relocated to Tsulquate.

contribution to this database relates to the transcription, orthographic representations, and word analysis. Examples of these are included in the online website that accompanies this work (Wilson P. , Our Voices Our Stories, 2020e).

## **21.6. First Voices Dictionary**

The First Voices Dictionary (First Voices, 2017) contains words in the Kwakwala dialect, translation, and audio examples. Entries utilize the U'mista orthography. This resource is commonly used in Kwakwala speaking communities and schools and is the default dictionary for the language. The First Peoples Dictionary is based on a dictionary style method, where most words are listed in a "base" or "basic" form (First Voices, 2017).

This form is the same as the third person singular (3rd person is not marked in Kwakwala). For example, an unmarked basic form of the word 'to stand' is |dłaxwa|.

This word can be translated as 'to stand', or as 'he-she-they stand'. This contrasts with an inflected form, e.g. |dłaxwałuxw| found in a word list. This translates as 'he or she is standing (near you and visible)'. In addition to the dictionary, the First Voices Kwakwala website contains inflected words in the "Kwakwala Phrases" section along with audio samples (First Voices, 2021).

## 21.7. Word lists at the University of Victoria

During curriculum development activities beginning in 1978, materials and lessons were typed into the university's central computer system and printed out. In addition to editing and printing the materials, programming provided extraction of words and example sentences into a database. The database was used to code and sort entries by the Indigenous language or English. The database also was programmed to print out word lists for each lesson as well as a master list for the lesson materials. For example, these lists were included in [Kwakwala] advanced lessons and story books. See Section 27.4 and Section 27.6. In [Gutsala], lists were included in language lessons and a story book (Wilson, Wallas, & Peters, 1980a; Wilson & Wallas, 1982). Each lesson or story listed all words in the story. Word stems with different inflections, tense-time markers, or derivational morphology were listed as separate words. The Kwakwala words were listed along with translations but were not altered or broken down into morphological units or "lumps." Originally, these lists were developed to assist teachers in their preparation of language activities. The lesson and story documentation were originally typed on an IBM selectric typewriter, edited, and then later keyed into a computer version by linguistic students at the University of Victoria. The word lists from the lessons and stories were combined into a database and coded for semantic categories (e.g., animals, body parts, etc.), source, and date. This activity resulted in a bilingual "word list" compiled from all words found in the materials using a database developed by the computing department at

the University of Victoria. Two versions were made, one sorted by Kwakwala, the other sorted by English.

I developed two different word lists using computer-based processing in collaboration with Elders: one for |Kwakwala| (Wilson & Henderson, Kwakwala Word List, 1982b) and the other for |Gutsala| (Wilson, Wallas, & Peters, Gutsala Word List, 1982b). The |Kwakwala| version came from my work with James Henderson. The |Gutsala| version was based on my work with Alice Peters |Nalagam| and James Wallas creating |Gutsala| lessons for School District 85 (Wilson, Wallas, & Peters, 1980a). Lessons, stories, and word lists were keyed in by linguistic students at the University of Victoria and processed through the computing services department at the University.<sup>110</sup> The Nuyumbalees Cultural Center later re-keyed and re-published the |Kwakwala| version of the list without the semantic, lesson, and date codes of the original (Nuyumbalees, 2015).

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<sup>110</sup> Unfortunately, the digital version of these documents is lost.

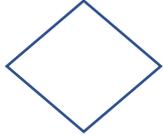
## **22. Technical Appendix Parser**

The parsing of Kwakwala orthographies was developed and programmed by David Wilson. The Parser is a two-stage process. Stage 1 converts the Unicode (UTF-8) characters into an underlying representation for each phoneme. Stage 2 converts the underlying representation to the desired orthography. The following explanations provide an overview of these two stages. Section 22.1 illustrates how this works to convert between orthographies and Section 22.2 illustrates how this works to fix punctuation errors. Following the overview, the source code for the NAPA parser is provided.

### **22.1. Parsing to convert orthographies**

Stage 1 parsing reads in a character and then "peeks" at the following character to see if the following character is "part of" the orthographic representation of a phoneme. The orthographic representations of Kwakwala phonemes include single characters, digraphs, trigraphs, and quadgraphs. The process of "peeking at the next character" is repeated until the combination of characters for a phoneme are complete. See Table 77.

Table 77 Stage one character parsing

input character		peek at next	is the character part of the first	if no, output to Stage 2  if yes, repeat peek next character
Example Input		Peek next character	Check	Output
Example 1	p	a	no	 <sup>111</sup>
Example 2	p		yes	peek next
		a	no	

In example 1, stage 1, the parser inputs the character |p|. The parser peeks at the next character |a|. |a| is not a character that combines with |p|. In this example, the parser outputs the underlying representation of |p| as:



In the second example, the parser inputs |p| and peeks at the next character. Since the next character is one of the characters that |p| combines with to form a combined character (diagraph/trigraph/etc.), it peeks at the character that follows the ||, which is |a|. Since |a|

<sup>111</sup> The circle is used to represent an underlying character.

is not a character that combines with |p̣| to code a multiple orthographic phoneme, the |p̣| is output to Stage 2.

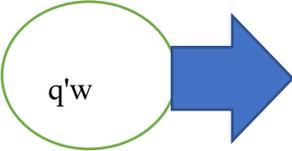
p̣

Stage 2 Parsing:

During Stage 2 parsing the underlying representation of a phoneme is converted to the orthographic format selected by the user. Table 78 illustrates the possible outputs from the parser for the underlying representation:

q'w

Table 78 Stage 2 parser output examples

Underlying representation	Parser	Orthography character
	NAPA parser 	q̣ <sup>w</sup>   NAPA
	U'mista parser 	ḳ <sup>w</sup>   U'mista
	Boas adapted parser 	q! <sup>u</sup>   Boas adapted
	ASCII parser 	khw'  ASCII

## 22.2. Proofing keying errors

When the parser is used to correct keying errors, as discussed in 13.7.1, an orthography is parsed to itself. When this occurs, the inputs are converted to the underlying representation and then to the canonical output form of the designated orthography.

During Stage 1 conversion, the range of possible matches includes items that occur in other orthographies. If a user inputs an |n| (a glottalization standard for U'mista) while intending to enter |n̥| in NAPA, the |n| is converted to an underlying representation of a glottalized "n'." This is illustrated in Table 79 Proofing errors

Table 79 Proofing errors, Stage 1

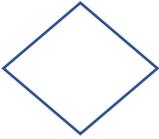
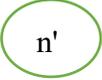
input character		peek at next	is the character part of the first	if no, output to Stage 2  if yes, repeat peek next character
Example Input		Peek next character	Check	Output
Example 1	n̥	n	yes	peek next
		a	no	n' <span style="border: 1px solid green; border-radius: 50%; padding: 2px;">n'</span>

Table 80 Proofing, Stage 1 and 2 illustrates the flow from Stage 1 input to Stage 2 output when a character is parsed to the correct orthographic standard. In this example, the |'n| is parsed in Stage 1 to the underlying representation of a glottalized "n'," then the NAPA parsing outputs the character |ṇ|.

Table 80 Proofing, Stage 1 and 2

Stage 1 Input	Stage 1 Underlying representation	Stage 2 Parsing	Stage 2 output character
'n  		NAPA parser	ṇ  NAPA

The source code in Stage 1 parsing identifies the characters that represent glottalization and converts these to a glottalization underlying code.

Table 81 Glottalization source code

-- Apostrophe/Ejective Marker
isApost :: Char -> Bool
isApost \"'\" = True
isApost '´' = True
isApost '¨' = True
isApost '¸' = True
isApost '\x313' = True
isApost _ = False

### 22.3. Parser Stage 1 Source Code NAPA (David Wilson, Programmer)

```
{-# LANGUAGE OverloadedStrings #-}
```

```
-- asdfzxcv
```

```
module NapaParser
```

```
  ( KwakLetter(..)
```

```
  , CasedLetter(..)
```

```
  , CasedChar(..)
```

```
  , encodeFromNapa
```

```
  , parseNapa
```

```
  , encodeFromNAPA
```

```
  , parseNAPA
```

```
  , parseNapaOld
```

```
  , encodeFromNapaOld
```

```
  ) where
```

```
-- asdfzxcv
```

```
import qualified Data.Attoparsec.Text as AT
```

```
import qualified Data.Text      as T
import qualified Data.Text.IO   as T
import qualified Data.Text.Encoding as T

-- import qualified Data.Text.Lazy      as TL
-- import qualified Data.Text.Lazy.Builder as TL

-- import qualified Text.UTF8 as TU

import Control.Monad
import Control.Applicative

import Data.Functor
import Data.List
import Data.Char

import KwakSoundsNew

import Data.Either
```

```
import System.IO

fixLocale = hSetEncoding stdin utf8 >> hSetEncoding stdout utf8 >> hSetEncoding
stderr utf8

-- Apostrophe/Ejective Marker

isApost :: Char -> Bool

isApost '\'' = True

isApost '"' = True

isApost '\x313' = True

isApost _ = False

-- wW

isLabial :: Char -> Bool

isLabial 'w' = True

isLabial 'W' = True

isLabial 'ʷ' = True

isLabial 'w̥' = True

-- isLabial 'ʷ' = True -- maybe redundant?
```

```
isLabial _ = False
```

```
isW = isLabial
```

```
isWedge :: Char -> Bool
```

```
isWedge '\x30c' = True -- Proper wedge/caron/hacek
```

```
isWedge '\x306' = True -- breve symbol
```

```
isWedge _ = False
```

```
-----
```

```
-- Parsing K
```

```
-----
```

```
-- Entry Point
```

```
parseK :: AT.Parser CasedLetter
```

```
parseK = do
```

```
  { b <- isUpper <$> AT.satisfy (\x -> x == 'k' || x == 'K')
```

```
  ; AT.peekChar >>= parseK' b
```

```
  }
```

```
-- asdfzxcv
```

```

parseK' :: Bool -> (Maybe Char) -> AT.Parser CasedLetter
parseK' b Nothing = return $ makeCase b K
parseK' b (Just x)
  | isApost  x = AT.anyChar >> AT.peekChar >>= parseKY b
  | isW      x = AT.anyChar >> AT.peekChar >>= parseKW b
  | otherwise = return $ makeCase b K
-- asdfzxcv

```

```

parseKY :: Bool -> Maybe Char -> AT.Parser CasedLetter
parseKY b Nothing = return $ makeCase b KY
parseKY b (Just x)
  | isW  x = AT.anyChar >> (return $ makeCase b KWY)
  | otherwise = return $ makeCase b KY
-- awsfzxcv

```

```

parseKW :: Bool -> Maybe Char -> AT.Parser CasedLetter
parseKW b Nothing = return $ makeCase b KW
parseKW b (Just x)

```

```

| isApost x = AT.anyChar >> (return $ makeCase b KWY)

| otherwise = return $ makeCase b KW

-- awsdzxcv

-----

-- Parsing Q

-----

-- Entry Point

parseQ :: AT.Parser CasedLetter

parseQ = do
    { b <- isUpper <$> AT.satisfy (\x -> x == 'q' || x == 'Q')
    ; AT.peekChar >>= parseQ' b
    }

-- asdfzxcv

parseQ' :: Bool -> (Maybe Char) -> AT.Parser CasedLetter

parseQ' b Nothing = return $ makeCase b Q

parseQ' b (Just x)

    | isApost    x = AT.anyChar >> AT.peekChar >>= parseQY b

```

```
| isW    x = AT.anyChar >> AT.peekChar >>= parseQW b
| otherwise = return $ makeCase b Q
-- asdfzxcv
```

```
parseQY :: Bool -> Maybe Char -> AT.Parser CasedLetter
```

```
parseQY b Nothing = return $ makeCase b QY
```

```
parseQY b (Just x)
```

```
  | isW    x = AT.anyChar >> (return $ makeCase b QWY)
```

```
  | otherwise = return $ makeCase b QY
```

```
-- awsfzxcv
```

```
parseQW :: Bool -> Maybe Char -> AT.Parser CasedLetter
```

```
parseQW b Nothing = return $ makeCase b QW
```

```
parseQW b (Just x)
```

```
  | isApost x = AT.anyChar >> (return $ makeCase b QWY)
```

```
  | otherwise = return $ makeCase b QW
```

```
-- awsfzxcv
```

```
-----
```

```
-- Parsing G
```

```
-----
```

```
-- Entry Point
```

```
parseG :: AT.Parser CasedLetter
```

```
parseG = do
```

```
  { b <- isUpper <$> AT.satisfy (\x -> x == 'g' || x == 'G')
```

```
  ; AT.peekChar >>= parseG' b
```

```
  }
```

```
-- asdfzxcv
```

```
parseG' :: Bool -> (Maybe Char) -> AT.Parser CasedLetter
```

```
parseG' b Nothing = return $ makeCase b G
```

```
parseG' b (Just x)
```

```
  | isWedge    x = AT.anyChar >> AT.peekChar >>= parseGU b
```

```
  | isW        x = AT.anyChar >> (return $ makeCase b GW) -- AT.peekChar >>=
```

```
parseGW b
```

```
  | otherwise  = return $ makeCase b G
```

```
-- asdfzxcv
```

```

-- Ğğ
-- Ğ = \x1e6
-- ğ = \x1e7

-----

-- Entry Point

parseGUB :: AT.Parser CasedLetter

parseGUB = do
    { b <- isUpper <$> AT.satisfy (\x -> x == 'ğ' || x == 'Ğ')
    ; AT.peekChar >>= parseGU b
    }

-- asdfzxc

parseGU :: Bool -> (Maybe Char) -> AT.Parser CasedLetter

parseGU b Nothing = return $ makeCase b GU

parseGU b (Just x)
    | isW    x = AT.anyChar >> (return $ makeCase b GUW)
    | otherwise = return $ makeCase b GU

-- asfdzxcv

```

```
-----  
-- Parsing X
```

```
-----  
-- Entry Point
```

```
parseX :: AT.Parser CasedLetter
```

```
parseX = do
```

```
  { b <- isUpper <$> AT.satisfy (\x -> x == 'x' || x == 'X')
```

```
  ; AT.peekChar >>= parseX' b
```

```
  }
```

```
-- asdfzxcv
```

```
parseX' :: Bool -> (Maybe Char) -> AT.Parser CasedLetter
```

```
parseX' b Nothing = return $ makeCase b X
```

```
parseX' b (Just x)
```

```
  | isWedge    x = AT.anyChar >> AT.peekChar >>= parseXU b
```

```
  | isW        x = AT.anyChar >> (return $ makeCase b XW) -- AT.peekChar >>=
```

```
parseXW b
```

```
  | otherwise  = return $ makeCase b X
```

```
-- asdfzxcv
```

```

parseXU :: Bool -> Maybe Char -> AT.Parser CasedLetter

parseXU b Nothing = return $ makeCase b XU

parseXU b (Just x)
  | isW    x = AT.anyChar >> (return $ makeCase b XUW)
  | otherwise = return $ makeCase b XU

-- asdfzxcv

-----

-- Parsing D

-----

-- Entry Point

parseD :: AT.Parser CasedLetter

parseD = do
  { b <- isUpper <$> AT.satisfy (\x -> x == 'd' || x == 'D')
  ; AT.peekChar >>= parseD' b
  }

-- asdfzxcv

```

```
-- z
```

```
parseD' :: Bool -> Maybe Char -> AT.Parser CasedLetter
```

```
parseD' b Nothing = return $ makeCase b D
```

```
parseD' b (Just x)
```

```
  | (x == 'z' || x == 'Z' || x == 'z') = AT.anyChar >> (return $ makeCase b DZ)
```

```
  | otherwise = return $ makeCase b D
```

```
-- asdfzxcv
```

```
-----
```

```
-- Entry Point
```

```
parseZ :: AT.Parser CasedLetter
```

```
parseZ = do
```

```
  { b <- isUpper <$> AT.satisfy (\x -> x == 'z' || x == 'Z' || x == 'dz' || x == 'DZ' || x ==  
'Dz')
```

```
  ; return $ makeCase b DZ
```

```
  }
```

```
-- asdfzxcv
```

```
-----
```

```
-- Parsing B, P, T, C, and S
```

```
-----
```

```
-- Entry Point
```

```
parseB :: AT.Parser CasedLetter
```

```
parseB = do
```

```
  { b <- isUpper <$> AT.satisfy (\x -> x == 'b' || x == 'B')
```

```
  ; return $ makeCase b B
```

```
  }
```

```
-- asdfzxcv
```

```
-----
```

```
-- Entry Point
```

```
parseP :: AT.Parser CasedLetter
```

```
parseP = do
```

```
  { b <- isUpper <$> AT.satisfy (\x -> x == 'p' || x == 'P')
```

```
  ; AT.peekChar >>= parseP' b
```

```
  }
```

```
-- asfdzxcv
```

```

parseP' :: Bool -> Maybe Char -> AT.Parser CasedLetter

parseP' b Nothing = return $ makeCase b P

parseP' b (Just x)

    | isApost x = AT.anyChar >> (return $ makeCase b PY)

    | otherwise = return $ makeCase b P

-- asdfzxcv

-----

-- Entry Point

parseT :: AT.Parser CasedLetter

parseT = do

    { b <- isUpper <$> AT.satisfy (\x -> x == 't' || x == 'T')

    ; AT.peekChar >>= parseT' b

    }

-- asfdzxcv

parseT' :: Bool -> Maybe Char -> AT.Parser CasedLetter

parseT' b Nothing = return $ makeCase b T

parseT' b (Just x)

    | isApost x = AT.anyChar >> (return $ makeCase b TY)

```

```

    | otherwise = return $ makeCase b T

-- asdfzxcv

-----

-- Entry Point

parseC :: AT.Parser CasedLetter

parseC = do
    { b <- isUpper <$> AT.satisfy (\x -> x == 'c' || x == 'C')
    ; AT.peekChar >>= parseC' b
    }

-- asfdzxcv

parseC' :: Bool -> Maybe Char -> AT.Parser CasedLetter

parseC' b Nothing = return $ makeCase b TS

parseC' b (Just x)
    | isApost x = AT.anyChar >> (return $ makeCase b TSY)
    | otherwise = return $ makeCase b TS

-- asdfzxcv

-----

```

```

-- Entry Point

parseS :: AT.Parser CasedLetter

parseS = (AT.char 's' $> Min S) <|> (AT.char 'S' $> Maj S)

```

-----

```

-- Parsing M and N

```

-----

```

-- Entry Point

parseM :: AT.Parser CasedLetter

parseM = do
    { b <- isUpper <$> AT.satisfy (\x -> x == 'm' || x == 'M')
    ; AT.peekChar >>= parseM' b
    }

-- asfdzxcv

```

```

parseM' :: Bool -> Maybe Char -> AT.Parser CasedLetter

parseM' b Nothing = return $ makeCase b M

parseM' b (Just x)
    | isApost x = AT.anyChar >> (return $ makeCase b MY)

```

```

    | otherwise = return $ makeCase b M

-- asdfzxcv

-----

-- Entry Point

parseN :: AT.Parser CasedLetter

parseN = do
    { b <- isUpper <$> AT.satisfy (\x -> x == 'n' || x == 'N')
    ; AT.peekChar >>= parseN' b
    }

-- asfdzxcv

parseN' :: Bool -> Maybe Char -> AT.Parser CasedLetter

parseN' b Nothing = return $ makeCase b N

parseN' b (Just x)
    | isApost x = AT.anyChar >> (return $ makeCase b NY)
    | otherwise = return $ makeCase b N

-- asdfzxcv

```

```
-----  
-- Parsing J/Y, L, LH, and W
```

```
-----  
-- Entry Point
```

```
parseJ :: AT.Parser CasedLetter
```

```
parseJ = do
```

```
  { b <- isUpper <$> AT.satisfy (\x -> x == 'y' || x == 'Y' || x == 'j' || x == 'J')
```

```
  ; AT.peekChar >>= parseJ' b
```

```
  }
```

```
-- asfdzxcv
```

```
parseJ' :: Bool -> Maybe Char -> AT.Parser CasedLetter
```

```
parseJ' b Nothing = return $ makeCase b J
```

```
parseJ' b (Just x)
```

```
  | isApost x = AT.anyChar >> (return $ makeCase b JY)
```

```
  | otherwise = return $ makeCase b J
```

```
-- asdfzxcv
```

```

-----

-- Entry Point

parseL :: AT.Parser CasedLetter

parseL = do
    { b <- isUpper <$> AT.satisfy (\x -> x == 'l' || x == 'L')
    ; AT.peekChar >>= parseL' b
    }

-- asfdzxcv

parseL' :: Bool -> Maybe Char -> AT.Parser CasedLetter

parseL' b Nothing = return $ makeCase b L

parseL' b (Just x)
    | isApost x = AT.anyChar >> (return $ makeCase b LY)
    | otherwise = return $ makeCase b L

-- asdfzxcv

-----

-- Entry Point

-- Taken directly from the Umista parser

-- (Then added alternative for upper-case tilde-L)

```

```

parseLH :: AT.Parser CasedLetter

parseLH = ((AT.satisfy (\x -> x == 'l' || x == 'L' || x == 'l' || x == 'L')) $> Min LH) <|>
(AT.char 'L' $> Maj LH) <|> (AT.char 'L' $> Maj LH)

-- Ł == U+2C62 == \x2c62

-----

-- Entry Point

parseW :: AT.Parser CasedLetter

parseW = do
    { b <- isUpper <$> AT.satisfy (\x -> x == 'w' || x == 'W')
    ; AT.peekChar >>= parseW' b
    }

-- asfdzxcv

parseW' :: Bool -> Maybe Char -> AT.Parser CasedLetter

parseW' b Nothing = return $ makeCase b W

parseW' b (Just x)
    | isApost x = AT.anyChar >> (return $ makeCase b WY)
    | otherwise = return $ makeCase b W

-- asdfzxcv

```

```
-----  
-- Parsing λ and λ
```

```
-----  
-- Entry Point
```

```
parseDL :: AT.Parser CasedLetter
```

```
parseDL = (AT.char 'λ' $> Min DL) <|> (AT.char 'Λ' $> Maj DL)
```

```
-----  
-- Entry Point
```

```
parseTL :: AT.Parser CasedLetter
```

```
parseTL = do
```

```
  { b <- isUpper <$> AT.satisfy (\x -> (toLower x) == 'λ')
```

```
  ; AT.peekChar >>= parseTL' b
```

```
  }
```

```
-- asfdzxcv
```

```
parseTL' :: Bool -> Maybe Char -> AT.Parser CasedLetter
```

```
parseTL' b Nothing = return $ makeCase b TL
```

```

parseTL' b (Just x)

  | isApost x = AT.anyChar >> (return $ makeCase b TLY)

  | otherwise = return $ makeCase b TL

-- asdfzxcv

-----

-- Parsing ? and H

-----

-- Entry Point

parseY :: AT.Parser CasedLetter

parseY = do

  { AT.char '?'

  ; b <- tstm isUpper <$> AT.peekChar

  ; return $ makeCase b Y

  }

  where tstm p Nothing = False

        tstm p (Just x) = p x

-- asdfzxcv

```

-----

-- Entry Point

parseH :: AT.Parser CasedLetter

parseH = (AT.char 'h' \$> Min H) <|> (AT.char 'H' \$> Maj H)

-----

-- Parsing Vowels

--  $\eth$  == \399 == \x18f

--  $\eth$  == \601 == \x259

--

parseA :: AT.Parser CasedLetter

parseA = (AT.char 'a' \$> Min A) <|> (AT.char 'A' \$> Maj A)

parseAU :: AT.Parser CasedLetter

parseAU = (AT.char 'ə' \$> Min AU) <|> (AT.char 'Ə' \$> Maj AU)

parseE :: AT.Parser CasedLetter

parseE = (AT.char 'e' \$> Min E) <|> (AT.char 'E' \$> Maj E)

```
parseI :: AT.Parser CasedLetter
```

```
parseI = (AT.char 'i' $> Min I) <|> (AT.char 'I' $> Maj I)
```

```
parseO :: AT.Parser CasedLetter
```

```
parseO = (AT.char 'o' $> Min O) <|> (AT.char 'O' $> Maj O)
```

```
parseU :: AT.Parser CasedLetter
```

```
parseU = (AT.char 'u' $> Min U) <|> (AT.char 'U' $> Maj U)
```

```
-----
```

```
-- The Full Parser
```

```
parseNapaLetter :: AT.Parser CasedLetter
```

```
parseNapaLetter = AT.choice [parseA,parseE,parseI,parseO,parseU,parseAU
```

```
    ,parseK,parseQ,parseG,parseGUB,parseX
```

```
    ,parseP,parseT,parseM,parseN
```

```
    ,parseL,parseW,parseY,parseB,parseH
```

```
    ,parseD,parseLH,parseJ,parseS
```

```
    ,parseZ,parseDL,parseTL
```

```

        ,parseC
    ]

-- asdfzxcv

-- Parse non-alphabetical and non-apostrophe characters
-- until next Umista Char.

parsePuncts :: AT.Parser CasedChar

parsePuncts = Punct <$> AT.takeWhile1 (\x -> not (isAlpha x || isApost x || (x == '|')))

-- For Parsing 'Escaped' Text

parsePipe :: AT.Parser CasedChar

parsePipe = Punct <$> ((AT.char '|') `comb1` (AT.takeWhile1 (/= '|')) `comb2` (AT.char
'|'))

    where comb1 = liftM2 (T.cons)

          comb2 = liftM2 (T.snoc)

-- asdfzsxcv

{-

parsePipe :: AT.Parser CasedChar

parsePipe = Punct <$> ((AT.satisfy isPipe) `comb1` (AT.takeWhile1 (not . isPipe))

`comb2` (AT.satisfy isPipe))

```

```

where comb1 = liftM2 (T.cons)

      comb2 = liftM2 (T.snoc)

-- asdfzsxcv

isPipe :: Char -> Bool

isPipe '|' = True

isPipe '|' = True

-- isPipe '|' = True

isPipe _ = False

-}

parseNapaChar :: AT.Parser CasedChar

parseNapaChar = (Kwak <$> parseNapaLetter) <|> parsePipe <|> (Punct <$> T.singleton
<$> AT.anyChar)

parseNapaCharNew :: AT.Parser CasedChar

parseNapaCharNew = (Kwak <$> parseNapaLetter) <|> parsePipe <|> parsePuncts <|>
(Punct <$> T.singleton <$> AT.anyChar)

parseNapa :: AT.Parser [CasedChar]

```

```
parseNapa = AT.many1 parseNapaCharNew
```

```
parseNapaOld :: AT.Parser [CasedChar]
```

```
parseNapaOld = AT.many1 parseNapaChar
```

```
encodeFromNapa :: T.Text -> [CasedChar]
```

```
encodeFromNapa txt = fromRight [] $ AT.parseOnly parseNapa txt
```

```
encodeFromNapaOld :: T.Text -> [CasedChar]
```

```
encodeFromNapaOld txt = fromRight [] $ AT.parseOnly parseNapaOld txt
```

```
parseNAPA :: AT.Parser [CasedChar]
```

```
parseNAPA = parseNapa
```

```
encodeFromNAPA :: T.Text -> [CasedChar]
```

```
encodeFromNAPA = encodeFromNapa
```

## 22.4. Parser Stage 2 Source Code NAPA (David Wilson, Programmer)

```
{-# LANGUAGE OverloadedStrings #-}

-- Technically, this is not the standard
-- NAPA orthography; it's actually the
-- "Southern" orthography as seen
-- at http://www.languagegeek.com/wakashan/kwakwala.html

module NapaOutput

  ( decodeToNapa
  , decodeToNAPA
  , decodeToNapa2
  , decodeToNAPA2
  , KwakLetter(..)
  , CasedLetter(..)
  , CasedChar(..)
  ) where

-- asdfzxcv

import qualified Data.Text      as T
import qualified Data.Text.IO  as T
import qualified Data.Text.Encoding as T
```

```
import qualified Data.Text.Lazy      as TL

import qualified Data.Text.Lazy.Builder as TL

import Control.Monad

-- import Control.Applicative

-- import Data.Functor

-- import Data.List

import Data.Char

import KwakSoundsNew

-- import Data.Either

import System.IO

fixLocale = hSetEncoding stdin utf8 >> hSetEncoding stdout utf8 >> hSetEncoding
stderr utf8
```

-----  
-- Using Standard Strict Text

-- Seems to use same apostrophe

-- (U+0313) as U'mista.

outputNAPA :: KwakLetter -> T.Text

outputNAPA M = "m"

outputNAPA MY = "m\x313"

outputNAPA N = "n"

outputNAPA NY = "n\x313"

outputNAPA P = "p"

outputNAPA T = "t"

outputNAPA B = "b"

outputNAPA D = "d"

outputNAPA PY = "p\x313"

outputNAPA TY = "t\x313"

outputNAPA TS = "c"

outputNAPA TL = "λ"

outputNAPA DZ = "dʒ"

outputNAPA DL = "λ"  
outputNAPA TSY = "c\x313"  
outputNAPA TLY = "λ\x313"  
outputNAPA S = "s"  
outputNAPA LH = "ł"  
outputNAPA L = "l"  
outputNAPA LY = "l\x313"  
outputNAPA J = "y"  
outputNAPA JY = "y\x313"  
outputNAPA K = "k"  
outputNAPA KW = "k<sup>w</sup>"  
outputNAPA G = "g"  
outputNAPA GW = "g<sup>w</sup>"  
outputNAPA KY = "k\x313"  
outputNAPA KWY = "k\x313<sup>w</sup>"  
outputNAPA Q = "q"  
outputNAPA QW = "q<sup>w</sup>"  
outputNAPA GU = "ğ"  
outputNAPA GUW = "ğ<sup>w</sup>"  
outputNAPA QY = "q\x313"

```
outputNAPA QWY = "q\x313w"  
outputNAPA X = "x"  
outputNAPA XW = "xw"  
outputNAPA XU = "x\x30c"  
outputNAPA XUW = "x\x30cw"  
outputNAPA W = "w"  
outputNAPA WY = "w\x313"  
outputNAPA Y = "y"  
outputNAPA H = "h"  
outputNAPA A = "a"  
outputNAPA E = "e"  
outputNAPA I = "i"  
outputNAPA O = "o"  
outputNAPA U = "u"  
outputNAPA AU = "a"  
  
-- outputNAPA Spc = " "  
  
-- asdfzxcv  
  
outputNAPA' :: KwakLetter -> T.Text  
  
outputNAPA' M = "M"
```

outputNAPA' MY = "M\x313"

outputNAPA' N = "N"

outputNAPA' NY = "N\x313"

outputNAPA' P = "P"

outputNAPA' T = "T"

outputNAPA' B = "B"

outputNAPA' D = "D"

outputNAPA' PY = "P\x313"

outputNAPA' TY = "T\x313"

outputNAPA' TS = "C"

outputNAPA' TL = "λ"

outputNAPA' DZ = "Dz"

outputNAPA' DL = "Λ"

outputNAPA' TSY = "C\x313"

outputNAPA' TLY = "λ"

outputNAPA' S = "S"

outputNAPA' LH = "Ł"

outputNAPA' L = "L"

outputNAPA' LY = "L\x313"

outputNAPA' J = "Y"

outputNAPA' JY = "Y\x313"

outputNAPA' K = "K"

outputNAPA' KW = "K<sup>w</sup>"

outputNAPA' G = "G"

outputNAPA' GW = "G<sup>w</sup>"

outputNAPA' KY = "K\x313"

outputNAPA' KWy = "K\x313<sup>w</sup>"

outputNAPA' Q = "Q"

outputNAPA' QW = "Q<sup>w</sup>"

outputNAPA' GU = "Ĝ"

outputNAPA' GUW = "Ĝ<sup>w</sup>"

outputNAPA' QY = "Q\x313"

outputNAPA' QWy = "Q\x313<sup>w</sup>"

outputNAPA' X = "X"

outputNAPA' XW = "X<sup>w</sup>"

outputNAPA' XU = "X\x30c"

outputNAPA' XUW = "X\x30c<sup>w</sup>"

outputNAPA' W = "W"

outputNAPA' WY = "W\x313"

outputNAPA' Y = "Y"

```

outputNAPA' H = "H"

outputNAPA' A = "A"

outputNAPA' E = "E"

outputNAPA' I = "I"

outputNAPA' O = "O"

outputNAPA' U = "U"

outputNAPA' AU = "Θ"

-- asdfzxcv

-- Strict Text-based output

decodeToNapa :: [CasedChar] -> T.Text

decodeToNapa = T.concat . (map $ mapChar $ mapCase outputNAPA' outputNAPA)

decodeToNAPA :: [CasedChar] -> T.Text

decodeToNAPA = decodeToNapa

-----

-- Using Builders

-- Builder-based lower-case letter output

```

outputNAPA2 :: KwakLetter -> TL.Builder

outputNAPA2 M = "m"

outputNAPA2 MY = "m\x313"

outputNAPA2 N = "n"

outputNAPA2 NY = "n\x313"

outputNAPA2 P = "p"

outputNAPA2 T = "t"

outputNAPA2 B = "b"

outputNAPA2 D = "d"

outputNAPA2 PY = "p\x313"

outputNAPA2 TY = "t\x313"

outputNAPA2 TS = "c"

outputNAPA2 TL = "λ"

outputNAPA2 DZ = "dʒ"

outputNAPA2 DL = "λ"

outputNAPA2 TSY = "c\x313"

outputNAPA2 TLY = "λ\x313"

outputNAPA2 S = "s"

outputNAPA2 LH = "ʔ"

outputNAPA2 L = "l"

outputNAPA2 LY = "\x313"

outputNAPA2 J = "y"

outputNAPA2 JY = "y\x313"

outputNAPA2 K = "k"

outputNAPA2 KW = "k^w"

outputNAPA2 G = "g"

outputNAPA2 GW = "g^w"

outputNAPA2 KY = "k\x313"

outputNAPA2 KWY = "k\x313^w"

outputNAPA2 Q = "q"

outputNAPA2 QW = "q^w"

outputNAPA2 GU = "ğ"

outputNAPA2 GUW = "ğ^w"

outputNAPA2 QY = "q\x313"

outputNAPA2 QWY = "q\x313^w"

outputNAPA2 X = "x"

outputNAPA2 XW = "x^w"

outputNAPA2 XU = "x\x30c"

outputNAPA2 XUW = "x\x30c^w"

outputNAPA2 W = "w"

outputNAPA2 WY = "w\x313"

outputNAPA2 Y = "?"

outputNAPA2 H = "h"

outputNAPA2 A = "a"

outputNAPA2 E = "e"

outputNAPA2 I = "i"

outputNAPA2 O = "o"

outputNAPA2 U = "u"

outputNAPA2 AU = "ə"

-- asdfzxcv

-- Builder-based Upper-case letters

outputNAPA2' :: KwakLetter -> TL.Builder

outputNAPA2' M = "M"

outputNAPA2' MY = "M\x313"

outputNAPA2' N = "N"

outputNAPA2' NY = "N\x313"

outputNAPA2' P = "P"

outputNAPA2' T = "T"

outputNAPA2' B = "B"

outputNAPA2' D = "D"  
outputNAPA2' PY = "P\x313"  
outputNAPA2' TY = "T\x313"  
outputNAPA2' TS = "C"  
outputNAPA2' TL = "λ"  
outputNAPA2' DZ = "Dz"  
outputNAPA2' DL = "Λ"  
outputNAPA2' TSY = "C\x313"  
outputNAPA2' TLY = "λ"  
outputNAPA2' S = "S"  
outputNAPA2' LH = "Ł"  
outputNAPA2' L = "L"  
outputNAPA2' LY = "L\x313"  
outputNAPA2' J = "Y"  
outputNAPA2' JY = "Y\x313"  
outputNAPA2' K = "K"  
outputNAPA2' KW = "Kw"  
outputNAPA2' G = "G"  
outputNAPA2' GW = "Gw"  
outputNAPA2' KY = "K\x313"

outputNAPA2' K W Y = "K\u00d7313\u201d"

outputNAPA2' Q = "Q"

outputNAPA2' Q W = "Q\u201d"

outputNAPA2' G U = "G\u0304"

outputNAPA2' G U W = "G\u0304\u201d"

outputNAPA2' Q Y = "Q\u00d7313"

outputNAPA2' Q W Y = "Q\u00d7313\u201d"

outputNAPA2' X = "X"

outputNAPA2' X W = "X\u201d"

outputNAPA2' X U = "X\u00d730c"

outputNAPA2' X U W = "X\u00d730c\u201d"

outputNAPA2' W = "W"

outputNAPA2' W Y = "W\u00d7313"

outputNAPA2' Y = "Y"

outputNAPA2' H = "H"

outputNAPA2' A = "A"

outputNAPA2' E = "E"

outputNAPA2' I = "I"

outputNAPA2' O = "O"

outputNAPA2' U = "U"

```
outputNAPA2' AU = "Θ"
```

```
-- asdfzxcv
```

```
decodeToNapa2 :: [CasedChar] -> T.Text
```

```
decodeToNapa2 = TL.toStrict . decodeToNapaLazy -- TL.toLazyText . (mconcat . (map  
$ mapChar2 TL.fromText $ mapCase outputNAPA2' outputNAPA2))
```

```
decodeToNAPA2 :: [CasedChar] -> T.Text
```

```
decodeToNAPA2 = decodeToNapa2
```

```
decodeToNapaLazy :: [CasedChar] -> TL.Text
```

```
decodeToNapaLazy = TL.toLazyText . (mconcat . (map $ mapChar2 TL.fromText  
$ mapCase outputNAPA2' outputNAPA2))
```

```
decodeToNAPALazy :: [CasedChar] -> TL.Text
```

```
decodeToNAPALazy = TL.toLazyText . (mconcat . (map $ mapChar2 TL.fromText  
$ mapCase outputNAPA2' outputNAPA2))
```

## **23. Technical Appendix pictures and images**

This section provides a brief overview of the technologies used to illustrate and record audio-video media for Eke Mi Xi materials and document on-the-land activities.

### **23.1. Clip art, images, and educational templates**

Images and audio-video media used in Eke Me Xi materials provide context for the language activities. The goal was to utilize images and media that illustrate authentic settings and situations based on activities and communities in North Vancouver Island and mainland settings. The materials developed at Eke Mx Xi included pictures and videos taken during activities, clip art from the Web, and images developed using Daz3D.<sup>112</sup>

### **23.2. Graphic image development and clip art**

I created images for Eke Me Xi materials using DAZ3D (Daz Productions Inc, 2020)<sup>113</sup> or utilized clip art from Clker.com (Clker.com, 2021b). Icons available on Google Chromebooks were also used during student activities, for example, when students had to match emotions words with icons. The benefit of using Daz3D over clip art is that Daz3D

---

<sup>112</sup> In contrast, for the NILDP and Canada Works programs we hired artists to illustrate materials (Zuk & Evans, 1977b).

<sup>113</sup> Daz3D images created by a user are the property of the user, however, the "source" code remains the copyright of the creator. Details of copyright are included in Section 33.

enables image modification. Daz3D utilizes predefined source images that users can modify to create their own work. For example, materials can be adjusted by the user (e.g., skin tone and hair colour). In addition, the end user is also able to vary poses and include background. Illustration 14 Clip art and Daz3D compares online clip art and a Daz3D illustration for a worksheet on body parts.

Illustration 14 Clip art and Daz3D

Clip art	Illustration using Daz3D
 <p>(Eke Me Xi, 2021b)</p>	 <p>Image by Peter Wilson</p>
<p>Image from (Clker.com, 2018)</p>	<p>(Daz Productions Inc, 2020)</p>

The images in Section 12.1 |**Wisa**| and |**Gana**| pick and dry huckleberries (Illustration 11 and Illustration 12) were produced in Daz3D. Illustration 11 also includes a background picture of the elementary school on the Gwa'sala-'Nakaxda'xw Tsulquate Reserve.

### **23.3. Website images**

The online “Jeopardy” games developed to review lessons contain images from Eke Me Xi activities as well as images provided by the website (Solis Creative, llc, 2020). The website allows teachers to develop review lessons which are stored online and available for classroom and student use. The website includes graphics for navigation. See Section 24.4.2 for examples from the Jeopardy game developed to review clothing words and phrases (Solis Creative, llc, 2020).

### **23.4. Applications**

Photo editing software included:

- Microsoft Office (MS Office, 2021)
- Cyberlink Power Director (Cyberlink Corp., 2015)
- Microsoft Paint (MS Paint, 2021)

Audio editing software:

- Audacity (Audacity Team, 2021)

Video production

- Cyberlink Power Director (Cyberlink Corp., 2015)
- Final Cut Pro (Apple Inc, 2021)

## 24. Eke Me Xi Sample materials

This section contains examples of the materials that I developed with Eke Me Xi teachers and the |Gwa'sala-'Nak'waxda'xw|, |Kwaguł| and |Gusgimu'xw| community Elders.

Some of the materials developed for Eke Me Xi build on those from my earlier work with NILDP-CW projects. The following examples illustrate the range of materials from project activities.

Connections between Indigenous knowledge and B.C. courses during school-based and field trip activities were the responsibility of the Eke Me Xi teachers. Connections are guided by the curriculum document *Indigenous Knowledge and Perspectives in K-12 Curriculum* (BCED, 2020f) which provides supports for teachers seeking to integrate Indigenous knowledge and perspectives across the curriculum. The context of integration in B.C. schools is noted below:

In B.C.'s redesigned curriculum, Indigenous knowledge and perspectives are integrated throughout all areas of learning and are evident in the curriculum's rationale statements, goals, big ideas, mandated learning standards, and elaborations. The First Peoples Principles of Learning offer a crucial lens for curriculum, placing a significant importance on the authentic integration of Indigenous knowledge and perspectives in relevant and meaningful ways.

(BCED, 2020c)

In addition, the Eke Me Xi program also includes courses specifically designed to integrate Indigenous themes and knowledge. These courses include:

- English 10 and 11 First Peoples, (BCED, 2010)
- English First Peoples 12, (BCED, 2020b, p. Appendix 1)
- B.C. First Peoples 12. (BCED, 2020b, p. Appendix 1)
- Contemporary Indigenous Studies 12, (BCED, 2020b, p. Appendix 1)

#### **24.1. The first integrated activity**

When I first arrived at Eke Me Xi, students were working on a school-wide initiative focussing on traditional knowledge regarding respectful behaviours. This included activities that occurred during the Kwakwala class as well as activities in art and English. As part of this activity, students worked in small groups developing board games. The board game activities were conducted in English but focussed on respectful behaviours based on the Gwa'sala - Nakwaxda'xw worldview (personal communication, Gillian Walkas, Principal of the school at that time). The board game development and activities provided opportunities to practice collaboration and respectful game playing. Board games included: Go Fish (Bicycle Cards, 2017), Snakes and Ladders (Hasbro, 2017a), and Monopoly (Hasbro, 2017b). See Section 24.11 for examples from the Monopoly Game.

I worked with Elder and chief Tom Henderson who provided translations for game playing language and the names used on the game board. Chief Henderson grew up in the traditional territories at |Ba'as| speaking |Bakwamk'ala|. He attended St, Michaels Residential School in Alert Bay beginning at age 6. The materials included Kwakwala phrases, e.g., 'your turn, roll the dice, good job' and words for the games e.g., 'snakes, ladders' as well as fish names for Go Fish and locations for the Monopoly game. See Example 107 Game phrases:<sup>114</sup>

Example 107 Game phrases

Exclamation	Ana'na!		Oh no!
	a'na'na		
	"Oh no"		
Question	Angweda amta?		Who plays?
	angwe.da?	amta	
	who.pro3.INT.PROX3.DET		
Command	Amtam'as!		Play!
	amtam'-as		
	play-VER-pro2.IMP		

<sup>114</sup> Examples from games (1)-(3) are written in U'Mista Orthography that is used at Eke Me Xi.

Question	Angwasuḡwda dzastu?		Who is the blue one? (i.e., a game board marker)
	angwa-suḡwda	dzastu	
	who- pro3.SBJ.INT.OTH.PROX2.DET	blue	

(Eke Me Xi, 2021g)

### 24.1.1. Sound drills and character recognition, minimal pairs

The "Introduction to Kwakwala 11" course includes expectations that students will gain familiarity with the sounds and written conventions of Kwakwala. The curriculum indicates that students will gain the capacity to:

recognize, pronounce, and form the characters of the Kwakwala alphabet

(SD85, 2010, p. 112)

The Eke Me Xi materials I developed for Eke Me Xi include an alphabet book (Wilson P. , 2017d), as well as sound system, pronunciation, and listening drills. Examples of these are listed below in Sections 24.1.1 and 24.1.2.

The following sound drill and character recognition example activities are based on minimal pair distinctions between two sound-symbol pairs. Teacher instructions are included in Lesson Example 13. The teacher hands out Lesson Example 14 and displays it on an overhead. The example below is the teacher copy, student copies do not have the English words written in. See Lesson Example 13 through Lesson Example 16.

Lesson Example 13 Activity 1 Page 1 instructions:

Sounds in Kwakwala 2: **kw** **kẉ** **kw̥** **kw̨** **xw** **xẉ** Activity 1 Page 1

Step 1: The teacher hands out the worksheet [Lesson Example 14] and displays it on an overhead. This activity is designed to be conducted on paper or the school Chromebooks [Since the Chromebooks at Eke Me Xi are not able to use the canonical orthography for the U'mista writing system, the computer-based materials were developed with the Kwakwala pre-written].

Step 2: The teacher introduces the lesson sounds to be studied and begins by pronouncing each word pair drawing attention to the differences both in sound and spelling.

Step 3: The students each pronounce the word while the teacher listens. After each word pair, students write the translation into the worksheet.

(Eke Me Xi, 2021h)

Lesson Example 14 Sounds in Kwakwala 2: kw ḳw k̥w k̄w xw x̣w

**Ḳatidax̣is ḍtigamos** \_\_\_\_\_ (write your name)

kwisa	to spit
ḳwisa	to snow
kisa	to scratch
ḳwisa	to squeeze something out in hand
xwapa	hollow
ḳwapa	to sprinkle powdery substance
ḳwisa	to squeeze something out with your hand
ḳwasa	to turn pages in a book
kwasa	noise a blue jay makes
x̣wita	to stir
ḳwita	to pry something

(Eke Me Xi, 2021h)

Lesson Example 15 Instructions, part 2 Student Activity (Lesson Example 16)

Page 2 of the example lesson is a listening comprehension activity. In this activity, the students circle the word that the teacher is saying.

Sounds in Kwakwala 2: **kw** **ḳw** **kẉ** **ḳẉ** **xw** **x̣w** Activity 2 Page 2

Step 1: The teacher displays on the overhead page 2 of Lesson Example 16 and explains the activity. Only one of the words for each pair will be pronounced. The students circle the word they hear (or highlight if on computer).

- teacher pronounces word two times
- teacher speaks the word in a sentence example
- teacher pronounces the word again

Step 2: When all of the word pairs are complete, the teacher uses the overhead to highlight the correct words and responds to any student questions.

(Eke Me Xi, 2021h)

Lesson Example 16: Sounds in Kwakwala 2: kw ḳw ḳw ḳw xw x̣w

Sounds in Kwakwala 2: kw ḳw ḳw ḳw xw x̣w

Katidax̣is ḍhigamos \_\_\_\_\_

1	ḳa or ḳa
2	ḳwisa or ḳwisa
3	kisa or ḳwisa
4	ḳwasa or kwasa
5	xwapa or ḳwapa
6	saka or saka
7	kasa or ḳasa
8	xwita or ḳwita

(Eke Me Xi, 2021h)

**24.1.2. Sounds and characters: follow up activities**

Lesson Example 17 Alphabet Book

Students create their own word list book by copying from the sounds and characters

lessons and other activities.


kaxalaga crow
kisa scratch

(Eke Me Xi, 2021h)

Lesson Example 18 Sounds and characters Bingo

Each student has a different bingo card containing words from sounds and characters activities. They place a bingo chip on a word when it is called by the teacher.

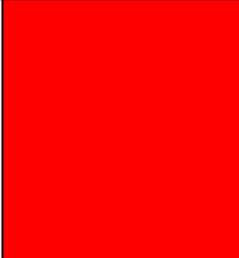
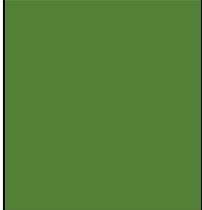
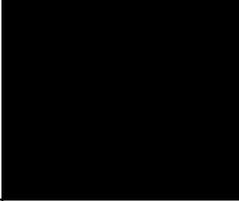
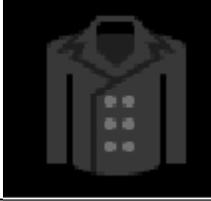
'wānx'id	sāka	xwita	kwisa	ka
'māla	ka	t'rukwa	kwisa	kwasa
māla	kasa	rukwa	kisa	kwisa
wānx'id	sāka	kwita	kwisa	kwapa
nala	k'a	d'axwida's	xwapa	kwasa

(Eke Me Xi, 2021g)

Variations to Bingo include providing pictures with the words, as illustrated in Lesson Example 19 below. When the students become more proficient with the words and sounds, the written words can be removed leaving just the pictures. Elders enjoyed playing the Bingo with just the pictures. This also prompted the Elders to discuss how they could use these cards for Kwakwala activities with their grandchildren.

Lesson Example 19 Gwiłgwela (Clothing) Bingo

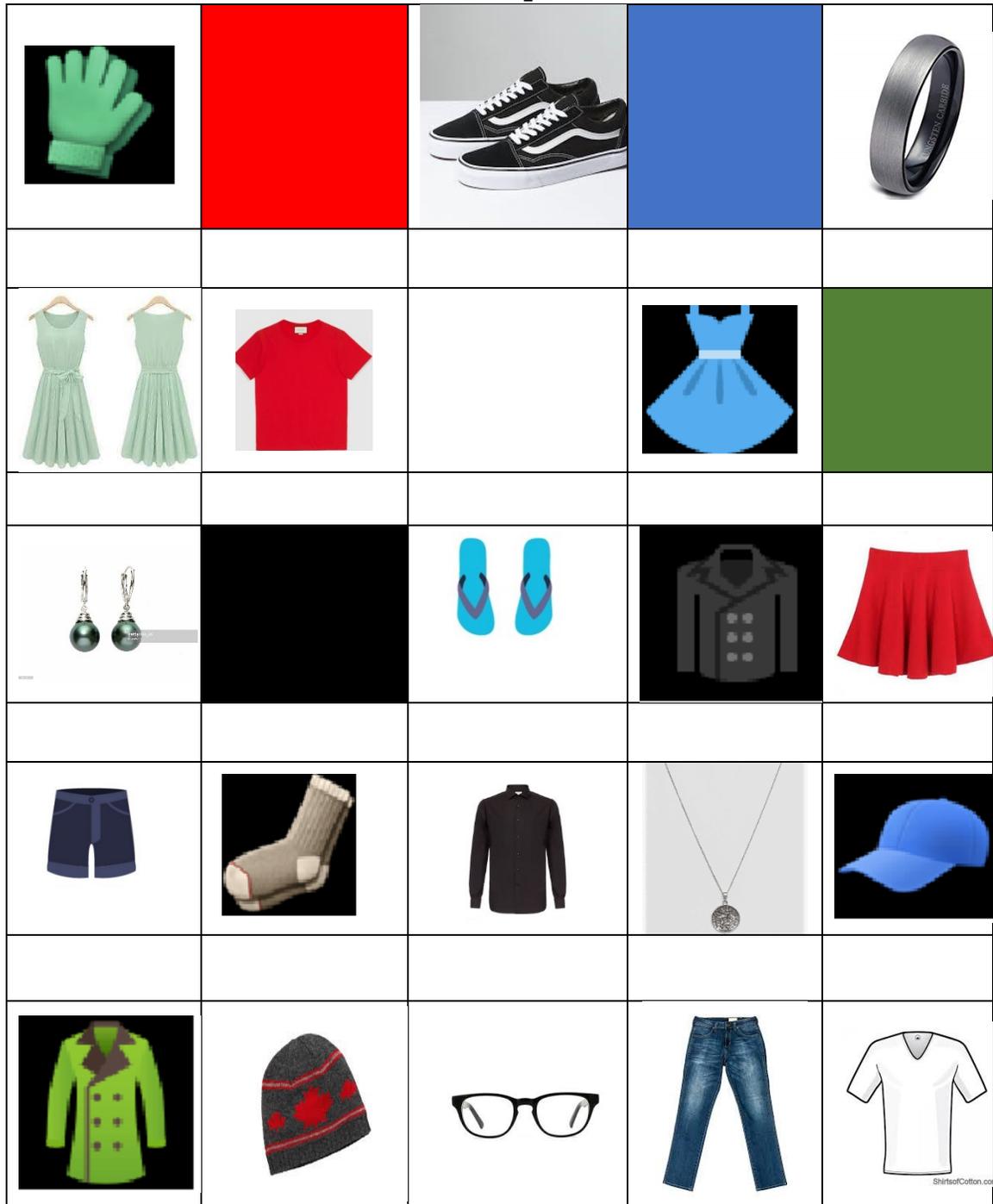
Gwiłgwela (Clothing) Bingo: Kát'idaxis dłigamos

				
łanxa tsupayx	łrakwa	tsuła tibayu	dzastu	kekadaxtre
				
łanxa kasane	łrakwa kasane	'mala	dzastu kasane	łanxa kasane
				
ti'stakwa	tsuła	dzastu tibayu	dadatsawakw	łrakwa tsaxsdi
				
tsuła kaxsis	dagans	tsuła kasane	sabaxtla'e	ked
				
łanxa dadatsawakw	yagakw	haxasta'wo	dzamba	'mala kasane

(Eke Me Xi, 2021g)

Lesson Example 20 |Gwiḡwela| (Clothing) Bingo

|Gwiḡwela| (Clothing) Bingo |Kat'idaxi| dḡigamos \_\_\_\_\_



(Eke Me Xi, 2021g)

## 24.2. Word Paradigms

The following sentences are verb paradigms distributed to Eke Me Xi senior students in September 2019. They include the verbs |la| ‘go’ and |dukwa| ‘see’. These examples represent an initial step in developing a method to utilize paradigm tables with students. Deixis is listed as "near 1" etc. rather than PROX1 which is used in the analysis.

The verb |la| ‘go’ in Lesson Example 21 includes intransitive examples in indicative and interrogative moods with pronominal inflections.

Lesson Example 22 lists the verb |dukwa| ‘to give’ with pronominal subjects and pronominal objects for third person and pronoun objects for first and second person (there are no pronominal first and second object markers in Kwakwala).

Lesson Example 21 |la| 'to go'

la	to go	
La'amtʃan.	go	I'm going.
La'amtʃants.	go	We (inc) are going.
La'amtʃanu'xw.	go	We (exc) going.
La'amtʃa'an.	go	Am I going.
La'amtʃa'ants.	go	Are we (inc) going.
La'amtʃa'anu'xw.	go	Are we (exc) going.
La'amtʃas.	go	You are going.
Laxda'xwamtʃas.	go	You plural are going.
La'amtʃas.	go	Are you going.
Laxda'xwamtʃas.	go	Are you plural going.
La'amtʃuxw.	go	He-she (near 2) is going.
La'amtʃi.	go	He-she (near 3) is going.
Laxda'xwamtʃuxw.	go	They (near 2) are going.
Laxda'xwamtʃi.	go	They (near 3) are going.
La'amtʃa'uxw.	go	Is he-she (near 2) going.
La'amtʃa'i.	go	Is he-she (near 3) going.
Laxda'xwamtʃa'uxw.	go	Are they (near 2) going.
Laxda'xwamtʃa'i.	go	Are they (near 3) going.

(Eke Me Xi, 2021b)

Lesson Example 22 |dukwa| ‘to see’

dukwa	to see	
Duḱala'mantfaxw.	see	I see him-her (near 2).
Duḱwla'mantax.	see	I see him-her (near 3).
Duḱwala'mantsaḱw.	see	We (inc) see-her him (near 2).
Duḱwalamantsaḱ.	see	We (inc) see him-her (near 3).
Duḱwala'manu'xwaḱw.	see	We (exc) see him-her (near 2).
Duḱwala'manu'xwaḱ.	see	We (exc) see him-her (near 3).
Duḱwala'muxwaḱw.	see	He-she (near 2) sees him-her (near 2).
Duḱwala'muxwaḱ.	see	He-she (near 2) sees him-her (near 3).
Duḱwala'mixaḱw.	see	He-she (near 3) sees him-her (near 2).
Duḱwala'mixaḱ.	see	He-she (near 3) sees him-her (near 3).
Duḱwala'muxw gaḱan.	see	He-she (near 2) sees me.
Duḱwala'mi gaḱan.	see	He-she (near 3) see me.
Duḱwala'am gaḱants.	see	He-she (near 2) sees us (inc).
Duḱwala'am gaḱanuxw.	see	He-she (near 2) sees us (exc).
Duḱwala'muxw lotf.	see	He-she (near 2) sees you.
Duḱwala'mi lotf.	see	He-she (near 3) sees you.

(Eke Me Xi, 2021b)

Lesson Example 23 exemplifies marking plural pronominals with the word |Wi'la| ‘many’ and the plural suffix |-xda'xw|.

Lesson Example 23 Plural marking

Wi'la'muxw dukwala laxda'xwutł.	see	He-she (near 2) sees all of you (near 2).
Wi'la'mi dukwala laxda'xwutł.	see	He-she (near 3) sees all of you (near 2).
Dukwalexda'xw'muxwakw.	see	They (near 2) see it (near 2).
Dukwalexda'xw'mixakw.	see	They (near 3) see it (near 2).
Dukwalexda'xw'muxwak.	see	They (near 2) see it (near 3).
Dukwalexda'xw'mixak.	see	They (near 3) see it (near 3).

(Eke Me Xi, 2021b)

Lesson Example 24 below includes examples with pronominal inflections and full word nominal objects. Visibility marking occurs suffixed on nominals.

Lesson Example 24 Pronominals and word objects

Dukwala'mantaxwa 'watsi.	see	I see the dog (near 2 ~VIS)
Dukwala'mantaxida 'wats.	see	I see that dog (near 3 ~VIS)
Dukwala'mantaxoxwda 'watsi.	see	I see that dog (near 2 ~VIS)
Dukwala'mantaxoxwda kadayuxw.	see	I can see that pen (near 2 +VIS)
Dukwala'mantaxida kadayu.	see	I can see that pen (near 3 ~VIS)
Dukwala'mantaxgada kadayuk.	see	I can see this pen (near 1 +VIS)

(Eke Me Xi, 2021b)

Lesson Example 25 includes examples where nominals are marked as visible as long as they are known and nearby even if the speaker does not actually "see" them.

Lesson Example 25 |dukwá| 'to see' with negative and visible

Isan dukwáloxwda kadayuxw.	see	I can't see that pen (near 2 +VIS).
Isan dukwáloxgada kadayuk.	see	I can't see this pen (near 1 +VIS).

(Eke Me Xi, 2021b)

Lesson Example 27 indicates that the speaker can't see the writing but knows that it is there (the writing is visible) but is not able to read it because the glasses are not near (and not visible). Location and visibility in Kwakwala requires further research in educational materials.

Lesson Example 26 'to see' with negative, visible, and not visible

Isan dukwáloxgada kadakwix kaxgan t'aliwa'yigantaxan hanaxasto'ya.	see	I can't see this writing (near 1 +VIS) because I forgot my glasses (near 3 -VIS).
--------------------------------------------------------------------------	-----	-----------------------------------------------------------------------------------------

(Eke Me Xi, 2021b)

### 24.2.1. Pattern practice

Pattern practice activities build on paradigm concepts to reinforce inflectional similarities. The NILDP-CW program developed a Pattern Practice Workbook (Wilson & Henderson, 1979b). Some of the concepts from the NILDP-CW workbook were adapted for Eke Me Xi. Lesson Example 27 was one of the first activities I used at Eke Me Xi. This lesson provides pattern practice of Yes/No questions asking about one's state, as in "are you well" with positive answers, e.g., "I am well." I printed out the following worksheet and prepared to either display it on the overhead projector from MS Word or write the words on a white board.<sup>115</sup> I introduced the lesson and handed out the worksheet. I read the questions and answers and led the students during a discussion highlighting the differences between the question and answer. I also highlighted the last three examples that use the derivational suffix  $|-ixsda|$  'to want' and the effect on the translation. When the students had grasped the concept of substituting the question form  $|-as|$  'are you' from the statement 'I am', I asked them to complete the worksheet. During the activity I circulated to assist as needed. I then wrote the answers on the board and asked students to volunteer. We practiced as a whole class saying the question and responding. Students can then be encouraged to take turns asking each other.

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<sup>115</sup> I would use the computer display only if the U'mista keyboard on the computer was available, as the English keyboard does provide for some Kwakwala characters.

Lesson Example 27 Pattern Practice Activity Eke Me Xi

Lesson 1 Question / Answer 1 (Teacher Copy - answers included)

Answer the following questions in Kwakwala and English as illustrated below:

Ix'mas? Are you well? Ix'man. I am well.

Ix'mas?	Are you well?	Ix'man.	I am well.
Pusk'a'mas?	Are you hungry?	Pusk'a'man.	I am hungry.
Kalk'a'mas?	Are you tired?	Kalk'a'man.	I am tired.
Tsaxala'mas?	Are you in pain?	Tsaxala'man.	I am in pain.
Heli'mas?	Are you comfortable?	Heli'man.	I am comfortable.
Tsalkwa'mas?	Are you warm?	Tsalkwa'man.	I am warm.
Na'ke'axsda'mas?	Do you want something to drink?	Na'ke'axsda'man.	I want something to drink.
Nenak'wixsda'mas	Do you want to go home?	Nenak'wixsda'man.	I want to go home.
Am'lixsda'mas?	Do you want to play?	Am'lixsda'man.	I want to play.

(Eke Me Xi, 2020f)

Lesson Example 28 provides examples of a negative answer to the questions. The negative answers involve a change in structure, where the negative verb ‘I am not’ precedes the main verb and the main verb is not marked. In some main verbs, the final "a" is present, and in other verb forms it is not. In addition, the |-'m| verum marker is not used in negative constructions. This created an opportunity to discuss the changes.

Notes on verum:

I gloss the verum marker as ‘now’ in the materials. The verum marker in questions and positive answers indicates that a condition is "true." For example, in the question we could translate ‘are you well’ as ‘is it true that you are well?’ and in a positive answer translate ‘it is true that I am well.’ In the negative, however, verum does not apply.

Stem final variations are subject to morphophonemic variation. In these examples, it is possible to engage students to suggest analyses of this data set. For example, if the verum suffix |'m| is preceded by the vowel "a" in a question, then the vowel occurs on the stem.

|pusḳa'mas| <---> |pusḳa|      vs.      |ix'mas| <----> |ix|

The other option is to utilize verb paradigm tables to group words into sets that exhibit the same morphophonemic processes. In paradigm tables, uninflected stems or base forms for the above would be |pusḳa| and |ix| respectively. Lesson Example 28 to Lesson Example 32 exemplify pattern practice activities.

Lesson Example 28 Pattern Practice Activity Eke Me Xi

Lesson 1 Question / Answer 2 (Teacher Copy - answers included)			
Answer the following questions as illustrated below:			
Ix'mas?	Íis̱an ix.	Pus̱ka'mas?	Íis̱an pus̱ka.
Are you well?	I am not well.	Are you hungry?	No, I'm not hungry.
Ix'mas?	Are you well?	Íis̱an ix.	I am not well.
Pus̱ka'mas?	Are you hungry?	Íis̱an pus̱ka.	I am not hungry.
Ḵalḵa'mas?	Are you tired?	Íis̱an ḵalḵa.	I am not tired.
Ṯsax̱ala'mas?	Are you in pain?	Íis̱an ṯsax̱ala.	I am not in pain.
Helił'mas?	Are you comfortable?	Íis̱an helił.	I am not comfortable.
Ṯsalḵwa'mas?	Are you warm?	Íis̱an ṯsalḵwa.	I am not warm.
Na̱ke'a̱xsda'mas?	Do you want a drink?	Íis̱an na̱ke'a̱xsda.	I do not want a drink.
Nenaḵwix̱sda'mas?	Do you want to go home?	Íis̱an nenaḵwix̱sda.	I do not want to go home.
Am'lix̱sda'mas?	Do you want to play?	Íis̱an am'lix̱sda.	I do not want to play.

(Eke Me Xi, 2020f)

Once the students are comfortable with the structures above, additional pattern practice activities can be developed to reinforce communicative activities. For example, game play language can be adapted to pattern practice as in Lesson Example 29.

Lesson Example 29 Pattern practice based on game play vocabulary

Fill in the blank boxes in Kwakwala			
Am'liḡsda'mas?	Do you want to play?		I want to play.
Dulo'mas?	Are you the winner?		I'm not the winner.
Gwala'mas?	Are you finished?		I'm not finished.
Ḳanḡa'mas?	Are you the green one?		I am the green one. (game board marker)
Lipa'mas?	Are you going to play cards?		I'm not going to play cards.
Mayata'mas?	Are you sorry?		I'm sorry.

(Eke Me Xi, 2020f)

Lesson Example 30 Game Worksheet Patterns

Game Worksheet Patterns <i>Katidasxus dligamos:</i> _____			
Question	Translation	Answer	Translation
<i>Amla'mas?</i>	Are you playing?	<i>Amla'man.</i>	I'm playing.
<i>Gwala'mas?</i>	Are you finished?		
<i>Helaxa'mas?</i>	Are you lucky?		
<i>Udzaxa'mas?</i>	Are you unlucky?		
<i>Ix'mas?</i>	Are you well?		
<i>Yatlo'mas?</i>	Are you careful?		
<i>Lipa'mas?</i>	Are you playing cards?		
<i>Amla'mas?</i>	Are you playing?	<i>Kisan amla.</i>	I'm not playing.
<i>Gwala'mas?</i>	Are you finished?		
<i>Helaxa'mas?</i>	Are you lucky?		
<i>Udzaxa'mas?</i>	Are you unlucky?		
<i>Ix'mas?</i>	Are you well?		
<i>Yatlo'mas?</i>	Are you careful?		
<i>Lipa'mas?</i>	Are you playing cards?		

(Eke Me Xi, 2020f)

Lesson Example 31 Lesson 1 Question/Answer 1

Answer the following questions as illustrated below:

Ix'imas? Iximān.

Are you well? I am well.

Ix'imas?	Are you well?	Iximān.
Pu'ya'mas?	Are you hungry?	
Kalk'a'amas?	Are you tired?	
Tsaxal'amas?	Are you in pain?	
Heli'imas?	Are you comfortable?	
Tsal'kwai'mas?	Are you warm?	
Na'ke'a'axsda'mas?	Do you want a drink?	
Nenak'wi'x'sda'mas?	Do you want to go home?	
Am'li'x'sda'mas?	Do you want to play?	

(Eke Me Xi, 2020f)

Lesson Example 32 Lesson 1 Question/Answer 2

Answer the following questions as illustrated below:

Ix'mas?	K'isaṅ ik.	Puska'mas?	K'isaṅ puska.
Are you well?	I am not well.	Are you hungry?	No, I'm not hungry.

Ix'mas?	Are you well?	K'isaṅ ik.
Pu'ya'mas?	Are you hungry?	
Kalkamas?	Are you tired?	
Tsaxala'mas?	Are you in pain?	
Heli'mas?	Are you comfortable?	
Tsal'kwa'mas?	Are you warm?	
Na'ke'axsda'mas?	Do you want a drink?	
Nenak'wixsda'mas?	Do you want to go home?	
Am'lixsda'mas?	Do you want to play?	

(Eke Me Xi, 2020f)

### **24.3. Integrating language: clam and seaweed gathering and processing**

Clamming and seaweed gathering and processing activities occurred over two school years and were designed to integrate activities with grade 8 and 9 science and geography, grade 10-12 ecology, native studies, and the foods/nutrition course. Students learned |Bał'wəm'kala| traditional words and knowledge for phases of the moon and tides, clamming technology, and seaweed gathering and preparation. In addition, activities included comparison with textbook presentations, such as moon and tide phases, which differed from traditional knowledge.

In March and April (2017) two clam digging field trips and one seaweed gathering field trip were organized for the school. These took place at Cluxsiwi, a river and beach area on Vancouver Island about 20 minutes south of Tsulquate. This is not a traditional area for the Gwa'sala - Nakwaxda'xw community, but is a traditional area for |Kwaguł|, one of the communities served by the school.

When I reviewed the materials and activities with Tom Henderson, he provided information about the correct times of the year and locations for seaweed gathering in |Gwa'sala - Nakwaxda'xw| traditional territories. Henderson noted that the |Gwa'sala - Nakwaxda'xw| had a method of seaweed gathering not typical of Vancouver Island communities. In this alternate method, seaweed is scooped into small dugouts from the

water directly, as opposed to waiting for low tide to gather seaweed while walking on the beach. This provides an example of how regular review and data checking are important to discover the variations in technology and knowledge among various communities.

#### **24.4. Review activities**

In addition to materials designed to accompany lessons, review and reinforcement activities were developed to consolidate learning. Review included vocabulary and sentence activities. Online review was developed to include whole class oral-aural activities, and individual written assignments.

##### **24.4.1. Online review**

Online review activities at Eke Me Xi were developed using "Jeopardy" board game development at PlayFactile (Solis Creative, llc, 2020). Examples of activities include a review of clothes and colours (Eke Me Xi, 2020a), field trips for clamming (Eke Me Xi, 2020b) and weather and food (Eke Me Xi, 2021o). The categories for weather and food are: |Gans-| (*how many*), |Am dlu ki| (*yes or no*), "Shellfish," "Near Bradley Lagoon,"<sup>116</sup> |Matsaligada| (*what is that?*), and |Gwa'dzi| "*Port Hardy*." Clicking on the \$200 choice for |Gwa'dzi| shows the word "Drugstore" and a picture of one of the drugstores in Port Hardy. The correct answer is |padilas| (*drugstore or health centre*). The |Am dlu Ki| \$400

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<sup>116</sup> Bradley Lagoon is located near Ba'as, see **Error! Reference source not found.**

choice is |Kwānxwāxā 'nalax| (there is thunder-lighting today) with a cloud icon. The correct answer is |Ki, anwadi'muxwda 'nalax| (*no, it is cloudy today*) (Eke Me Xi, 2021o).

Lesson Example 33 shows the game board for the review of clothes and colours.

Typically, the game is played in whole class format where students are divided into two or more teams. Teams take turns choosing a question and the team collaborates to answer.

The Jeopardy games include categories and dollar amounts. Usually, the higher the value, the more difficult the question. Examples of clothing review are included below from Lesson Example 33 to Lesson Example 36.

Lesson Example 33 Question word and answers Jeopardy

BASIC COLOURS	CLOTHING	CLOTHES COLOURS	AM DLU K'IT
\$100	\$100	\$100	\$100
\$200	\$200	\$200	\$200
\$300	\$300	\$300	\$300
\$400	\$400	\$400	\$400
\$500	\$500	\$500	\$500

(Eke Me Xi, 2020a)

Lesson Example 34 WH question

<p>'WIKSUTWI? </p>	<p>What colour is that?</p>
<p>Word Answer</p>	
<p>DZASTU</p>	<p>Blue</p>
<p>Sentence Answer</p>	
<p>DZASTUXWDA KASANE.</p>	<p>That is a blue shirt.</p>

(Eke Me Xi, 2020a)

Lesson Example 35 WH question with clip art

<p>'WIKSTUWIDA GWIŁGWELA? </p>	<p>What colour are the clothes?</p>
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Lesson Example 36 Yes-No question with situated picture

<p>PADILAS'MA'UXW? </p>	<p>Is that the health centre?</p>
----------------------------------------------------------------------------------------------------------------	-----------------------------------

(Eke Me Xi, 2020a)

### **24.4.2. Printed reinforcement materials**

Print-based reinforcement materials reviewed vocabulary, sentences, and communicative-experientially based units of study. These materials were designed to be used following lessons and for review throughout the course. Example review activities follow.

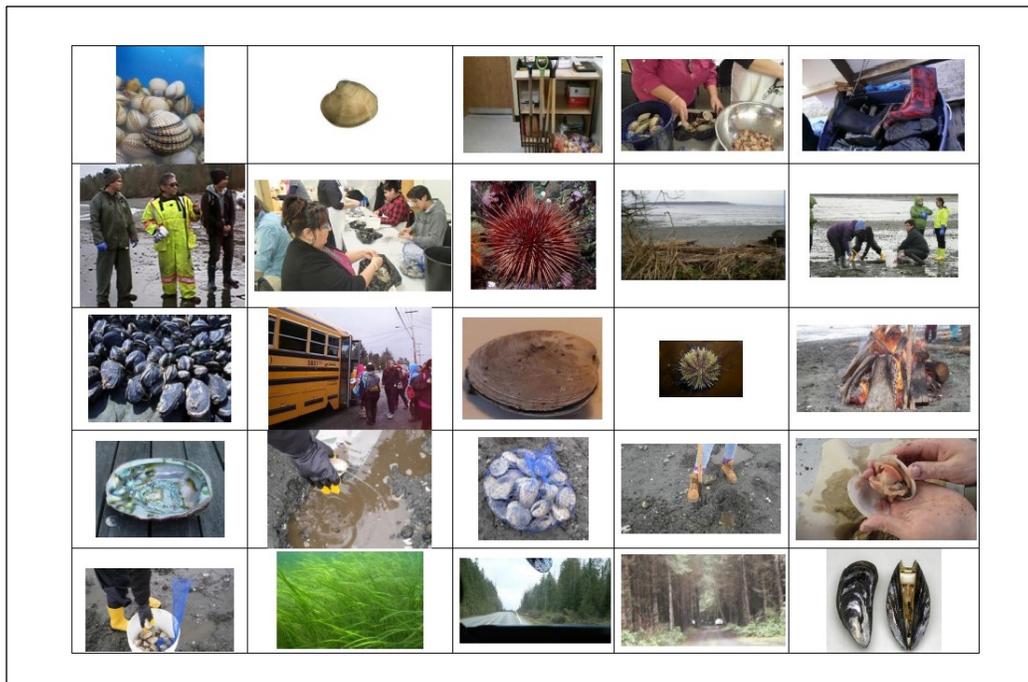
### **24.4.3. Bingo cards: vocabulary review**

Bingo is a popular activity for Elders and community members in Tsulquate. Bingo can be used to reinforce vocabulary, as illustrated in Figure 3 Bingo Card: clam harvesting and processing. In this example, the teacher says the word in Kwakwala, and the students place a Bingo chip on the picture. The pictures on the cards were taken during the activities on the land and at school. The visuals in this example, therefore, are situated in an activity that is authentic and with which the students are familiar. Although the clam harvesting and processing Bingo card focusses on vocabulary, the teacher can reinforce communicative-experiential Kwakwala by interacting with the students in the language. For example, the teacher can encourage students to say |dulo'man| 'I won.'

Example bingo reinforcement activities are above in the section discussing follow up activities for sounds and characters, provided in Section 24.1.2. These activities review the words studied in the listening and clothing lessons. Lesson Example 19 Gwiłgwela (Clothing) Bingo and Lesson Example 20 |Gwiłgwela| (Clothing) Bingo are the same

except that the written words and phrases are omitted in the latter. When the Bingo cards include pictures and words, Elders and students are able to play together, as not everyone reads in Kwakwaka'wakw. Figure 3 is an example Bingo card from the clam harvesting and processing activity where both the translation and written word are omitted.

Figure 3 Bingo Card: clam harvesting and processing



(Eke Me Xi, 2018a)

#### 24.4.4. Review activities: Stories

Review and reinforcement materials include word search activities and comprehension questions for stories and narratives studied in the language class. Examples of these are provided in Section 27.6 which were developed for the story |Wisa| and |Gana| pick and

dry huckleberries. Table 97 Wisa and Ğəna pick and dry huckleberries word search is an example of a word search based on the vocabulary from the story. Table 100 Wisa and Ğəna pick and dry huckleberries: extra dialogues provides example dialogues that reference the story which could be used to stimulate interaction between students. Table 101 provides additional questions for students to answer.

#### **24.5. Video projects**

Video projects at Eke Me Xi began in 2013 and provide opportunities for students to write and direct their own films while being supported by professional film makers. The projects generally occur once per year and are approximately one week in duration. These activities take place during the school day as well as after hours. The program is voluntary and usually includes 6 to 8 students.

The project videos were first initiated during the filming of "How a People Live" (Jackson L. , 2014) at Tsulquate. This is a film by Lisa Jackson and the Gwa'sala-'Nakwaxda'xw Nation. It details the forced relocation of the Gwa'sala-'Nakwaxda'xw Nation from |Ba'as| (Blunden Harbour) and |Gigak| (Smith Inlet) on the B.C. Mainland to the |T'sa|lgwadi| (Tsulquate) Reserve next to Port Hardy on Vancouver Island. The film

explores the relocation and its effect on the Gwa'sala-'Nakwaxda'xw people. Lisa Jackson's website summarizes her film as:<sup>117</sup>

A one-hour documentary tracing the history of the Gwa'sala-'Nakwaxda'xw First Nation, who the Canadian government forcibly relocated from their traditional territories on the coast of British Columbia in 1964. Candid and moving interviews, striking archival films and photos dating back over 100 years, and a visit to their stunning "Homelands" bring to life the story of a people known for their theatrical dances, their strong connection to the land, and the strength that has enabled them to overcome incredible hardships, including disease, residential school and having their villages burned down.

(Jackson L. , 2020)

"How a People Live" is predated by the film "Blunden Harbor" by Robert Gardener. Gardner's film documents the 'Nakwaxda'xw Nation settlement at |Ba'as| (Blunden Harbour) (Gardner & Heick, 1951) before the relocation to Vancouver Island in 1964.

During the film activities for "How a People Live," the film crew collaborated with the Gwa'sala-'Nakwaxda'xw Nation Treaty Department to implement a film studies unit at Eke Me Xi. The goal of the first project (2013) was to assist students to develop two-

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<sup>117</sup> According to Lisa Jackson, the film's name "How a People Live" is a response to Alan Fry's novel "How a People Die" (Fry, 1970), a fictional story that takes place on a reserve in Hardy Bay.

minute videos directed and written by the students. The Treaty Department purchased MAC desktop computers for the school which have been used for video editing since the first program. The videos are publicly available on You Tube (Eke Me Xi (Publisher), Ricky Johnnie (Director, Writer), 2013a).

The video program has continued yearly since 2013. From 2014 to 2019 the program has been run by Our World (2020a). Our World collaborates with First Nations, Inuit, and Metis communities to provide filmmaking experiences for youth. Their website states:

The mandate of Our World is to partner with communities to provide access to media arts training as a means of empowerment through artistic & cultural expression, and to integrate First Nation, Métis and Inuit languages and culture into films as a way to heal the past, claim the present and move forward into the future with pride of identity. While the focus is on sparking interest in filmmaking with youth, Our World also welcomes adults and Elders to participate.

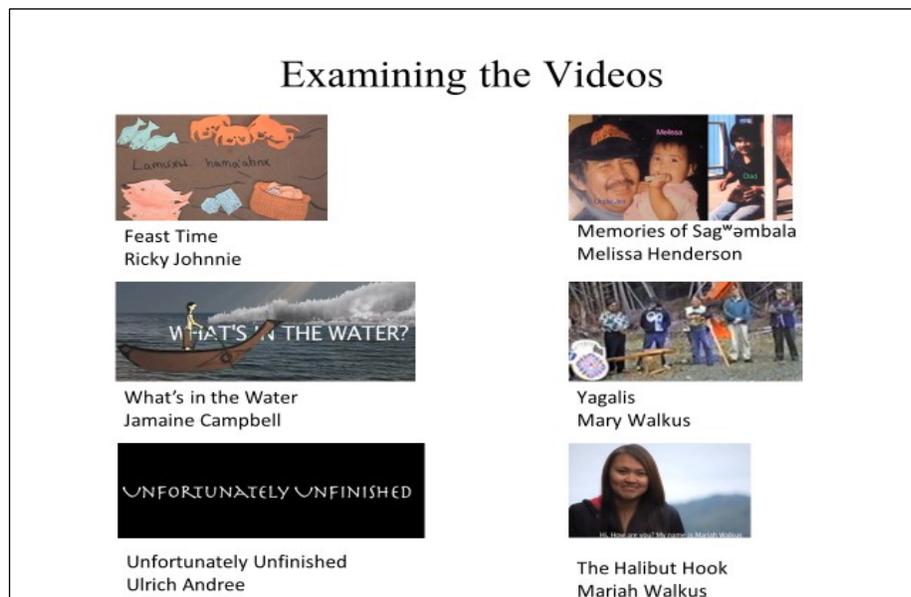
(Our World, 2020a)

Although not a requirement, students are encouraged to make their films public and enter them into festivals. Festival entries from Eke Me Xi include Reel 2 Real International Film Festival for Youth, Cowichan Film Festival, and Kootney Film Festival. For a full list of films developed at Eke Me Xi in collaboration with Our World see Our World (2020c), and for the list of festival video entries see Our World (2020b).

### 24.5.1. Video activities

The video projects are voluntary and usually included 6-8 students from grades 10-12. During the week-long program, students are supported by the professional film/animation crew, school staff, and the community. During the activities, students choose to create projects related to family, community, and traditional territories and social activities, as can be seen in Illustration 15 Eke Me-Xi 2013 Short Films.

Illustration 15 Eke Me-Xi 2013 Short Films



Citations to the films produced in 2013 and 2018 are referenced to the producer:

Eke Me Xi: (Feast Time, 2013a), (Memories of Saagoombalah, 2013b), (What's in the Water?, 2013c), (Yagalis, 2013d), (Unfortunately Unfinished, 2013e), and (The Halibut Hook, 2013f).

Our World:<sup>118</sup> (The Legend of The Tsulquate River, 2018d), (Fort Knox: An Artists' Mindset, 2018e), (Culture is Medicine, 2018f), (There is Hope, 2018g), and (Di'i, 2018h).

In addition to providing a valuable program for students, the video projects also are consistent with the Eke Me Xi school plan, which aims to integrate Indigenous language and cultural content throughout school activities (Eke Me Xi, 2016). The plan encourages the integration of Gwa'sala-'Nakwaxda'xw traditions, locations, language, and history as the means and medium for subject content. The video projects integrate media, literature, and technology, with Gwa'sala-'Nakwaxda'xw language and culture. Examples from the 2013 videos include fishing technology in "The Halibut Hook," traditional village life in "Memories of |Sagwəmbala|," social and cultural knowledge in "Feast Time," fishing and food distribution in "What's in the Water," an Elder's background in "Yagalis," and carving in "Unfortunately Unfinished." These films along with those produced through collaboration with Our World provide numerous examples where Kwakwala language, culture, and knowledge meet the goals of integration at Eke Me Xi (Eke Me Xi, 2016), the Kwakwala Integrated Resource Package (SD85, 2010), and Ministry requirements (BCED, 2017). The video projects also meet the guidelines for integrating Indigenous

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<sup>118</sup> See Our World (2020c) for information on the videos and Our World production Information.

knowledge and perspectives (BCED, 2020f) and the "K-12 Applied Design and Skills and Technologies Curriculum" (BCED, 2020c).

#### **24.5.2. Integrating videos and Kwakwala as a capstone project**

Although the videos developed during the projects demonstrated significant integration across curriculum subjects, the video activities from 2013-2017 were not formally integrated into a student's course work. During the week-long program, students were expected to keep up with their regular course activities and the video work was not counted. In this regard, the projects operated as an extra-curricular activity.

A pilot study conducted on the videos developed in 2015 demonstrated that the videos contained numerous examples of integration with Gwa'sala-'Nakwaxda'xw traditions but less than 10% Kwakwala on the timeline (Wilson P. , 2017b).<sup>119</sup> The methodology used in the pilot study was based on multimodal ethnographic coding (Saldaña, 2016) to examine and code multimedia data contained on the timeline. This procedure is used in this study to code and compare the 2013 videos with the 2018 videos found in Section 11.

After reviewing the results of the analysis of the 2013 videos, the school staff and I agreed to integrate the senior Kwakwala class activities and the 2018 video project scheduled for the end of the school year. We focused on developing materials and

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<sup>119</sup> This includes Kwakwala dialogue, background audio, and titles as a percentage on the timeline.

supports to enable students to include a greater amount and range of Kwakwala on the timeline. In addition, we integrated the video project into the senior class year end summary project (i.e., capstone project). The video preparation activities took place during the Winter term, 2018, and included media studies, art, and Kwakwala.<sup>120</sup> See Section 11.5 for the analysis comparing 2013 with 2018 videos.

#### **24.6. On-the-land initiated materials**

On-the-land initiated Kwakwala materials are those that were developed in conjunction with an out of school Indigenously themed activity initiated by the school staff. These activities occurred in the territories of the |Gwa'sǰala-'Nakwaxda'xw|, |Kwaguł| and |Gusgimuxw| and provided Indigenous knowledge to fulfill course expectations at the school.

These trips required planning to meet school board field trip requirements, bussing, and environment timing (e.g., low tide for clam digging). During the planning phase I collaborated with teachers and Elders to ensure that we were prepared for the trip and had the right equipment. This included not only the items we might need for the activity, but also the audio and video equipment needed to document the trip for use in the materials to be developed. Generally, we brought four cameras-video recorders, tripods, and one or

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<sup>120</sup> Students were not required to participate in the video project but were required to complete a capstone project that integrated their learning across subject areas.

more Zoom audio recorders. During field trips, students were encouraged to participate in the documentation activities. This included taking pictures and videos, as well as staging to create effective visuals.

#### **24.6.1. Cedar Bark gathering and processing**

Illustration 16 contains pictures taken during a field trip in 2017 to gather cedar and alder bark from an area between Port Hardy and Port McNeal that was about to be logged.

Lesson Example 37 and Lesson Example 38 are worksheets that were follow up activities. Students fill in the blank areas in the table using Word List 2 Cedar and Alder.

Illustration 16 Cedar bark gathering

 <p>Stripping cedar bark</p>	 <p>Stripping cedar bark</p>
 <p>Separating the inner bark from outer bark</p>	 <p>Rolled up inner bark</p>
 <p>Alder bark chipped off tree</p>	 <p>Alder wood turns reddish when exposed</p>

(Eke Me Xi, 2021p) Photos by Peter Wilson (2017)

Lesson Example 37 Cedar and alder bark harvesting worksheet page 1

English	Kwakwala	Caption	Picture
<b>alder</b>	t̓łoxw'm̓as	<i>chipping alder bark off tree</i>	
Photo by Peter Wilson (2017)			
alder: <b>red colour</b> of exposed alder		<i>red colour of exposed alder</i>	
Photo by Peter Wilson (2017)			
tool for pounding - pulverising alder bark to use in dye making		<i>Pounding tool</i>	
<b>bark, red cedar bark</b>		<i>red cedar bark</i>	
Photo by Peter Wilson (2017)			
<b>splitting cedar bark</b>		<i>cedar bark</i>	
Photo by Peter Wilson (2017)			

(Eke Me Xi, 2021p)

Lesson Example 38 Cedar and alder bark harvesting worksheet page 2

<b>cedar basket</b>		<i>cedar baskets</i>	
<b>cedar, <i>red cedar</i> tree</b>		<i>red cedar</i>	
Photo by Peter Wilson (2017)			
<b>implement for splitting cedar bark</b>		<i>little implement for splitting cedar bark</i>	
<b>to make a cedar bark mat</b>		<i>cedar bark mat picture from AMNH</i>	
<b>smooth cedar bark</b>		<i>smooth cedar bark, sparate outter bark from inner bark</i>	
Photo by Peter Wilson (2017)			
<b>twisting e.g. such as to take outer bark off of cedar</b>		<i>motion of twisting - peeling</i>	

(Eke Me Xi, 2021p)

Word List 2 Cedar and Alder

alder	t'oxw'mas	alder
alderwood	gwanip	dry alderwood (used in fires)
bark	danas	red cedar bark
bark	kadzakw	cedar bark
bark	xakwam	bark (not on tree)
bark	xakwi'kan	bark of any kind of tree (on or off)
bark	xikas	bark (on tree)
baskets	laxe	cedar baskets (red cedar)
cedar	kadzakw	cedar bark
cedar baskets	laxe	cedar baskets (red cedar)
cedar tree	dixa'mas	yellow cedar
cedar tree	k'waxtlu'	red cedar
gathering	xala'	gathering (eg. bark)
implement	k'witani	little implement for splitting cedar bark
mat	kata	make a mat of cedar bark
red	danas	red cedar bark
red	k'waxtlu'	red cedar
smooth cedar bark	kasa	smooth cedar bark
smoothing	kadzayu	tool for smoothing out bark

smoothing	kasa	to smooth cedar bark
smoothing	kas̄an	I'm smoothing out bark
smoothing	kadzayu	tool for smoothing cedar bark
split	ʔata'axws̄am	split cedar
take	s̄an̄ka	to take bark off of a tree
tool	kadzayu	tool for smoothing out bark
twisting	ku'yasa	motion of twisting to peel outer bark

(Eke Me Xi, 2021p)

Word List 3 contains additional vocabulary for developing stories and dialogues.

#### Word List 3 Cedar and alder

d̄ʔikon̄am	something borrowed	kūkw̄a	to break something
gix̄a	to file	lākwa'at̄si	woodshed
gix̄isd̄am	a file	la'mas	did you
Gi'āxa	to put away	'masi	why
gwāʔ	finish, stop	subayu	axe
h̄abst̄an - hapa	to dye	sup̄iḡanda	to put a handle on an axe
hedi	it is	ʔax'i	to fell a tree
ix'ba	sharp	t̄ʔoxw'm̄as	alder
kadākw	cedar bark	x̄akw̄amas	bark

(Eke Me Xi, 2021p)

The following example dialogues provide templates that teachers and students can use for creating their own stories or dialogues.

Dialogue 1 Borrowing a file

Wisa	Ƙos̄as gex̄isd̄ama?	Do you not have a file?
Ɓa'na	E, gix̄isd̄am nuxw'm̄an.	Yes, I have a file.
Wisa	Ḡwix'ida'as nuxw'ma'ān d̄tikon̄amaƙus gix̄isd̄amaƙus?	Could you let me borrow your file? ( <i>Could you try to lend me your file?</i> )
Ɓa'na	E, gaƁaƙ lakw qa'su' gwalt̄asuxw.	Yes, put it away when you're finished with it.

(Eke Me Xi, 2021p)

Dialogue 2 Fixing an axe

Wisa	'Widas gaƁa'Ɓan subayo'ān?	Where did you put away my axe?
Ɓa'na	Hedi gaƁa'it̄ida laƙwa'at̄si.	It is put away in the woodshed.
Wisa	La'mas sup̄igand̄Ɓan subayo'ān yaƁ le kuƙwaƁuxw'widamasus John.	Did you put a handle on my axe (not here) that John broke?
Ɓa'na	E, la'mān sup̄igand̄Ɓis subayo'us yaƁ le kuƙwaƁuxw'widamasus John.	Yes, I put a handle on your axe (not here) that John broke.
Wisa	Gix̄at̄anlak̄ ƙa olak̄alisi ixba.	I'm going to file it really sharp.

(Eke Me Xi, 2021p)

Dialogue 3 Felling a tree

Wisa	Supaxutlantfaxa t'oxw'mas	I'm going to fell an alder tree.
Xa'na	'Masis tax'igit'axa'usaxa t'oxw'mas?	Why are you going to fell an alder tree?
Wisa	Qa xakwamas kan habstanda'atsan kadakw.	For the bark to dye my cedar bark.

(Eke Me Xi, 2021p)

Dialogue 1 includes two examples of polite questions. The first request uses the negative question |Kosas gexisdama| 'do you not have a file', and the second uses 'to try'. These two methods provide examples of polite questions in Kwakwala.

Example 108 Polite question

Gwix'ida'as nuxw'ma'an d'ikonama-kus gixisdama-kus			
gwi-x'id-a'as	nuxw-'m.a'an	d'ikonama-kus	gixisdama-kus
"try"-now-pro2.SBJ.INT	Pronoun1.VER.POSS1	"lend"-POSS2	"file" -POSS2
Could you try to lend me your file?			

(Eke Me Xi, 2021p)

## 24.7. Stories and narratives

This section contains the Kwakwala versions of stories discussed in Section 12.

### 24.7.1. Wisa and Gana pick and dry huckleberries

|Wisa| and |Gana| (U'mista orthography converted from NAPA original)

Table 82 |Wisa| and |Gana| pick and dry huckleberries part one, picking berries

Lax'idi hamsi Wisa dlu Gana	Wisa  and  Gana  are going to pick berries
Lax'idi hamsaxa gwadam.	They are going to pick huckleberries.
Ix'idi 'nala.	It is a nice day.
Ix'idi la hamsaxa gwadam	It is a nice day to pick huckleberries
"Widi ledā hamyatsi?" 'niki Gana.	"Where's the berry basket?" said Gana.
"Hedi le awabo'yasa ha'madzu," 'niki abampas Gana.	"It's under the table," said Gana's mother.
"Axeda'sxa hamyatsi qa'an Wisa," 'niki Ganex Wisa, "kants li hamsaxa gwadam."	"Can you get a berry basket Wisa?" said Gana to Wisa, "so I can go picking huckleberries."
Kenamida gwadam laxa tankas.	There are a lot of huckleberries on the hill.

(Wilson & Henderson, Wisa and Gana pick and dry huckleberries, 2021a)

Table 83 |Wisa| and |Gana| pick and dry huckleberries part two, drying the berries

Gelaga kants olakali ka kayutla ka hamx'ittsu'sants d'idlad'ola," 'niki Ganex Wisa.	"Let's get lots of picked berries for our family," said Gana to Wisa.
Sanbanda'mi hamsaxda'xwxa gwadam.	They picked huckleberries all day.
Kutamaxdoxw'mixis hamyat'sexs is'me ne'nakw.	They filled up their baskets and went home.

Part 2

Takagilaxda'xwtixis hamyanam gwadam.	They are going to dry the picked huckleberries.
Kwikat'salat'ixa gwadam ka's gwiadzudis laxa kakadis.	They are going to squash the berries and spread them on the rack.
Tsagapalat'ixa mamemasax kaka'ukw.	Underneath the berries will be skunk cabbage leaves.
Lamxwlam'o'asi laxa t'asanoy ka's t'isalasawi.	They are placed outside to dry in the sunshine.
Gel'mis 'yugwax'idaxs la'e la'idtam.	When it rains then they will move them inside to dry.
Gel'am lamxw'idaxs la'e kukuxwsamtsu ka's gutsudayuwi laxe galdas.	When they are dry, they will fold them up and store them in a box.

(Wilson & Henderson, Wisa and Gana pick and dry huckleberries, 2021a)

### 24.7.2. Wisa and Gana pick berries at Tsulquate

Gwagwata Wisa dlu Gana lax Tsalgwadi	Wisa and Gana pick huckleberries at Tsulquate
Gayuti Wisax dlu Ganax laxox Tsalgwadi lax 'ikuḥas.	Wisa and Gana live at Tsulquate in the higher area.
Gukwalamxda'xwi Wisa dlu Gana dḥawis giga'uḥ'nukw.	Wisa and Gana live with their family.
"Ikuḥwda 'nala, ḥalaga ḥamsax gwada'ma." 'Yalagansis abampas kas 'le ḥamsa.	"It's a nice day, go and pick huckleberries." Their mother sends them to pick.
"Ḥalaga ḥamsa lax gwasalasasida galgas laxa wa kan kotexes axa'asdxwus."	"Go and pick berries on the far side of the swimming area so I know where you will be"
"Am, 'wixants gwagwata," 'niki Gana.	"Yes, we are going to pick," said Gana.
" 'Widileda ḥamyatse," 'niki Gana.	"Where's the berry basket?" said Gana.
"He'moxw lo ban'abosu  table ix," 'niki abampas.	"It's below the table," said their mother. ( <i>the basket is not visible</i> )

<p>“Dax'idaḵwdaḵ ḥamyatsi ka'an Wisa,” 'niki Gana.</p>	<p>"Take the basket for me Wisa," said Gana.</p>
<p>“E, he'midan lak.”</p>	<p>"Yes, I have it" (<i>Wisa</i> now has the basket)</p>
<p>“Antlas ekake'exdaḵw kasu' ḥamsatlexeda gwadam ka's 'na'namu'axwsela gwadam,” 'niki abampas laxis sasam.</p>	<p>"It's good that you are picking huckle berries for our friends and family," said the mother to her children.</p>
<p>“Salḵwolaḵeda gwadam, ka'esis la gaḵida dla'itba latsoxis ḥamyats'i.”</p>	<p>"Fill up the huckleberries and come back with full baskets."</p>
<p>“Olaḵalanu'xw hotle loḵ,” 'niki Ganaḵ.</p>	<p>"We will really do that for you," said Gana.</p>
<p>“Wixants kas'ida,” 'niki Wisax Ganaḵ.</p>	<p>"Let's walk," said Wisa to Gana.</p>
<p>Lade laxa kayas tlasa'noweda gukwexda'xw.</p>	<p>They walked along the path in front of the house.</p>
<p>“ 'Wixdaḵwtlas ḥamsatle?” 'Niki ḵwali'yas.</p>	<p>"Where are you berry picking?" said their uncle.</p>

<p>“ 'Nikaṇu'xw abamp kaṇuxwle hamsa laḡ gwasalasasida galgas laḡa wa,” 'niki Gana.</p>	<p>"Our mom to us to pick berries on the other side of the swimming area in the river," said Gana.</p>
<p>“Oka ix” 'niki k'wali'yas.</p>	<p>"Really good," said their uncle.</p>
<p>Part 2</p>	<p>Part 2</p>
<p>“ 'Widileda gwadami'?” 'Niki Wisax Ganaḡ.</p>	<p>"Where are the huckleberries?" Wisa said to Gana.</p>
<p>“Gwa'sa'yisida galgas,” 'niki Ganaḡ Wisax,</p>	<p>"On the far side of the swimming area," said Gana to Wisa.</p>
<p>“Latḡants ikistaḡ laḡgada kayas,” 'niki Wisax Ganaḡ.</p>	<p>"Let's go up along this pathway," said Wisa to Gana.</p>
<p>“La'mants alax laga'ex laxants hamyastḡix ” 'niki Wisax Ganaḡ.</p>	<p>"We'll look and go with our berry baskets," said Wisa to Gana.</p>
<p>“Ya. La'mants laga'a laxants hamyasix,” 'niki Wisa.</p>	<p>"Ya! let's use our baskets," said Wisa.</p>
<p>“Olaḡala kenamida gwadam,” 'niki Gana,</p>	<p>"There is a lot of huckleberries," said Gana.</p>

<p>“ Kísxtł̄ants t̄lumał geł̄a h̄amsał̄ k̄u' kut̄axit̄ants h̄amyats̄ix̄.”</p>	<p>"It's not going to take long to fill up our baskets."</p>
<p>“Olakalan̄ ts̄alk̄wa, wek̄ants li' ḡalk̄a'ma'osdla,” 'niki Wisa.</p>	<p>"I'm really warm, let's go and swim," said Wisa.</p>
<p>“Am, 'wegak̄ants li' ḡalk̄a” 'niki Ḡana.</p>	<p>"Yes! lets go swim," said Ḡana.</p>
<p>"La'mo'axw n̄ago'yox̄was hamayats̄ix̄kus?" 'niki Wisa</p>	<p>"Have we filled up our baskets? said Wisa.</p>
<p>" E, n̄ago'yogan̄ ḡwad̄am," 'niki Ḡana.</p>	<p>"Yes, we have filled them up with berries," said Ḡana.</p>
<p>" 'Wek̄antsli' ḡalk̄a'ma'osdla."</p>	<p>"Let's swim."</p>
<p>“La'mantslał̄ it̄ił̄ h̄amsał̄ ka kut̄ax̄'idis̄ants heham'yats̄i,” 'niki Ḡana.</p>	<p>"Let's put our picked berries so our baskets don't tip over," said Ḡana.</p>
<p>"K̄is geł̄a la'e k̄ute'xidi's h̄amyats̄ix̄da'xw."</p>	<p>"Don't tip over our baskets."</p>
<p>Part 3 On the way home</p>	<p>Part 3 On the way home</p>
<p>L̄amus lał̄ 'ne'n̄axwx̄da'xwt̄l̄.</p>	<p>They are on their way home.</p>

"Ekiḱantsulaḱ niḱatḱaḱ ḱw̄ali," 'niki Ḙana.	"It's good uncle," said Ḙana.
" Gaḱ'mants 'ne'nakwa" 'niki Wisa.	"We're going home." said Wisa.
"Olaḱala ixaḱ gaḱa'akus niḱa gaḱan sisasaḱ," 'niki ḱw̄ali.	"That's really good, come kids," said Uncle.

(Wilson & Henderson, 2016)

### 24.7.3. Wisa and Ḙana berry picking at Ba'as

Wisa dlu Ḙana	Wisa and Ḙana
Gayuḱi Wisax̄ dlu Ḙanaḱ laxoḱ Ba'as.	Wisa and Ḙana live at Ba'as.
Gukwalamxda'x̄wi Wisa dlu Ḙana dḱa'wis giga'uḱ'nukw.	Wisa and Ḙana live with their family.
" 'Ikuḱwda 'nala, ḱalaga ḱamsax̄ gwada'ḱma." 'Yalagansis abampas ḱas 'le ḱamsa. "ḱalaga ḱamsa lax̄ "Misses" ḱan ḱotlexes'xa'asawas."	"It's a nice day, go and pick huckleberries." Their mother sent them to pick. "Go and pick berries at Misses so I know where you are."
"Am, 'wixants gwagwata," 'niki Ḙana.	"Yes. Let's pick huckleberries," said Ḙana.

"Widileda h̄amyat̄se," 'niki Ḡana.	"Where's the berry basket," said Ḡana.
"He'moḵw lo b̄an'abosu table'ix̄," 'niki āb̄ampas.	"It's under the table," said their mother.
	<i>(Wisa and Ḡana are near the table, but the basket is not visible)</i>
"Dax'idax̄wdaḵ h̄amyat̄si ḵa'an Wisa," 'niki Ḡana.	"Get the berry basket for me Wisa," said Ḡana.
"E, he'midaḵ laḵ"	"Yes, I have it."
	<i>(Wisa now has the basket)</i>
"Ant̄ḵas 'ekaḵe'exdaḵw ḵasu' h̄amsatlex̄eda ḡwad̄am ḵa's 'naḵ'n̄amo'as̄ax̄i ḡwad̄am," 'niki āb̄ampas lax̄is sas̄am.	"It's good you are picking huckleberries for our friends and family," said their mother.
"S̄alḵwolax̄eda ḡwad̄am, ḵa'esis la gaḵida dla'it̄ba lat̄soḵis h̄amyats'i."	"Strip off lots of huckleberries, so you come back with full berry baskets."
"Olaḵalanu'xw hotle loḵ," 'niki Ḡanaḵ.	"We really hear you," said Ḡana.
"Wix̄ants ḵas'ida," 'niki Wisax̄ lax̄es āb̄ampas.	"Let's start walking," said Wisa to his mother.
Lade lax̄a ḵayas tlasa'noweda gukwexda'ḵw.	They walked on the path in front of the houses.

" 'Wixdaḵwtlaḥ hamsatle?" 'Niki ḵwāli'yās.	"Where are you going berry picking?" said their uncle.
" 'Nikaḅu'xw ābāmp ḵānu'xw le hamsa laḵ  Misses ," 'niki Ḡāna.	"Our mother said for us to pick berries at Misses," said Ḡāna.
"Olaḵala 'ix" 'niki ḵwāli'yās.	"That's really good," said their uncle.
" 'Widileda gwadāmi'" 'niki Wisax Ḡānaḵ.	"Where are the huckleberries?" Said Wisa to Ḡāna.
"Ḷwisadziyasida wa," 'niki Ḡānaḵ Wisax,	"On the far side of the river," said Ḡāna to Wisa.
"Aḅtlaḅts lawextlaḵants tiḅābayu ḵānts li tagāḵtala"	"Let's take off our shoes so we can wade across."
"Latlaḅts 'ikistaḵ laḵgada ḵayas" 'niki Ḡānaḵ Wisax.	"We'll go up this path," said Wisa to Ḡāna.
"Laḅmānts alax laga'ex laḵants hāmaḥtla " 'niki Wisax Ḡānaḵ.	"Let's find a place to pick berries," said Wisa to Ḡāna.
"Ya. Laḅmānts laga'a laḵants hāmyasix," 'niki Wisa.	"Oh, we are going to do our picking," said Wisa.
"Olaḵala ḵeḅāmiḵa gwadāmi," 'niki Ḡāna,	"Really lots of berries," said Ḡāna.
"Ḷsxtlaḅts tluḅaḵ geḵa hāmaḥḵ ḵu' ḵutlaxitlaḅts hāmyaḥsix."	"It won't take long to fill up our berry baskets."

Ƙis geƙa la'e ƙute'xidi's haṃyatsixda'xw.	It wasn't long and the baskets were full.
"La'mus laƙ 'ne'naxwxda'xwtl."	"Let's go home."
"Ekatlagantsu' niƙatlaƙ ƙwali," 'niki Gana.	"We need to tell uncle," said Gana.
"Gax'mants nenakwa."	"We are coming home."
"Olaƙala 'ixas gaƙa'aƙus niƙa gaƙan sisasam," 'niki ƙwali.	"It's good you kids are back with us," said uncle.

(Wilson & Henderson, 2017a)

#### 24.7.4. Boas and Hunt narratives

The narrative texts purchased at Eke Me Xi are Kwakiutl Tales 1 (Boas, 1902a), Kwakiutl Tales 2 (Boas, 1902b), and Kwakiutl Tales 3 (Boas, 1902c). These are almost identical to the ones used in this work, respectively Kwakiutl Texts (Boas & Hunt, 1905), Kwakiutl Texts - second series (Boas & Hunt, 1906), and Kwakiutl Tales (Boas, 1910).

#### 24.7.5. Hunt version: origin of deer

Hunt Version: Origin of Deer, Kwakiutl Tales (Boas, 1910, pp. 200-203) Traditions of the Yutlinoxw (Tlatlasikwala Dialect)

U'mista rendering by Peter Wilson (2019) for Eke Me Xi.<sup>121</sup>

<sup>121</sup> Kwakwala transcription and English translations are based on the original except where otherwise noted.

<p>(H1)<sup>122</sup> We, gaḵkas 'laḵa'e lakasḵ Huḵulid.</p>	<p>Then, he came to Huḵulid (Shouting Place).  huḡwiḵ  'many people go in at once' (personal communication, James Henderson, 2-5-85).  huḵulid  'having shouting' (Boas, 1934, p. 48) and  huḵwḵalid  "'one to whom people go, a name' X 211.15 could be in dialect" in Boas (Boas, Kwakiutl Dictionary, 1948).</p>
<p>(H2) We, lakas 'laḵai duḵ'watḵalakasḵi baḵwamala exkas ḡusamala ḡiḵalagi' laḵi ḡaltsami.</p>	<p>Then, he saw a man, who was perspiring, sharpening mussel-shells.</p>
<p>(H3) We, laskas 'laḵa'i Ade, Ḵaniḵe'lakw, ḡwa'i'stakas laḵ.</p>	<p>Then, the Lord,  Ḵaniḵe'lakw , went up to him and questioned him.</p>
<p>(H4) We, lakas 'laḵa'i wuḵḵalakasḵ.</p>	<p>Then, he went to hear him.</p>
<p>(H5) We, lakas 'laḵa'i 'nixḵ:</p>	<p>Then, he asked:</p>
<p>(H6) " 'yakasut, Ada'i! 'maskastlos'ma'us asukwasakus?" 'nixkas 'laḵa'ix.</p>	<p>"Oh, respected one, what is it that you are making," he said to him.</p>

<sup>122</sup> (H1) code for Hunt sentence 1.

<p>(H7) We, hex'idkas'am 'laḫa'i nanax'makasi bakwamalex Ada.</p>	<p>Then immediately the man replied to the Lord.</p>
<p>(H8) We, lakas 'laḫa'i 'nikasa:</p>	<p>Then he said to him:</p>
<p>(H9) "Lixaskas'ma'aḫankos kiyaskas ḳalaḫ Ḳaniḳe'laxwaḥs gaḫkasa'itḫa hexhalisalakastḫ."</p>	<p>"Evidently you are the only one who does not know that  Ḳaniḳe'lakw  is coming to make everything right."</p>
<p>(H10) " We, gakas'misaḥ yasyankalal'yuḫkini ḳo gaḫkastḫ," 'nixkas 'laḫa'i.</p>	<p>"Then, this is my means of fighting him when he comes," he said to him.</p>
<p>(H11) We, lakas 'laḫa'i Ḳaniḳe'laxwi daḳalakasḫi giḡaḫḫsamas.</p>	<p>Then  Ḳaniḳe'lakw  asked for the mussel-shells, and said:</p>
<p>(H12) We, lakas 'laḫa'i 'nixa: " 'ya, ḳast, we'aḥntsos ḳan duḫ'wid kaseḫs 'ma'osasokwasakus ḳas yasyankala'yotḫusaḫ Ḳaniḳe'laxwa'u gaḫkastḫ," 'nixkas'laḫa'i.</p>	<p>Then he said, "Oh my friend, let me look at what you are making for your means of fighting  Ḳaniḳe'lakw  when he comes," he said to him.</p>
<p>(H13) We, hex'idkas'am 'laḫa'i baḡwa'uḫi tsuḫw'idkastsis giḡaḫḫsami laḫ Ada.</p>	<p>Then, the nasty man gave the mussel-shells to the Lord.</p>

<p>(H14) We, lakas 'laḵa'e daḵidkasi Adexi ma'ḥtsami gigaḥṣama.</p>	<p>Then, the Lord took the two mussel-shells.</p>
<p>(H15) We, lakas 'laḵa'i duṭaga'ḥi Ada.</p>	<p>Then the Lord replied.</p>
<p>(H16) We, lakas 'laḵa'i 'nixa:</p>	<p>Then he said:</p>
<p>(H17) " Lakas'amḵa'ax exgas 'ma'usasugwos.</p>	<p>"This is very pretty work."</p>
<p>(H18) We, gwasoḵw'idkasax," 'nikas 'laḵa'i Ada'exs lakasa'i ṣaxw'alsalakatsi gigaḥṣami lakasax ḵumsas.</p>	<p>"Now, turn your head this way," the Lord said while he stuck the mussel-shells on his head.</p>
<p>(H19) We, lakaṣ 'laḵa'i 'nixa:</p>	<p>Then, he said:</p>
<p>(H20) " Wa'i! lakas'amḵa'ux he'atḥalakas loḥ.</p>	<p>"Now, this is right for you."</p>
<p>(H21) " We, lakas'amḵa'as lakastḥ taḥkustḥas aḥkastḥa bakumiḥ," 'nixkaslaḵa'iḵs lakasa'i ḵaḥṣagandkasax.</p>	<p>"Now, you will be the deer of the next generations," he said while he frightened it away.</p>

(H22) We, lagimi'xwdzo'am'laxai daxwyagi takusa.	Then the deer was jumping away.
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(Boas & Hunt, 1906),

#### 24.7.6. Boas version: origin of deer

<p>Nuyamsa Ḳaniḱi'laxw ḍla'wida Takus - The Origin Story of Ḳaniḱi'laxw and Deer From Kwakiutl Tales, Volume 2 (Boas, Kwakiutl Tales, 1910, pp. 200-203). This narrative was originally published in Kwakiutl Tales 3 (Boas, 1902c). U'mista rendering by Peter Wilson (2019) for Eke Me Xi (Code B1 indicates Boas sentence 1)</p>	
(B1) Duḱw'aṭḷalax takus, giḱa'la laxi gaḱtsam.	He saw Deer sharpening shells (long flat objects).
(B2) “Mastlux?” la 'la'i 'nix'la'i Ḳaniḱi'laxw.	“What is that? said Ḳaniḱi'laxw,”
(B3) “ 'Yi, lixaḱants, ki'os kaṭla gaḱṭla 'la'i hexilisilaṭ Ḳaniḱi'laxw?”	" 'Yi! we are changing, don't you know that Ḳaniḱi'laxw is coming right now."
(B4) “Namuxw exa gila'ans, [ka'an] duḱw'idix̣.”	“The one who comes to us [for us] to see.”
(B5) La 'la'i tsuxw'id lax Ḳaniḱi'laxw.	He gave it to Ḳaniḱi'laxw.
(B6) Dax'id laxi gaḱtsam.	He took the shells (long flat objects).

(B7) “La'amtł exa.	"These are nice.
(B8) Wa'andzus gwasgamx'id.”	Turn your face this way."
(B9) La 'la'e ax'idis lax xumpsis.	He put them on his head.
(B10) La 'la'i gals'id gigaxmutas.	He smeared ground on him.
(B11) “Gwasa'xsdix'idax.”	“Turn your back this way.”
(B12) La 'la'i gweya'axsdix'id lax.	He turned his back this way.
(B13) La 'la'i galt'saxstand, yasi gigaxmut.	He smeared his back with ground.
(B14) “Halaga, daxw'idutł.	"Go, jump away.
(B15) Lałts tałkosas ałta bagwanamtł.”	You will be the deer of future man."
(B16) La 'la daxw'ida.	He then jumped.
(B17) La'am tałkus'ida.	He is a deer now.

(Boas, Kwakiutl Tales, 1910, pp. 200-203)

## 24.8. Field Trip: Quatse Salmon Stewardship Centre

The teachers at Eke Me Xi planned a field trip to the Quatse Salmon Stewardship Centre in Port Hardy to experience the revitalization of salmon.<sup>123</sup> The trip was planned at the time when chum salmon were spawning. This provided the opportunity to develop materials to integrate the ecology curriculum taught in English and the Kwakwala class.

<sup>123</sup> The Quatse Salmon Stewardship Centre (<https://www.thesalmoncentre.org/education/>) is a fish hatchery and education centre located on the Quatse river in Port Hardy.

Two preparatory activities were developed, the first one to be delivered in an English-based class, and the second one to be delivered in the Kwakwala class.

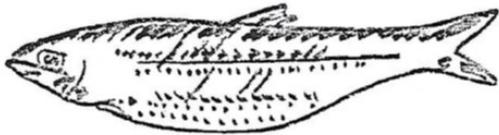
The following pages contain the first two pages from a unit on fishing originally developed during the NILDP-CW program (Wilson & Henderson, Fishing, 1980a) and updated for the |Bakwámkala| dialect. This booklet was developed to review the names of fish and introduce the times of year for fishing. The booklet was adapted for use in a content-based English class including ecology, geography, or social studies. At Eke Me Xi, the booklet was used to prepare for the field trip to the Quatse Salmon Stewardship Centre on September 9, 2018. Student activities included looking up pictures of the fish on the internet and either describing or colouring the fish. The booklet was used as an interface between the unit on salmon ecology taught in English and Kwakwala activities. The |Bakwámkala| names for the fish are included. The booklet activities in English were completed first, and then used to supplement activities in the Kwakwala class. Figure 4 Fishing Times Throughout the Year and Figure 5 Fishing Times Throughout the Year page 2 are examples from the handout used at Eke Me Xi from the NILDP-CW original.

Figure 4 Fishing Times Throughout the Year page 1

1. seasons for catching fish
2. types of boats
3. gear used
4. fish processing

Body of the lesson:

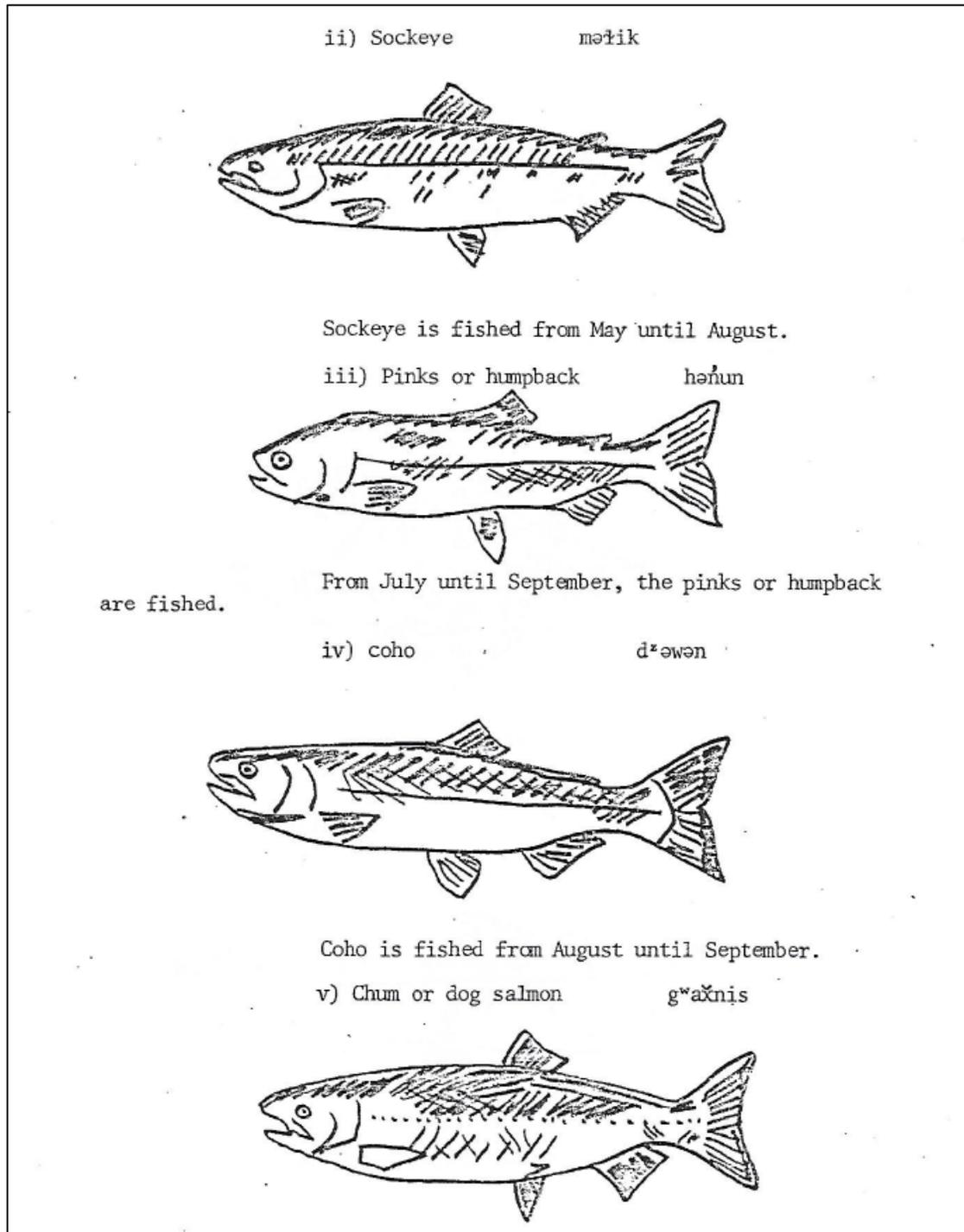
1. Season for catching fish
  - a) herring wahi



Herring is generally fished for during February and March.

(Wilson & Henderson, Fishing, 1980a)

Figure 5 Fishing Times Throughout the Year page 2



(Wilson & Henderson, Fishing, 1980a)

### 24.8.1. Quatse Salmon Stewardship Centre: Kwakwala class

The second activity in advance to the Quatse Salmon Stewardship Centre was designed to occur in the Kwakwala class. In this class, students utilized the information from their completed worksheet from the English class. The Kwakwala language activities related to the communicative expectations noted below are:

- ask and respond to questions with question words such as 'ma "what", angwa "who", 'wilakw "when", 'widi' "where", and gans "how many".

(SD85, 2010, p. 104)

Before the trip, the students completed the worksheet on information about the fish in an English content course (e.g., Ecology), as discussed in Section 24.8. The next activity was designed to be completed in the Kwakwala class. In this activity, students use the "Fishing times throughout the year" (Wilson & Henderson, Fishing, 1980a) booklet from their first activity to translate Kwakwala words into English and fill in the times of the year when fishing occurs.<sup>124</sup> See Illustration 17.

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<sup>124</sup> The Quatse Salmon Stewardship Centre Worksheet only requires input in English. This was designed to enable students to complete their work on Chromebooks, which do not provide Kwakwala input.

Illustration 17 Quatse Salmon Stewardship Centre Worksheet

Fishing Times                      **ka'tida<sub>x</sub>us d'igi<sub>a</sub>mos** \_\_\_\_\_

Complete the following chart. Fill in the translations and fishing times of the year below.

Bakwamkala	Translation	Fishing Time of the year
ma <sub>l</sub> ik		
'wa'ni		
ha <sub>n</sub> un		
dza <sub>w</sub> a <sub>n</sub>		
gwa <sub>x</sub> nis		
dza <sub>x</sub> w <sub>a</sub> n		
po'e		
xa <sub>x</sub> st		

(Eke Me Xi, 2021c)

The next activities I developed were based on asking and answering questions about the fish based on the expectations "ask and respond to questions with question words such as 'ma "what", a<sub>n</sub>gwa "who", 'wilakw "when", 'widi' "where", and ga<sub>n</sub>s "how many". See Table 84 WH questions.

Table 84 WH questions

'Mat'saɫ'igada?	Sat'sam'muɣw.
'Mat'saɫ'igada?	Məf'ik'muɣw.
'Mat'saɫ'igada?	Dza'wan.

(Eke Me Xi, 2021c)

In this activity, the teacher and students take turns asking one another the name of the fish while pointing to the pictures from the Fishing Booklet (Wilson & Henderson, 1980a).

Table 84 WH questions also illustrates the use of inflectional marking rather than the base form of the word. The person asking the question is holding the picture and uses the proximal to first person in the inflection lump |-igada|, while the respondent uses the proximal to second person |-uɣw|. See Example 109 below.

Example 109 WH question <sup>125</sup>

'Mat'saɫ'igada?	What is this?	Sat'sam'muɣw.	That is a spring salmon.
'mat'saɫ-igada		sat'sam-'m.uɣw.	
what.pro3.SBJ.INT.PROX1.DET		spring salmon- VER.pro3.SBJ.IND.PROX2	

In addition to the WH questions noted in the curriculum, I also developed Yes-No questions in the materials. I employed this structure to require the questioner to use the

<sup>125</sup> The student worksheet does not contain the WP analysis of the Kwakwala word or English-based WP description.

target word in the question as a means to reinforce the vocabulary. In addition, it gives students a method to seek clarification with an Elder rather than asking "what's that?" Instead, students can ask "is that a ...." See Table 85 and Table 86.

Table 85 Yes-No Question 1 (positive answer)

Saṭsamma'igada?	Am, saṭsam'mux̣w.
Is that a spring salmon?	Yes, it is a spring salmon.
Ṃaḥikma'igada	Am, maḥik'mux̣w.
Dza'wanma'igada	Am,
P̣o'yima'igada?	Am,
Geḥwma'igada?	Am,
G̣wax'nisma'igada?	Am,

(Eke Me Xi, 2021c)

Table 86 Yes-No Question 2 (negative answer)

Saṭṣaṃmạ'igada?	ǵi, ǵisux̣w saṭsama.
Mạʔiḳmạ'igada?	ǵi, ǵisux̣w mạʔika.
Dzạ'wạnmạ'igada?	ǵi, ǵisux̣w dzạ'wana.
Pọ'yimạ'igada?	ǵi, ǵisux̣w p'o'yi.
Gẹx̣wamạ'igada?	ǵi, ǵisux̣w gẹx̣wa.
G̣wạx̣'nismạ'igada?	ǵi, ǵisux̣w g̣wạx̣'nisa.
Hạnunmạ'igada?	ǵi, ǵisux̣w hạnun.

(Eke Me Xi, 2021c)

Table 86 Yes-No Question 2 (negative answer) exemplifies morphophonotactic variations. In the answers, where the name of the fish occurs as a noun and the base form ends in an obstruent, a final |a| is added. For example, |sats̥am| becomes |sats̥ama|. Nouns that end in vowels do not add |a| and those that end in sonorants are variable: |dza'wan| becomes |dza'wana| while |hanun| is unchanged.

#### **24.8.2. Word list fish, sea food, animals**

The following Word List 4 *Fish, seafood, animals* is the search result for the keyword categories for "fishing" and "animals" from the online word list found at Wilson (2020b). The online list was compiled from the lesson materials developed at Eke Me Xi and word lists from Wilson (2017a), Wilson & Henderson (1982b), and Wilson, Wallas, & Peters (1982b). The word list below is sorted by English and contains fish names, fishing terms, sea food, and animals. The list includes Kwakwala written first in the U'mista orthography and second in the NAPA orthography. The online version of the data is searchable and allows the user to view the list in NAPA, U'mista, or all four orthographies (U'mista, NAPA, ASCII, or Boas adapted). Dialect entries are coded below as "k" |Kwakwala|, "b" |Bakwamkala| or "q" |Gutsala|.

Dialect coding in the word list below as well as on the online access site represent the dialect used by the speaker(s) colleague(s) providing the primary research. Since

materials were usually developed with a focus on one dialect, the word list entries do not necessarily contain entries in all three dialects. For example, the clam shucking activity was developed in |Kwaḱwala|, the clothing unit in |Baḱwamḱala|, and the |Dzunuḱwa| story in |Ḷutsala|. The word lists, therefore, do not yet provide a translation or verification for dialect variation for each entry.<sup>126</sup> When a word is verified in more than one dialect, the codes are given for each of the dialects, as exemplified below in Example 110 and Example 111.

Example 110 Word the same in all dialects (examples in U'mista and NAPA)

bait, |tiḶ|, |tiḶ|, bait, k, b, q

(Eke Me Xi, 2021c)

Example 111 Word the same in two dialects and different in the other

deer, |ḱiwas|, |ḱiwas|, deer, k

deer, |Ḷaḱus|, |Ḷaḱus|, deer, b, q

(Eke Me Xi, 2021c)

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<sup>126</sup> The long-term goal for the materials and website is to verify dialect usage for all materials.

Word List 4 Fish, seafood, animals

(U'mista and NAPA orthographies) from Eke Me Xi (2021c)

abalone, gwa'litsi, g<sup>w</sup>ali'ci, abalone, b

albatross, batla, baʎa, albatross, b

animal, tsaxan, cəxən, brown animal, k

animal, galga'omas, gəlgəʔoməs, animal, k

back, dzikwayu, d<sup>z</sup>ik<sup>w</sup>ayu, back flippers, k

back, xak, xaq, back scoter, k

bait, tił, tił, bait, k, b, q

bait, takwa'axstan tił, təq<sup>w</sup>aʔəxstən tił, octopus bait, q

bait, 'wa'la'e'axstan tił, walaʔeʔəxstən tił, herring bait, q

bait, 'wa'na'e'axstan tiłi, wanaʔeʔəxstən tiłi, herring bait, q

bait, matsalus tiłi, macalus tiłi, What is your bait., q

barb, mas'i, məsʔi, barb, k

barbecue, tɬupsa'yū, ʎupsayū, forked: stick for holding fish: barbecue stick, k

barbecued, tɬu'bək<sup>w</sup>, ʎuʔbək<sup>w</sup>, barbecued fish, k, b

barbecued, tɬubək<sup>w</sup>, ʎubək<sup>w</sup>, barbecued salmon, k, b

barbecued, tɬubək<sup>w</sup>ila, ʎubək<sup>w</sup>ila, to make barbecued salmon, k, b

barnacle, k<sup>w</sup>ita'a, k<sup>w</sup>itaʔa, barnacle, k, b

basket (fishing), xal'yuxa me, xalyuxa me, fish basket for lifting fish out of seine net, q  
 bat, bak'walawi, bak'wəlawi, bat, k  
 bear, nan, nan, grizzly bear, k, b  
 bear, tlebidu, λebidu, little black bear, b  
 bear, gala, gəla, bear, b  
 bear (grizzly), gala, gəla, grizzly bear, b  
 bear (large grizzly bear), nan, nan, grizzly bear (really big), b  
 bear: black, tley', λeyʔ, black bear, b  
 bears, gigala, gigəla, bears, k  
 beaver, tsaw, caw, beaver, k  
 belly, takak, təkəq, belly part of fish, k  
 bird, kulus, qulus, mythical bird, k  
 bird, ikaka, λikəqa, bird with good plumage, k  
 black, hadana, hadana, black cod: sable fish, k  
 black, tlatlan'yam, λaλənyəm, black bear cub, k  
 black, tle, λe, black bear, k  
 black, tutup, tutup, black bass, k  
 blubber, xwadzi, x'wədʒi, blubber, k  
 blubber, xwaldzus, x'wəldʒus, blubber, k  
 blue, kwakwani, q'wəq'wani, crane: blue heron, k

blue jay, kwasa, k<sup>w</sup>asa, noise a blue jay makes, b  
 blue jay, kwaskwas, k<sup>w</sup>ask<sup>w</sup>as, blue jay, k, b  
 blueback, xamap, xamap, blueback, b  
 blueback, xasa, xasa, blueback, k  
 blueback, xa<sup>x</sup>a'nabs, xa<sup>x</sup>anabs, blueback, k  
 boil, sa'kwila, sa<sup>ʔ</sup>k<sup>w</sup>ila, boil seal or dear for feast, k  
 boiled, mukwala, muq<sup>w</sup>ala, boiled stuffed cod stomach: fish stomach, k  
 bracelet, kukwala, kuk<sup>w</sup>ala, bracelet: purse seine rings, k  
 braid, k<sup>l</sup>ala, q<sup>l</sup>ala, to splice: to braid hair: to remember, k  
 brandt, 'na<sup>n</sup>alala<sup>l</sup>, n<sup>n</sup>alala<sup>l</sup>, brandt dance, k  
 brandt, 'nala, n<sup>n</sup>ala, brandt, k  
 brown bass, asua, ʔasua, brown bass, k  
 bullhead, k<sup>w</sup>a'ma, k<sup>w</sup>ama, bullhead, k  
 can fish, dzupatl<sup>s</sup>, dzupa<sup>ʔ</sup>as, you are going to can fish, k  
 canned, ku'datsi, ku<sup>ʔ</sup>da<sup>ci</sup>, canned salmon, fish box, k  
 canoe, tagatsi, taga<sup>ci</sup>, a big canoe used while stake fishing, k  
 cat, dzamidzami, dzamid<sup>z</sup>ami, cat, q  
 cat wild, dzamtsas, dzam<sup>c</sup>as, wild cat, q  
 catching, wawa'na, wawa<sup>na</sup>, catching herring, k  
 chickens, kalxo<sup>l</sup>, qalxo<sup>l</sup>, chickens, b

chiton, k̄anut̄, k̄ənut̄, giant chiton, k

chum, ḡawax̄nis, ǵəʷʔax̄nis, dog salmon: chum, k

clam, gawik̄an̄am, gawik̄ʔan̄əm, clam: butter clam, k, b

clam: neck, ḡalḡal̄am̄x̄, ǵəlǵəl̄əm̄x̄, little neck clam, b

clams, ḡalḡal̄am̄, ǵəlǵəl̄əm̄, little neck clams, k

clams, k̄u'matsi, k̄um̄aci, dried clams, k

clams, maṭani, məṭani, horse clams, k

clams, gawikan̄am, gawikan̄əm, butter clams, k b

club, ʔal'waḳa, ʔal'waqa, to club fish, k

club, ʔalwagayu, ʔəlwaǵayu, fish club, k

coat, mayutsam̄x̄, mayucəm̄x̄, raccoon coat, k

coat, maṭsasḡam, məcasǵəm, mink coat, k

cockle, dzoli, dʒoli, cockle, k, b

cod, ʔsax̄u', ʔəxuʔ, ling cod, k

cod, ʔlax̄wsam, ʔəx̄ʷsəm, red cod: red snapper, k

cod, k̄wek̄ala, q̄wek̄əla, rock cod, k

cod, d̄lax̄stala, lax̄stala, grey cod, k

coho salmon, dza'wan̄a, dʒəw̄ənə, coho salmon, b

cohoe, dza'wan̄ma'igada? dʒəw̄ənm̄əʔigada? Is this a cohoe?, k, b

cohoe, dza'wan̄muḳw, dʒəw̄ənm̄uḳʷ, cohoe: It is a cohoe., k, b

cohoe, dza'wan, dzəwən, Cohoe, k  
 common grebe, k̄udak̄, q̄udəq, grebe: common river, k  
 cormorant, t̄lubana, ʎubana, cormorant, k  
 cougar, badi, bædi, cougar, k, b  
 cougar, mamisa, mamisa, cougar, k  
 cow, musmus, musmus, cow, k, b  
 crab, k̄umes, q̄umes, crab (dungenesse), k, b  
 crab, k̄anwis, k̄ənwis, giant rock crab, k  
 cross, ga'lutaḡsdi, ḡəlutəḡsdi, the cross piece for tail, k  
 crow, kaḡalaga, kaḡəlaḡa, crow, k  
 crow, kaḡ'alaga, kaḡʔəlaḡa, crow, b  
 cure fish, xaḡa', xəḡaʔ, to cure fish by smoking, k  
 cut, la'am̄ k̄wagak̄w, ləʔəm̄ q̄wagək̄w, this fish is cut, k  
 cut, k̄wagak̄w, q̄wagək̄w, a fish has been cut open on belly, k  
 cut, k̄waḡidzant, q̄waḡidzənt, put cut on animal's stomach area, k  
 cut, k̄waḡit, q̄waḡit, to belly cut a fish: to open a fish, k  
 deer, giwas, ḡiwas, deer, k  
 deer, t̄akus, t̄əkus, deer, b, q  
 dip, p̄agwayu, p̄əḡwayu, two-man dip net, k  
 dip, p̄akwa, p̄əkwa, to fish with two-man dip net, k

dip net, x̣udayu, ǰudayu, to dip net, k

dip net, x̣a'lyu, ǰəlyu, dip net or spoon, q

dip net, x̣alayu, ǰəlayu, dip net for fishing, q

dog salmon, g̣wax̣nis, ǰ<sup>w</sup>aǰnis, dog salmon: chum, k, b

dog, 'watsi, waci, dog, k, b

dog, 'watsibidu, wacibidu, small/little dog, k, b

dog, 'watsidzi, wacidzi, big/large dog, k

dog, 'wadzid, wad'id, dog (endearing expression), k

dog, 'wayuł, wayuł, dog (endearing expression), k

dog barking, watsi, waci, dog barking, q

dog salmon, gwax̣nisma'igada, g<sup>w</sup>aǰnismaʔigada, Is this a dog salmon? b

dog wild, 'watsas, wacəs, wild dog, q

dogfish, x̣walgwis, ǰ<sup>w</sup>əlg<sup>w</sup>is, dogfish, k

dogs, 'wa'ots, wəʔoc, dogs, k

dogs, ube', ʔubeʔ, dogs, k

dogs, 'wa'otsi, wəʔoci, dogs, k b

dolphin, hatsawi, hacawi, dolphin, k

double crested cormorant, lax̣włax̣w, laǰ<sup>w</sup>laǰ<sup>w</sup>, double-crested cormorant, k

down, ḳamxwa, qəmx<sup>w</sup>a, down feathers, k

dried, k̑awas, k̑awas, inner dried fish: dried fish: main meat: no skin: dried salmon

(inside fillet), k

dried, k̑awasila, k̑awasila, to make inside dried fish, k

dried, k̑awastlux̑, k̑awasλux̑, it is going to be dried salmon, k

dried, k̑awasa'm, k̑awəsə'm, light faced: dried herring, k

dried, t̑alikw, t̑alikʷ, dried backbone: any filleted meat, k

dried, t̑alsa, t̑alsa, making dried salmon: to fillet, k

dried, x̑a'mas, x̑əmas, dried skin part of fish refers to the fact that the fish can be kept, k

dried, x̑a'masila, x̑əmasila, process of making dried salmon, k

dried fish, k̑awas, k̑awəs, dried fish (salmon: halibut), k, b

dried fish with skin, x̑a'masila, x̑əmasila, to make x̑a'mas, k

drying, k̑atk̑adis, k̑ətk̑ədis, drying rack, k

duck, abani, ʔabani, duck, k

duck, a'ani, ʔaʔani, old squaw duck, k

eagle, kwikw, k̑wikʷ, eagle, k b q

eel, ts̑am̑k̑wa, c̑əm̑q̑wa, eel, k, b

egg, ts̑igw̑anu, c̑ig̑w̑ənu, egg, b

eggs, ts̑igw̑anu, c̑ig̑w̑ənu, seagull eggs, k

eggs, si'x̑'mu, siʔx̑m̑u, herring eggs (on kelp), k

eggs, k̑al̑amine, q̑əl̑amine, eggs, b

eggs, tsigw̄anu, čig<sup>w</sup>ənu, seagull eggs, q

eggs, maṇaḷa, mənaḷa, gather eggs, q

elephant, tsax̄wt̄sax̄a'ǎḷba, čax̄<sup>w</sup>čax̄əʔəḷba, elephant, k

elk, t̄ǎw̄als, ǎəw̄als, elk, k

elk, t̄i'was, ǎi'w̄as, elk (refers to horns), b

elks, t̄it̄ǎw̄als, ǎi'ǎw̄als, elks, k

engine, siḫwd̄am, siḫ<sup>w</sup>d̄əm, engine (something that propels something), k, b

ermine, gaḡaḷam, gaḡəḷəm, weasel: ermine, k

eulachon, dzaxw̄an, d<sup>z</sup>ax<sup>w</sup>ən, eulachon, k

eulachon oil, t̄i'na, ǎi'na, eulachon oil, k, b

eulachon oil, a'lis, ʔaḷis, fresh eulachon oil, k

eulachon oil, a'ls, ʔaḷs, fresh eulachon oil, k

eulachons, ts̄amdaḡ, čəmdaq, smoke eulachons, k

face, guga'me, ḡuḡəme, face, b

fall, wiwaḡwa, wiwəḡ<sup>w</sup>a, fall season for drying, k

fat, ǎldzi, ʔəld<sup>z</sup>i, fat, b

fin, paṭla, pəḷa, pectoral fin, k

first, galastu, galastu, first (object), q

fish, kiṭla, kiḷa, to net a fish, k

fish, wiwa'mis, wiwaṃis, preserve fish at a fish camp, k

fish, wiwamits̱aṉx̱, wiwamic̱əṉx̱, they are working on fish, k

fish, x̱amum̱awige, x̱əmum̱əwige, to make dried fish, k

fish, x̱a'mas, x̱ə'mas, dried fish with skin, k

fish, laṯi alis ḵa's kiḏasa, la̱li ʔalis qaʔs ki̱asa, to look for fish, q

fish, ḵita, q̱ita, fishing at dock with line, q

fish, g̱ag̱am̱x̱as, ǵǵə̱m̱x̱as, skinny little fish found in Quatsino streams, q

fish (salmon type), me, me, fish (salmon type), b

fish inner dried fish flesh, ḵawas, ḵawas, inner dried fish flesh, k

fish net, kiḏam̱, ki̱əm̱, fish net, q

fish net float, pa'wax̱, pəw̱ax̱, fish net float, q

fisher, wagiga, wagiga, fisher, k

fishing, lu̱kwa, luq̱wa, fishing for halibut with a hand-line, k

fishing, la'mi ṯasta kiṯa, lə̱mi ʔasta ki̱a, It's out fishing., q

fishing trip for halibut, lalug̱wis, lalug̱wis, to go on a fishing trip for halibut, k

fleas, ṯu̱peyatsi, ṯu̱peyaci, fleas, k

flippers, dziḵwayux̱ala, ḏziḵwayux̱əla, it is called "back flippers", k

flippers, dziḵwayux̱ala, ḏziḵwayux̱əla, it is called "back flippers", k

flippers, g̱alḵayu, ǵəḻq̱ayu, front flippers (seal), k

flippers, g̱alḵayu̱x̱ala, ǵəḻq̱ayu̱x̱əla, it is called "front flippers", k

flounder, pa'is, paʔis, flounder: sole, k

frog, wək̄es, wəq̄es, frog, k, b

fur, x̄awi, x̄awi, fur seal, k

gaff, gat̄la, ḡaḷa, to gaff, k

gaff, gaʼid, ḡaʼid, to gaff, k

gaff, gadlayu, ḡaḷayu, gaff hook, k

gaff, gadl̄am, ḡaḷəm, gaff hook, b

gaff hook, ga'dlayu, ḡaʼḷayu, gaff hook, k

geese, naḫaḳ, naḫaq, geese, b

gill net fishing, kit̄la, kiḷa, to gill net fish, b

gill netter, k̄uko'latsi, k̄ukoʼlaçi, gill netter, q

gillnet, k̄u'kola, k̄uʼkola, gillnet, k

go, hiḷa, hiḷa, go, q

go along ground, k̄w̄aligals̄ala, k̄w̄əligəlsəla, something that does along the ground, b

golden eye, gwadin, g<sup>w</sup>adin, golden eye, b

goldeye, ḡw̄adin, ḡ<sup>w</sup>adin, goldeye, k

goose, t̄isdaḳ, ḹisdaq, tame goose, k

goose, naḫaḳ, naḫaq, Canada goose, k

grebe, k̄udaḳ, q̄udəq, grebe: common diver, k

grey, waḫwwaḫ̄ali, waḫ<sup>w</sup>waḫ̄əli, grey warbler, k

grizzly bear, gaḷa, gəla, grizzly bear, k

grouse, kukwamł, kukwəmł, grouse, k

hake, k̄alayuga, q̄alayuga, hake, k

half, dzidzalamala, dʒidʒələmala, half dried: face is still fresh, k

half, wi'yut̄an, wi'yut̄ən, half smoked whole fish (principally eulachons because they are smoked whole), k

halibut, p̄oy'im̄a'igada? p̄oy'ʔim̄əʔigada? Is this a halibut? b

halibut fishing, luḵwaxd̄an, luḵwaxd̄ən, I have been out halibut fishing, k

halibut, 'm̄al'madzu k̄a'was, m̄əlm̄adʒuk̄awas, white dried fish, k

halibut, p̄o'i, p̄oʔi, halibut, k

halibut, k̄wa'k̄wan̄xe, q̄waʔq̄w̄ən̄xe, halibut wings, k

halibut, 'm̄al'madzu k̄awas, m̄əlm̄adʒu k̄awas, dried halibut, b

halibut, po'i po'yi, poʔi, halibut, k, b

halibut gear, lugwayu, luḡwayu, halibut gear, k

halibut hook, yaḵu, yəku, halibut hook, k

halibut hook, gamu'la, gamu'la, halibut hook, b

halibut hook, yuku, yuku, halibut hook, b

halibut hook, gamo'la, gamo'la, halibut hook, b

halibut hook, t̄lagayu, ʔəgayu, halibut hook, b, q

halibut spreader, lugwayu, luḡwayu, halibut spreader, b

halibut: club, t̄algayu, t̄əlgayu, halibut club, b

harbour seal, migwət, mig<sup>w</sup>ət, harbour seal, k  
 harlequin, 'madzina, mād<sup>z</sup>ina, harlequin, k  
 hawk, mama'na, mamaña, hawk, k  
 herring, wa'ne, wañe, herring, k, b  
 herring, kaxadi, qəxədi, herring: roe, k  
 herring, wa'ne', wañeʔ, herring, k  
 herring, wa'ni, wañi, herring, k  
 herring, a'a'nt, ʔaʔənt, take care of: look after, k  
 herring, a'ida'aqa, ʔaʔidaʔaqa, spawned herring eggs, k  
 herring catcher, lədayu, lədayu, a comb like device to catch herring, q  
 hook, məsxela, məsxela, hook with barb, k  
 hook, katlayu, qaʔayu, gaff hook, k  
 hook, gadlayu, ǵaʔayu, fish hook - crochet hook, q  
 hook, ǵaʔatʔala, ǵaʔaʔəla, hooked, q  
 hook, ǵaʔudaxw, ǵaʔudax<sup>w</sup>, take hook out of fish, q  
 hook, lə'mən ǵaʔudaxw, ləmən ǵaʔudaxw, take hook out of fish, q  
 hook, yugwilux, yug<sup>w</sup>ilux, halibut hook, q  
 hook on, kəndzayu, qənd<sup>z</sup>ayu, hook on, b  
 horns, wəʔax, wəʔəx, horns, b  
 horse, a'eksala, ʔaʔeksala, horse, k

horse, gudan, gudan, horse, b

horse clam, maṭani, mətani, horse clam, b

horsefly, sadikwa, sadik<sup>w</sup>a, horsefly, k

hummingbird, k'wa'ak'wamta, k<sup>w</sup>əʔak<sup>w</sup>əmta, hummingbird, k

humpback, haṇun, hənun, humpback: pink salmon, k

jack, 'mex'megaṭli', məxməgəʔliʔ, winter spring salmon: jack spring, k

jay, gugwaḷbas, ǵuǵ<sup>w</sup>əḷbəs, Canada jay: whiskey jack, k

jelly fish, ǵaǵisamak, ǵaǵisamak, jelly fish, k

jig, ʔalaḫwbala, ʔaləḫ<sup>w</sup>bala, to jig on and off, k

jig, ʔakwa, ʔək<sup>w</sup>a, jigging, q

jigging, ʔa'ka, ʔaʔqa, jigging, k

jigging, ʔakwa', ʔək<sup>w</sup>aʔ, jigging, k

jigging, k<sup>w</sup>asa', q<sup>w</sup>əsaʔ, jigging, k

jump, daḫwaṭlesaḫe car, dəḫ<sup>w</sup>əḷesaḫe car, he-she-it jumps on car, q

jump away, “Halaga: taḫw'idutʔ., “Halaga: təḫ<sup>w</sup>ʔiduʔ., Go: jump away., K

kidneys, maṭus, mətus, kidneys, b

killer, maḫi'nuḫw, maḫi'nuḫ<sup>w</sup>, killer whale, k

killer, maḫinuḫw, maḫinuḫ<sup>w</sup>, killer whale, k

kingfisher, kaḍalawi, kədəlawi, kingfisher, k

knife, ḫwadḷayu, ḫ<sup>w</sup>alayu, knife (fish slicing type), k

knife, xwadlayu, xʷaλayu, an ulu knife: a slicer: fish slicing knife, k  
 knife (fish slicing type), xwadłayu, xʷaλayu, knife (fish slicing type), k b  
 lever, kʷidayu, kʷidayu, fish pitcher: lever, k  
 line, lugwə'anəwi, luḡʷəʔanəwi, line for halibut hook, k  
 ling cod, tsəxu, cəxu, ling cod, k  
 lizard, gwalas, ḡʷalas, lizard, k, b, q  
 long line, tla'gisa, λaʔgisa, to long line (commonly for halibut), k  
 long line, tlagidzayu, λaḡidʷayu, long line gear, k  
 loon, əxawi, ʔəxawi, loon, b  
 loon, xaxa'kst, xaxaʔqst, loon, k  
 lynx, 'waləsxe, w'aləsxe, lynx, k  
 maggots, u'us, ʔuʔus, maggots, k  
 mallard, tselaxdi, c'elaxdi, mallard, b  
 mallard, laxku, laxku, mallard, k  
 marlin, k'alayu, q'alayu, marlin spike, k  
 marmot, pika, pika, marmot, k  
 martin, tlagakw, λəḡəkʷ, martin, k  
 meat, əldzi, ʔəldʷi, meat, k  
 meat, kasa, qəsa, meat, b  
 mend net, kansa, qənsa, to mend a net, k b

merganser, gwagwo's, ǵ<sup>w</sup>ǵ<sup>w</sup>oʔs, merganser, k  
 merganser, t̪am̪keyu, ǰəm̪qeyu, lesser merganser: saw bill, k  
 merganser, kwakwa'nap̪, q<sup>w</sup>əq<sup>w</sup>ənap̪, baby merganser, k  
 mink, maṭsa, məca, mink, k, b, q  
 minks, mimṭsa, miməca, minks, k  
 mix, t̪i'naḱala, ǰinaqəla, to mix eulachon oil with..., k  
 mosquitoes, kiḱa, kiḱa, mosquitoes, b  
 mountain, 'maḱt̪u, m̪əl̪ǰlu, mountain goat, k  
 mountain, 'mi'maḱt̪u, m̪im̪əl̪ǰlu, mountain goats, k  
 mouse, giga'atsaga, gigaʔacaǰa, rat: mouse, k  
 moving, 'ma'nakwala, mənak<sup>w</sup>əla, fish moving, k  
 murre, ha'anxa yugwa, həʔənǰa yuǰ<sup>w</sup>a, lesser murre, k  
 murre, pis, pis, murre, k  
 mussel, la'iḱ, laʔiḱ, mussel (small blue), b  
 mussel, xuli, ǰuli, mussel, b  
 mussel, xu'li, ǰuli, mussel, b  
 mussel, la'is, laʔis, small blue mussel, k  
 mussel, xuḱa, ǰuḱa, big blue mussel, k  
 net, kidlam, kiḱəm, net, k  
 net, tagaḱ, taǰaḱ, stake net, k

net, taḫp̄ik, taḫp̄iq, stake net stakes, k

net, ɣu'li, ḫuli, dip net, k

net, kidl̄am, kil̄am, net, k b

not available: closed, dḷanigakw, λənigək<sup>w</sup>, not available: closed, (as in the fishing season) k b

octopus, taḳ<sup>̇</sup>wa, təq<sup>̇</sup>a, octopus, k

octopus, ɣwalgwam, ḫ<sup>w</sup>alg<sup>w</sup>am, octopus, k

octopus, taḳ<sup>̇</sup>wa, təq<sup>̇</sup>a, octopus, b

oil, sa'k<sup>̇</sup>wis, saḷ<sup>̇</sup>k<sup>w</sup>is, oil rendered from blubber, k

oil, samka, səmka, to render oil, k

oolichans: eulachons, dzaxw̄an, dzax<sup>w</sup>ən, oolichans: eulachons, b

osprey, tsixwtsikw, çix<sup>w</sup>cik<sup>w</sup>, fish hawk: osprey, k

otter, ɣwängwa'wa, ḫ<sup>w</sup>əng<sup>w</sup>a'wa, otter or step child, k

otters, ɣwuxwmas, ḫ<sup>w</sup>ux<sup>w</sup>məs, otters, k

owl, daxdaxaliḷ, dəxdəxəliḷ, owl, k

owl, xupxup, xupxup, owl, k

oyster catcher, gwigwigwi, g<sup>w</sup>ig<sup>w</sup>ig<sup>w</sup>i, oyster catcher, k

oysters, tḷuxwtl̄axw, ḷux<sup>w</sup>ḷəḫ<sup>w</sup>, oysters, k

perch, tlamu, ḷamu, perch, k

pig, gwasu, g<sup>w</sup>əsu, pig, k

pigeon, ha'mu, həmu, pigeon, k

pike, ḵuḵwaṯan'yu, q̱uq̱ʷaṯənyu, pike pole, k

pink, hana'wa, hanawa, to fish for pink salmon, k

pink salmon, hanun hənun, pink salmon, k

pink salmon, hanuna, hənunə, pink salmon, b

pink salmon, hanu'wa, hənuwa, to fish for pink salmon, b

place, 'lap̱as, ḻap̱əs, place where eulachons are put to rot in preparation for rendering, k

plover, dzisamin, dʒisamin, plover, k

pluck, p̱ala, p̱əla, pluck, b

porcupine, mix̱adi, mix̱ədi, porcupine, k

porpoise, kuluta, kuluta, porpoise, k

prawn, ḵuḵuldana, q̱uq̱uldana, shrimp: prawn, k

prawns, ḵuḵudana, q̱uq̱udana, shrimp: prawns, k

preserve, wiwa'misda'x̱w, wiwam̱isdaʔx̱ʷ, preserve fish at a fish camp, k

puffin, hamudzina, həmudʒina, puffin, k

pulp, ḵabuq, q̱abuq, leftover pulp after eulachon rendering, k

puppy, 'wa'wadẕam, w̱awadʒəm, puppy, k

purse, ḵwa'mdzaṯla 'yala, ḵʷəmdʒəʔləyala, purse seining, k

put, duxwsṯand, duxʷsṯənd, to put trolling line into water, k

rabbit, as'o'wa, ʔəsʔowa, rabbit, k

raccoon, mayutsamχ, mayucəmχ, raccoon: coat, k

raccoon, mayus, mayus, raccoon, k, b

ratfish, dzinumaga, dʒinumaga, ratfish, k

raven, gwa'wina, ǵʷawina, raven, k

rear end, mąngas, mąngas, rear end, b

red, gwałdam, gʷəldəm, red breasted sapsucker, k

red snapper, nitsi, niči, red snapper: yellow eye, b

red: copper, tłaχw'an, ʎaχʷən, red or copper coloured long object, k

rhinoceros, kʷiḱʷiḱʷi, qʷiḱʷiḱʷi, rhinoceros bird, k

rhinoceros bird, xitsaxa, xicaxa, rhinoceros bird, k

robin, tsupa'la, cupala, robin, k

rod, ki'ta, qiʔta, to rod fish, k

roe, ge'ni, ǵeni, salmon roe, k

salmon, dzadzom, dʒadzom, small coho: salmon trout, k

salmon, kutala, kutəla, salmon, k

salmon, satsam, sacəm, spring salmon, k

salmon, gwaχnis, ǵʷaχnis, dog salmon, b

salmon: dog salmon, gwaχ'nis, ǵʷaχnis, dog salmon, b

salmon: dog: chum, gwaχ'nis, ǵʷaχnis, dog salmon: chum salmon, b

salt, dąmsxa, dəmsxa, salting the fish, k

sandhill crane, xalk'wa, xəlq'wa, sandhill crane, k  
 sandpiper, kādalsa, kədəlsa, sandpiper, k  
 scales, gubət, ġubət, scales on a fish, k  
 scales, manyayu, mənyayu, scales to weigh fish, k  
 sea, batla, baʎa, sea pigeon, k  
 sea, k'wiyuxw, k'wiyux'w, any sea bird that dives, k  
 sea, məsi'kw, məsiq'w, big sea urchin, k, b  
 sea lion, tlixan, lixən, sea lion, b  
 sea monster, 'yagəm, yagəm, sea monster, k  
 sea monster, 'yakine, yakine, sea monster, k  
 sea otter, kasa, qasa, sea otter, k  
 sea snail: Chinese slipper, kanas, qanas, sea snail: Chinese slipper, b  
 sea urchin, məsikw, məsiq'w, sea urchin: large purple sea urchin, k, b  
 sea urchin, amdə'ma, ʔəmdəma, small sea urchin, k, b  
 seagull, tsik'w, cik'w, seagull, k  
 seagull, kalxa'mina, qəlxamina, seagull eggs, k, b  
 seal, migwad, miğwad, seal, b  
 seal, ha'xti, həʔxti, fish head: seal head, k  
 seal, migwad, migwad, seal, k, b  
 seal oil, sa'kwis, saʔkwis, seal oil, k

seal, migwat, mig<sup>w</sup>at, seal, k b  
 seal oil, sa'gwis, səʔg<sup>w</sup>is, seal oil, bb  
 sealion, t̥iχ'an, ʎiχʔən, sealion, k  
 seine boat, k̥wamyatsi, k̥wəmyaci, seine boat, k, b, q  
 serpent, sisiyuł, sisiyuł, double-headed serpent, k  
 shark, χwālka, ʃ<sup>w</sup>əlka, shark, k  
 sheep, lamadu, lamadu, sheep, k  
 shrimp, k̥uq̥ułdana, q̥uq̥ułdana, shrimp: prawn, k  
 skate, bagwani, bag<sup>w</sup>ani, skate, k  
 skiff, h̥anbatla'yə'atsi, h̥ənbaɣayəʔaci, skiff, q  
 slicer, χwā'mdasbi, ʃ<sup>w</sup>ə'mdasbi, slicer: fish knife: dried salmon and eggs, k  
 slug - snail, k̥wə'atsəχ, q̥<sup>w</sup>əʔacəʃ, slug - snail, q  
 smoke, xalatsi, xəlaçi, smoke house, k, b  
 smoke, xitla, xiɣa, to smoke herring, q  
 smoked, k̥u'luxw, k̥uɣux<sup>w</sup>, smoked fish, k  
 smoked, xalsala, xəlsəla, something that has been smoked, k  
 smokehouse, xaldayu, xəldayu, smokehouse, k  
 snail, k̥watsəχ, q̥<sup>w</sup>acəʃ, snail, k  
 snake, siɣəm, siɣəm, snake, k, b  
 sockeye, məɣik, məɣik, sockeye, k

sockeye salmon, maḷikma'igada? maḷikmaʔigada? Is this a sockeye salmon? k, b

spear, saḡa'yu, səḡayū, fish spear, k

spear, saḡayu, səḡayu, spear, k

spear, saḡa', səkaʔ, to spear (salmon: seal), k

spreader, tḷakus, ḷakus, spreader for halibut hook, k

spring salmon, saṭsamma'igada? saṭəmməʔigada? Is this a spring salmon? k, b

squirrel, təminas, təminəs, squirrel, k, b

squirrel, təmina, təmina, squirrel, b

squirrels, titəminas, titəminas, squirrels, k

stake, taḡaḷ, taḡaḷ, stake net, k

stake, ta'ḡa'ḷ, taʔḡaʔḷ, stake net, k

stake, ta'ka, taʔqa, to stake net, k

stakes, ta'xpiḷ, taʔxpiḷ, stakes for a stake net, k

starfish, ḡadzaḷ, ḡadʔəq, starfish, k

steelhead, geḡwa, geḡʔa, steelhead salmon, k, b

sticks, kḷukʔatami, quḷʔətəmi, the sticks across middle of fish, k

stop, 'wa'la'la, walaḷa, stop someone-something, q

swallow, mamaḷika, mamaḷika, swallow, k

swan, ḡaḡuxw, ḡaḡuxʔ, swan, k, b

swan, ḡaḡok, ḡaḡoq, swan, b

swan, 'nala, n̄əla, smaller swan (flies in a large group and makes a lot of noise when flying high up), b

swimming, 'mə'nakwala, m̄ənakwəla, fish or anything without feet: swimming, k

tail, t̄u'tsax̄sdi, λ̄uʔcəx̄sdi, tail: amorous rear end, k

tail, ha'tsax̄sdi, haʔcəx̄sdi, fish tail, q

tail of animal, haɖzaɣ̄sdi', həɖʔax̄sdiʔ, tail of animal, b

tails, tsatse'aɣ̄sdi, caceʔəx̄sdi, fish tails (plural), q

take octopus, 'nisa, n̄isa, to take octopus out of den, b

thrush, tsaskw̄am, caskw̄əm, thrush, k

tie up, mukwala laɣ̄a u'ba'yi, mukwala laɣ̄a ʔuʔba'yi, It's all tied up., q

to spear, saka, səka, to spear, b

tommy cod, x̄waldzus, x̄wəldʔus, tommy cod, b

tooth, k̄ik̄aḡam, q̄ik̄ʔəḡəm, teeth (only used for animals), b

trap, dlawayu, lawayu, salmon trap, k

trap: salmon trap, dlawayu, lawayu, trap: salmon trap, k

troll, dukwa, dukw̄a, to troll, k, b

troller boat, dugwatsi, dugw̄aci, troller boat (commercial type), k, b

trolling, dugwayu, dugw̄ayu, trolling line, k

trolling season, dukw̄an̄x̄, dukw̄ən̄x̄, trolling season, k, b

trout, gula, ḡula, trout, k

trout, k̄iṭa, q̄iṭa, to fish for trout (trolling for salmon), k  
 ulu, x̄wadlayu an ulu knife: a slicer: fish slicing knife, k  
 vat, samgatsi, səmgaci, eulachon rendering vat, k  
 whiskers of animal, h̄abax̄sti', h̄əbəx̄stiʔ, whiskers of animal, b  
 wolf, u'ligan, ʔuligən, wolf, b  
 woodpecker, d̄lad̄lanan'it̄la, λaλananʔiḷa, woodpecker, k  
 work on fish, k̄akudtsila, k̄akudcila, to work on fish, k  
 work on fish, wiwa'misda'x̄w, wiwam̄isdaʔx̄w, they are working on fish, k

### 24.8.3. Comics

In 2018, Teniel Hunt developed an integrated language arts unit creating comics with the Junior Kwakwala class. She utilized templates from Mullins (2020) for the students to write and draw in pictures for their stories. Teniel and I worked with Mary Henderson to assist the students' to develop a comic in Kwakwala. Mary Henderson is a fluent |Bakw̄am̄kala| speaker and community Elder from the |Gwa's̄ala| Nation. Mary grew up in |Gigak̄|, the main settlement for the |Gwa's̄ala| located on an island in the mouth of Smith Inlet. Mary went to the local school in |Gigaq̄| until the community was relocated.

During this activity I developed a comic with Mary to use as an example with the students. This also gave me the opportunity to see how difficult it might be to create a

comic using one of the template forms as well as examine how Mary would interpret Kwakwala in this type of format. I used the paper form of the template as the school's Chrome books do not have keyboard encoders to type in U'mista, the orthography used at the school. I chose the template which included eight frames with the picture of a sick dog in the last frame (see Lesson Example 39). I developed a rough story line to match the end frame of a sick dog. In the story, a younger brother was not able to find his green socks only to learn that his socks had been eaten by his dog, who had become sick. The story utilizes Kwakwala words and phrases which were studied in the Junior program including family relations, 'younger brother', 'older brother', and clothes and colours, 'green socks'.

During the development process, I worked through two stages, a draft story, Lesson Example 39, and a revised story, Lesson Example 40. I developed the draft story with some interaction with Mary, such as checking for the |Baḵwamk̓ala| word for 'search for'. During this stage, I did not ask Mary to translate. This provided an opportunity to examine errors that I might make. In the second stage I sat down with Mary and reviewed the comic.<sup>127</sup> Stage 2 uncovered two errors in my Kwakwala: wrong

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<sup>127</sup> My strategy to develop the story on my own and then check with an Elder is not the usual method of elicitation recommended in linguistic studies (Matthewson (2004) cited in Sardinha (The semantics of Kwakwala Object Case., 2017)). The concern for linguistic studies is to control for the potential of the linguist influencing the documentation of a language. For educational purposes, however, it is helpful to study what kinds of errors a learner or non-fluent teacher might make. This is an area for further study.

lexical item and use of continuative aspect. In addition to corrections, the final version exemplifies a change in aspectual usage.

Lesson Example 39, Lesson Example 40, and Lesson Example 41 are the first draft, review, and translation respectively.

Lesson Example 39 Comic: *Searching for my green socks* (Step 1 rough draft)

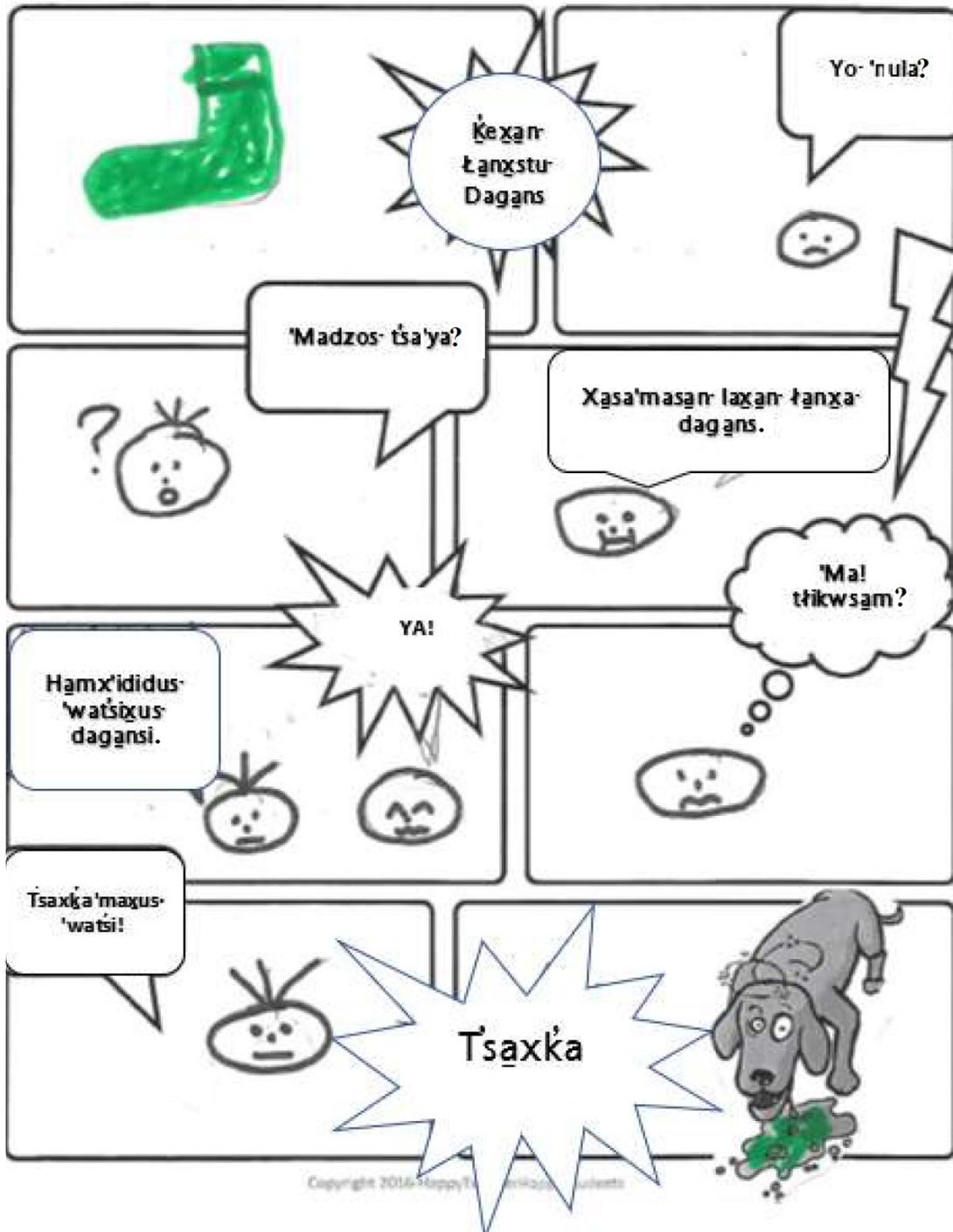
Template from (Mullins, 2020)



Copyright 2016-HappyTeacherHappyStudents

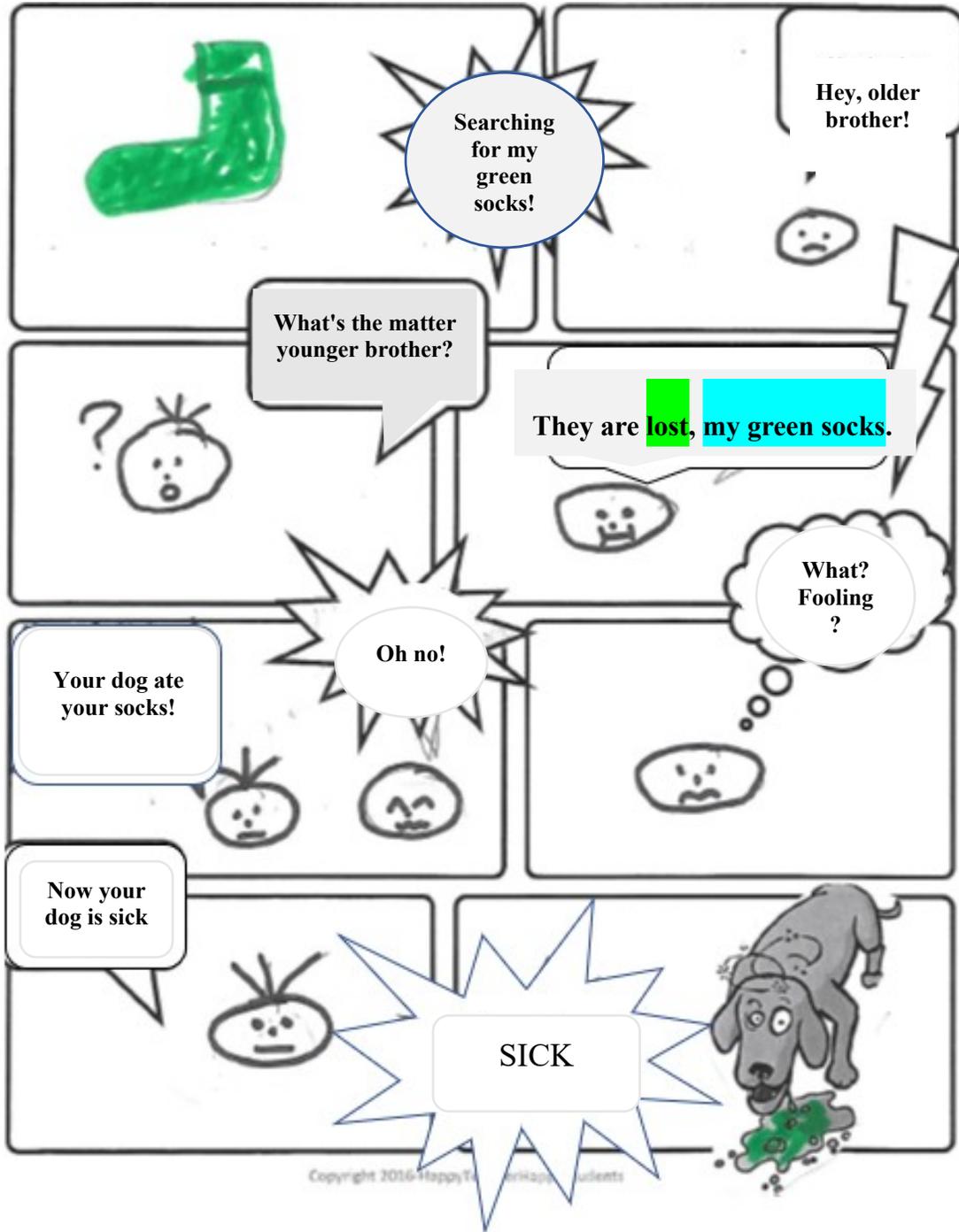
(Wilson & Henderson, Lost Green Socks, 2020)

Lesson Example 40 Comic Step 2 (review with Elder)



(Wilson & Henderson, Lost Green Socks, 2020)

Lesson Example 41 Comic - English translation



(Wilson & Henderson, Lost Green Socks, 2020)

Lesson Example 42 First draft with errors highlighted in yellow

Errors in the first draft are highlighted in the following example.

ǰeᵗan ᵗanᵗstu daᵗans.	Searching for my green socks	1
Yo 'nula!	Hey, older brother!	2
'Madzos ᵗsa'ya?	What is the matter younger brother?	3
ǰisaᵗ keᵗan daᵗansi.	*I can't search for my socks.	4
Hamᵗ'ididus 'watsiᵗus daᵗansi.	Your dog ate your socks.	5
Ya!	Oh no!	6
'Ma! ᵗᵗikwsamala	*What? (are you) fooling?	7
ᵗsaᵗᵗa'maᵗus 'watsi!	Your dog is sick now.	8
ᵗsaᵗᵗa.	Sick.	9

(Wilson & Henderson, Lost Green Socks, 2020)

Corrections are indicated in Lesson Example 42 Corrections (green) and structural difference (blue).

Lesson Example 43 Corrections (green) and structural difference (blue)

Ḳeḵan ḵanḵstu dagans.	Searching for my green socks	1
Yo 'nula!	Hey, older brother!	2
'Madzos ṡsa'ya?	What is the matter younger brother?	3
Xasa'masan, laxan ḵanḵa dagans.	They are lost, my green socks.	4
Hamx'ididus 'watsixus dagansi.	Your dog ate your socks.	5
Ya!	Oh no!	6
'Ma! tḵikwsam.	What? (are you) fooling?	7
ṡsaxḵa'maxus 'watsi!	Your dog is sick now.	8
ṡsaxḵa.	Sick.	9

(Wilson & Henderson, Lost Green Socks, 2020)

The error in the fourth frame was my use of |Ḳeḵan| ‘to search for something’ in the phrase |Ḳisan Ḳeḵan dagansi|. What I was trying to say was ‘I can't find my socks’.

There are two problems with |Ḳeḵan|. First, the sentence implies ‘I can't search for my socks’, which is not what I intended to say. Second, the draft version Lesson Example 39 uses |Ḳeḵan|, which does not contain the prenominal object marker.

The sentence should have been written as noted below in Lesson Example 44.

Lesson Example 44 Correction to |ḳɛx̣an|

Ḳisān ḳɛx̣anṭɬax̣an dag̣ansi.			‘I can't search for my socks’
ḳis̄-ḅan	ḳɛx̣-anṭɬax̣an	dag̣ans-i	
not- pro1.SBJ.IND	search.pro1.SBJ.OBJ.POSS1	socks-VIS-	

(Wilson & Henderson, Lost Green Socks, 2020)

Mary corrected my Kwakwala by changing the sentence to ‘They are lost, my green socks’, as noted in Lesson Example 45.

Lesson Example 45 Correcting fourth frame

X̣asa'masān, lax̣an ɬanxa dag̣ans.				‘They are lost, my green socks.’
x̣asa-'m-as̄an	la-x̣an	ɬanxa	dag̣ans.	
lost-VER- pro3.SBJ.POSS1	AUX-OBJ- POSS1	green	socks	

(Wilson & Henderson, Lost Green Socks, 2020)

Mary's correction in the example above indicates the socks are lost and implies that the younger brother did not intentionally loose them. In English, however, it is common for someone to say, "I lost my socks," however, if one were to construct such a sentence in Kwakwala it would not make sense (unless someone intentionally looses something e.g.,

to get rid of it). Mary's correction to sentence 4 provides an example of the difficulties encountered when translating sentences from English into Kwakwala, where semantic presuppositions are different between languages. Even if I had written the sentence with the correct verb as 'I lost my socks' |Xasa'masantʔaxan lanxa dagans|, it would seem odd to a Kwakwala speaker in this context.

The error in the seventh frame was my use of the continuative aspect on the word |tʔikwsamala| 'to continually fool or lie'. In this sentence, the younger brother is thinking that his older brother is trying to fool him when the older brother tells him that the dog ate his socks. The continuative |-ala| in Kwakwala implies a perfective ongoing meaning and would not be used in this situation. Mary corrected this error by using the word |tʔikwsam| 'to fool someone', which is a combination of the stem |tʔikw-| 'to fool or lie' and |-am| veritas. This error provides another example that highlights translation difficulties between English and Kwakwala. In this example, the use of "-ing" in the English such as '(are you) fooling?' might be incorrectly translated into Kwakwala as an ongoing action using |-ala|.

#### **24.8.4. Clothing**

Table 87 is an activity that I developed from the research on clothing terms that occurred during class time (see Section 7.1.1: Primary research conducted in the classroom). The

first step in the activity required students to complete the English. The activity was designed to be completed using pen and paper or on Chromebooks, as the typing activity only involved English. The icons were included to assist students in this task as well as those who might have difficulty reading.

Table 87 Clothing worksheet

Ƙat'idasx̄us d̄igamos \_\_\_\_\_ Write your name.

Ƙat'idast̄ax̄a Mamaƙanaƙala Baƙabo Write the English below

dzastu		
ƙan̄xa		
t̄ƙaƙwa		
t̄suƙa		
'maƙa		
dadatsawakw		
dagans		
dzamba		
dzastu ƙasane		
dzastu tibayu		
haƙast̄a'wo		
ƙed		

kekadaxtɛ		
ɫanɣa dadatsawakw		
ɫanɣa k̄asane <sup>128</sup>		
ɫanɣa tsupayx		
'mala k̄asane		
tikwaxo		
ti'stakwa		
ɫɫakwa k̄asane		
ɫɫakwa tsaxsdi		
ɫɫakwa kadɫakw		
tsuɫa k̄asane		
tsuɫa kaxsis		
tsuɫa tibayu		
yagakw		

(Eke Me Xi, 2021d)

After the students complete the worksheet, the teacher asks various questions pointing to the Clothing Worksheet using WH- and Yes-No questions exemplified in Table 88

<sup>128</sup> The word |k̄asane| in Kwakwala is used for shirt and dress.

Clothing oral-aural clothing activities. At this point in the course, students should be familiar with both WH and Yes-No questions and the basic colours in Kwakwala.

Table 88 Clothing oral-aural clothing activities

Teacher prompt		translation	Student answer	translation
'Wistugada?		What colour is this?	T'łaqwuxw.	That's red.
T'łaqwaṃa'igada?		Is this red?	Am, t'łaqwuxw.	Yes, that's red.
Ḳasane'ma'igada?		Is this a shirt?	Am, Ḳasane'muxw.	Yes, that's a shirt.
łanxa'maigada Ḳasane?		Is this a green dress?	Ḳi, dzastumuxwda Ḳasane	No, that's a blue dress.

(Eke Me Xi, 2021d)

Students should also be encouraged to ask each other or the teacher about the colour of items on the worksheet, their clothes, or items on their desks. The clothing lesson can lead to additional experiential activities such as shopping and dialogue. Word List 5 provides a word list for shopping activities.

Word List 5 Clothing and related words for shopping

alumas	new	
ḡwo	big (plural)	
ḡwoxis	big feet	
ḡmabidu	small	
ḡxe'ḡxsdan	I want	
ḡ'wa'wag'awexsta'akw	they seem bigger	
ḡma'yagawi	smaller	
ḡx'id	to take, to buy	
ḡm'ame'ḡmḡa'oḡw	they are too small	
dadatḡa'wakw	coat (dress coat)	
dagans	sock, socks	
dadatḡa'wakw	coat	
dzasa	blue	
eḡadzo'liḡ	many things on table (e.g. socks)	
ḡalsḡaltḡsda	tall people	
gum boots	gum boots	
ḡamḡkudadzu	left side	
ḡalaḡala	sale	
ḡiyamtḡa'wasa	belongings container	

g <u>at</u> ʃa	to crochet, to hook	
gwiʃg <u>wela</u> 'ilas	clothing store	
gwiʃg <u>wela</u>	clothes	
heʃa	right	
ha <u>ba</u> ʃa <u>sa</u> m	fur coat	
ha'ib <u>a</u> ʃa <u>sa</u> m	fur coats	
homo	to look at something	
heʃ <u>ku</u> da <u>du</u>	right side	
i'sanawes <u>a</u> k	I wonder if these ...	
ka <u>ka</u> ʃwiʃa <u>sa</u> ila	storekeeper	
ka <u>wa</u> na <u>sa</u> m	something bought	
ka <u>xi</u> si	pants	
ka <u>na</u>	to sew	
ka	to find	
ka <u>sa</u> ne	shirt or dress	
ka <u>wa</u> xa	grey	
ka <u>wa</u> ʃa <u>ya</u> kw	old	
ʃa <u>na</u> xa	green	
ʃa <u>ta</u> 'mʃ	hat	
ʃa <u>ka</u> wa	copper, red	

mayutsam̄x	raccoon coat	
m̄atsasḡam	mink coat	
m̄am'wale	luggage	
'mat̄sał'anawisi	I wonder what ...	
'm̄ala	white	
p̄isa	hard	
p̄isagawe	hardest	
s̄alsa	pink	
t̄alkwagawe	softest	
t̄alkwa	soft	
t̄ibayu	shoes	
t̄ep̄amo'loł	old shoes	
tsep	apron (kitchen apron)	
tsepidzi	apron (ritual dance apron)	
tsep	apron	
t̄suła	black	
t̄supayx	gloves	
'wixst̄awi	what colour	
'walas    'walasagawe	big    bigger	

(Eke Me Xi, 2021d)

### 24.8.5. Dialogue: Conversations

Lesson Example 46 Dialogue is an example of a conversation between |Ada| (an endearing form for mother) and |Dada| (an endearing form for father). A |Yayu'ma| is a “play ritual celebration” that involves traditional dancing and songs.

#### Lesson Example 46 Dialogue

Ada	'Yaaaa, olaḱala 'yugwuḱwda 'nalax.
	Oh, it's really raining today.
Dada	'Witłoxw le Gana axa'sus ix gwiłgwela?
	Where is  Gana  going with her good clothes?
Ada	Latłoxw laxe Yayu'ma.
	She's going to the  Yayu'ma .
Dada	Ḳwāngatoḱw Gana.
	Gana  has wet hair.
Ada	Ḳwānḱuxw ix gwiłgwela.
	Gana  has wet good clothes.
Ada	Wāniḱa Ganasa 'yugwa.
	Gana  is irritated with the rain.

(Eke Me Xi, 2021e)

Lesson Example 47 Playtime is a dialogue between |Wisa| and his older brother |Xa'na|. |Xa'na| asks where their sister |Gana| is going with her younger sister. This dialogue utilizes words and phrases about play and family. The story provides an example for students to write their own story.

Lesson Example 47 Playtime

Wisa	T'fisa <u>l</u> xwda 'nalax.
	It's sunny today.
Xa'na	'Wit <u>l</u> oxw le Gana dfa'os tsa'yaga?
	Where is Gana going with her younger sister?
Wisa	Lat <u>l</u> oxw laxe 'amlilas.
	They are going to the play place.
Xa'na	Tikwu <u>x</u> w Gana dfa'os tsa'ya.
	Gana is going to swing her younger sister.
Wisa	La'am 'wa'napu <u>x</u> w.
	Then they are going to play hide and seek.

(Eke Me Xi, 2021e)

Lesson Example 48 Vocabulary for Playtime provides an example of how a dialect difference can be represented in lessons. In this example, the word for ‘to swing’ is different in |Kwakwala| and |Bakwamkala|. The vocabulary provides both word forms and stems for ‘to swing’. Students would then have the options of choosing which word to use.

Lesson Example 48 Vocabulary for Playtime

Vocabulary				
'wa'napa	play	hide and seek	t'isalu <sub>x</sub> w	it's sunny
hewa <sub>x</sub> u <sub>x</sub> w		She swings K	'nala	day
hewa <sub>x</sub> a		back and forth K	'nala <sub>x</sub>	today, this day
tikwu <sub>x</sub> w		She swings B		
tikwa <sub>l</sub> a		hanging B		
d <sub>l</sub> a'wis		with her	lat <sub>l</sub> u <sub>x</sub> w	he-she-it-they
t'sa'ya		younger sister or younger brother	a <sub>m</sub> l <sub>a</sub>	play
la'am		then	a <sub>m</sub> lilas	play place

(Eke Me Xi, 2021e)

## 24.9. Family

Lesson Example 49 Writing about family, Lesson Example 50 Friends and Family

Activity 1: About you and Word List 6 Family and Friends are example materials about introductions and talking about one's friends and family.

Lesson Example 49 Writing about family

Talking and writing about yourself and family:

An Elder may ask about yourself and your family. Here are some example questions and answers:

Question	Answer
<u>A</u> ngwax <u>t</u> tas?	Nuga'am _____
Who are you?	I am _____ (your name).
'Widas gayu <u>t</u> i?	Gayu <u>t</u> an la <u>x</u> o <u>x</u> T'sa <u>l</u> gwadi la <u>x</u> i <u>k</u> u <u>t</u> as.
Where do you come from?	I come from Tsulquate on the higher area.
<u>A</u> ngwes gukw <u>a</u> lu <u>t</u> i?	Gukwa <u>l</u> an d <u>t</u> al'wa <u>n</u> giga'u <u>t</u> 'nukw
Who do you live with?	I live with my family.

(Eke Me Xi, 2021f)

Lesson Example 50 Friends and Family Activity 1: About you

Ƙadidaḅus dḡamos \_\_\_\_\_

Complete the following Kwakwala sentences below using the list of words in the Friends and Family hand out and the list of communities and locations noted below:

**Communities:** |Tsaḡwadi, Tsax̄is, Ḡusgimuḅw, Gwadzi|

**Locations:** |iḡuḡas| (higher area) and |baḅu'las| (lower area)

About You:

Gayuḡan laxox \_\_\_\_\_ lax \_\_\_\_\_.

"I come from \_\_\_\_\_ on the \_\_\_\_\_."

Gukwalaḅan dḡal'wan \_\_\_\_\_.

"I live with my (use words from the Family and Friends Handout)."

For example:

"I live with my auntie," "I live with my grandparent," "I live with my friend."

(Eke Me Xi, 2021f)

Word List 6 Family and Friends

ab̄amp	mother
an̄is	aunt
babagw̄am	boy
baḡwan̄am	man
bibabagw̄am	boys
bibaḡwan̄am	men
d̄id̄t̄ad̄tola	relatives
e'an̄is	aunts
ga'aḡamp	grandparents
gaḡamp	grandparent
gan̄anam	child
gan̄anan̄am	children
giga'ūtnukw	family
giga'ūtnukw	family
k̄wali' k̄wik̄wali	uncle uncles

ńamyut	family member, close friend not related
ńula	older sibling
ńuńala	older siblings
sasam	children (part of one's family)
ťsadaḱ	woman
ťsatsadagam	girl
ťsatsaya	young siblings
ťsaya	younger sibling
ťsayaga	younger sister
ťsitsadaḱ	women
ťsitsadagam	girls
ump	father
wakwa	sibling, endearing form for opposite gender
wiwakwa	siblings, endearing form for opposite gender
xwanukw	child (one's own child or nephew-niece)

(Eke Me Xi, 2021f)

## **24.10. Weather**

The following example activities in Lesson Example 51 and Lesson Example 52 were developed to introduce and provide dialogue relating to weather. These introductory activities can be reinforced through review activities including weather term Bingo and online Jeopardy (Solis Creative, llc, 2020). Lesson Example 51 provides a listing of terms that can be used to develop additional materials or during daily review of the weather. Weather terms could also be displayed on a word wall to encourage students to describe the weather of the day using full sentences such as those used in Lesson Example 52.

Lesson Example 51 Weather terms introduction with icons

	Bakwamkala		English	Icon
1	wadala			
2	yola			
3	anwadi			
4	kwaxwa			
5	tanikwa			
6	yugwa			
7	tisala			
8	kwisa			
9	yugwaxstayala			
10	tistsola			

(Eke Me Xi, 2021a)

Lesson Example 52 Pattern Practice 2: Weather

<p>Ànwadi'ma'uxwda 'nala?</p>		<p>Àm, ànwadi'muxw.</p>
<p>T'risàla'ma'uxwda 'nala?</p>		<p>Ìi, t'ranikwa'muxw.</p>
<p>'Wàdala'ma'uxwda 'nala?</p>		
<p>'Wàdala'ma'uxwda 'nala?</p>		
<p>K'wisa'ma'uxwda 'nala?</p>		
<p>K'wisa'ma'uxwda 'nala?</p>		
<p>'Yugwa'ma'uxwda 'nala?</p>		
<p>Yola'ma'uxwda 'nala?</p>		

(Eke Me Xi, 2021a)

Word List 7 Weather

Lesson Example 53: Weather vocabulary (Junior class) English sort

cloud	anwi
cloudy	anwadi
cold	'wadala
daytime	'nala
dew	dalxa
drizzle	dʒastayala
evening	dʒakwa
foggy	palxala
frost	gawisa
frost on ground	gawitsas
hot	tsalkwa
light out at night	nakala
lightning	tʃanikwa
moon	makwala
moon: full moon	naxsamala
time of day: nighttime	niguk <sup>w</sup>
no wind	kuqala
no wind, no waves	kamakala

north wind	yuya
rain	'yug <sup>w</sup> a
rain a little bit	'yug <sup>w</sup> axstajala
rainbow	wagalus
sleet: It is sleet.	k'wik'watskaloxw.
snow	k'wisa
snow a little bit	k'wistajala
snow on ground	ne'
snow: That is snow on the ground.	Nayuxw.
south: wind blowing in southerly direction	'nalbala
stars	tuto
sunshine	t'hisala
sunshine shining through clouds	t'histsola
thunder	k'wanx <sup>w</sup> a
time of day: morning	ga'ala
time of day: noon	naqala
wind	yola
wind blowing in northerly direction	g <sup>w</sup> abala
wind blowing in southerly direction	'nalbala
wind: no wind	kuqala

wind: no wind, no waves	k̄amaḱala
wind: north wind	yuya
wind: south-east wind	maḱas
wind: south-west wind	geks'ala
wind: sudden gale	yawista
wind: The wind is blowing in a northerly direction.	Gwabalox̄w.
wind: west wind	dʒaḱwa
wind: Which way is the wind blowing?	'Wibalox̄wda yolax̄?

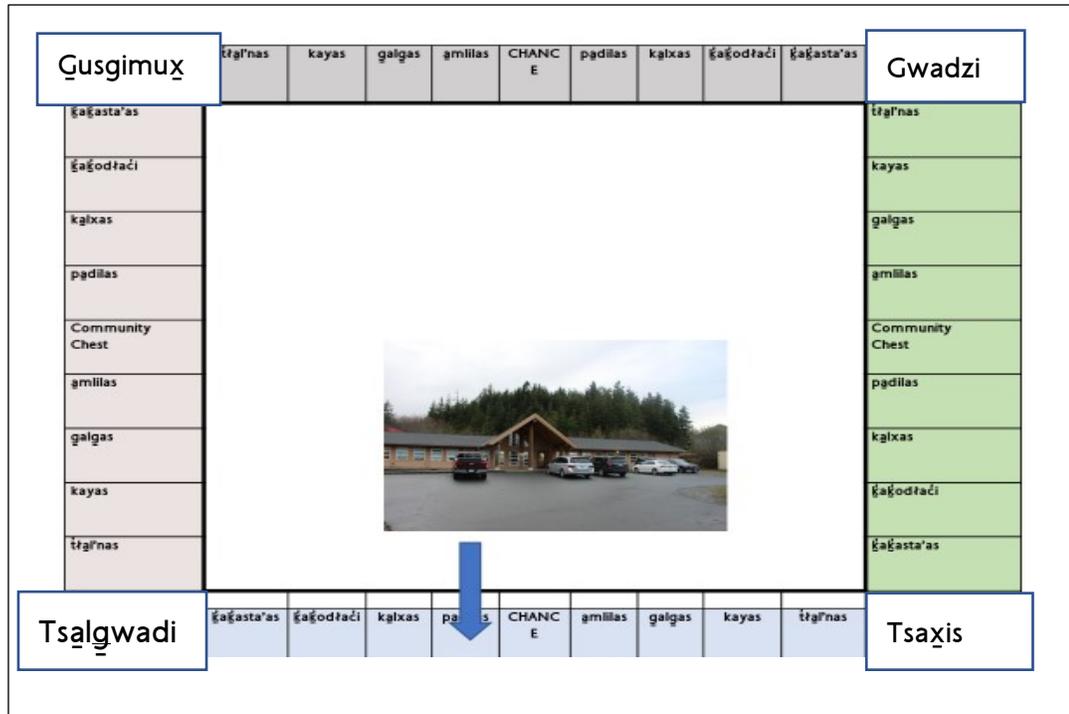
(Eke Me Xi, 2021a)

#### 24.11. Games: Monopoly

The Monopoly-like game in particular provided insight into how the students and staff adapted the game to reflect traditional social knowledge of the |Gwa'sala -

Nakwaxda'xw|. For example, the locations on the Monopoly board were replaced by the four communities served by the school, as noted in Figure 6 Monopoly Board. See also Table 89 Communities in Port Hardy Region.

Figure 6 Monopoly Board



Each monopoly property card contains a photo, a written word, and community location (see Figure 7 Monopoly Board). Figure 7 is the |paḡilas| ‘drug store or medical centre’ in |Tsulgwadi|.

Figure 7 Monopoly Board property card

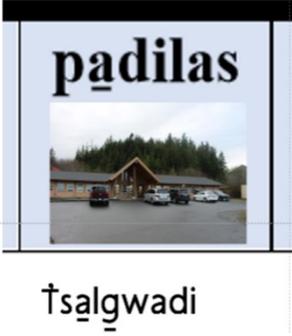
<p>Property card for the medical centre in  Ṭsaḷgwadi .</p>		<p>Property cards include the name of the property, a picture, and the location.</p>
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Table 89 Communities in Port Hardy Region

Kwakwala	English	Information of place name
Ṭsaḷgwadi	Tsulquate	‘place of warmth’ main community for the  Gwa'ṣala-'Nạkwaxda'x̣w  Nation since 1964
Gwa'dzi	Port Hardy	‘place on the other or far away side’ <sup>129</sup>
Ṭsax̣is	Fort Rupert	main community for the  Kwaguṭ  Nation
G̣uṣgimux̣w	Quatsino	The name "Quatsino" is from  Gwạtṣinụx̣w , the name for Winter Harbour.

Pictures of each of the property items were printed on the cards and on the game board.

Each of the property cards contained a picture and the written word, as can be seen above for |padilas| ‘drug store’ or ‘health centre’ in |Ṭsaḷgwadi| (see Table 89 Communities in

<sup>129</sup> The municipality of Port Hardy is located in Hardy Bay, which is on the other side of a point of land that separates it from Fort Rupert.

Port Hardy Region). I took pictures for each location in the four communities and added them digitally to the game board and the game property cards. During this process, I collaborated with Tom Henderson to ensure accuracy.

During the development of the Monopoly game, students modified game play. Players collaborated to each choose one of the four communities. When a player landed in another player's community, the owner paid the visitor, rather than the visitor paying the owner. This modification was based on the student's knowledge of the traditional |Pasa| 'potlatch', where the chief would welcome visitors and provide food and gifts. The students came up with this idea when one of the students lost all of their money. This modification meant that players were less likely to lose all of their assets or gain a "monopoly."

When the games were complete, students had opportunities to play each others' games. This was done at various times during the school year. In addition, the school prepared a feast for the Elder's Council to present their work, including the games at the end of the term (November 2016). Following the presentations, Elders and students played the games.

## 24.12. Linguistic Landscape and Translanguaging

The linguistic landscape in a community reflects the importance of the languages found in a community (Valijarvi & Kahn, 2017, p. 1; Vessey & Sheyholislami, 2020, p. 804). At Eke Me Xi, Kwakwala and Indigenous themes are represented on signs in classrooms, hallways, |Gwa'sala 'Nakwaxda'xw| maps, and school clothing. These visuals reflect the importance of Kwakwala at the school and provide an example of the efforts to integrate the language across school activities.<sup>130</sup> The signage at the school is consistent with a greater use of signs in other communities with Indigenous populations, such as those in Nuuk, Greenland examined in Valijarvi & Kahn (2017, p. 1).

Translanguaging is a method of language usage where two or more languages are used for communication. This is used as a method in language teaching including bilingual and immersion programming (Garcia & Wei, 2014). At Eke Me Xi, English is used in Kwakwala classes to assist with comprehension, and Kwakwala is used in other classes. Translanguaging is also found on signs at the school. Illustration 18 Linguistic landscape and Translanguaging provides an example of both methods, including the name of the school with translation and Indigenous Crest on one side, and one of seven key words representing Eke Me Xi values, in this example, |maya'xala| 'to be respectful.'

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<sup>130</sup> See Section 26.1 for a discussion on the lack of Kwakwala on North Vancouver Island signs.

### Illustration 18 Linguistic landscape and Translanguaging



Photo Eke Me Xi

The Regional District of Mount Waddington Literacy program provided funding for literacy improvement initiatives in Kwakwala as well as English. This initiative was based on the claim that improvements to student literacy could be made through both English and Kwakwala. In Kwakwala, the grant provided support for the T-shirt program exemplified above. Each student was provided with a T-shirt as noted above.

Additional examples of translanguaging include Kwakwala songs in culture classes, the use of Kwakwala in subject courses, and the 2018 videos discussed in Section 11.5. In addition, the office administrator collaborated with Chief Tom Henderson to include Kwakwala phrases while answering the school phone and alternating between Kwakwala and English in the 2017-2018 school year.

### 24.13. Dialect and the classroom

Eke Me Xi materials include lessons and narratives in the three dialects representative of the communities that the school serves. These are |Bakwamkala|, |Kwakwala|, and |Gutsala|, Tsulquate, Fort Rupert, and Quatsino respectively. The databases and word lists code entries by dialect as well as the two subdialects of |Bakwamkala|: |Gwatsala| (Smith Inlet) and |'Nakwala| Blunden Harbour and Seymore Inlet. During the first year of the study, I referred to my previous materials which tended to include more |Kwakwala|, and the following two years shifted to more |Bakwamkala|. During class activities, the materials identified which dialect was being used. During the study I worked with Elders from the Tsulquate community to gather more information on |Bakwamkala| and its subdialects |'Nakwala| and |Gwatsala|. For example, I worked with Chief Tom Henderson to document and contrast the words in |Bakwamkala| for body parts from those used in |Kwakwala|.

Examples of dialect activities in materials for the |Kwakwala| dialect include the clam gathering and preparation activities led by Hazel Wilson noted in Illustration 2. An example of |Gut'sala| in materials is the story of Dzunukwa and Salmon, a story told by James Wallas from the |Gusgimuxw| community. An English version of this story is published in Wallas & Whitaker (1981) and versions in Kwakwala include Wilson & Wallas (1982) and Wilson, Wallas, & Peters (1982c).

### 24.13.1. Story: Dzunuḱwa and Salmon

The "|Dzunuḱwa| and Salmon" story below is from James (JJ) Wallas and was transcribed during his participation with the NILDP and CW programs. The story was published in English as "Big figure and the smoked salmon" in Wallas and Whittaker (Kwakiutl Legends, 1981, pp. 158-161). James Wallas was a chief from the |Gusgi'muxw| Nation whose first language was the |Gwaṭsala| dialect of Kwakwala. His father was from |Xwəṭis| "Old Quatsino" located in the narrows of Quatsino Sound and his mother was from Hope Island.<sup>131</sup> Many of the families from Hope Island, the northernmost areas of Vancouver Island, and Quatsino Sound amalgamated as the Quatsino Nation, now located near Coal Harbour, B.C. Two Kwakwala versions of the story were developed, one in |Kwaḱwala| (Wilson & Wallas, 1982) and the other in |Gutṣala| (Wilson, Wallas, & Peters, 1982c). The version of the story below is the |Kwaḱwala| version in the U'mista orthography developed for Eke Me Xi.

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<sup>131</sup> The Hope Island dialect is similar to |Gutṣala| and referred to in Boas (1947, p. 295) as Newettee. The dialects from Quatsino Sound, northernmost areas of Vancouver Island and nearby islands, and the |Gwa'sala-'Nakwaxda'xw| are referred to as the Northern Kwakwala dialects (Wilson P. , 1990).

Dzunuḱwa Dł̄awida Ḵut̄ala Story by James (JJ) Wallas Kwakwala Version

<p>Yax̄edax̄ ḥ̄amx̄d̄ł̄aḱa gukwege'lis̄xa wa ḱa's le wiwa'misa ḱa ḱsa'wan̄xt̄ła.</p>	<p>A family was camping by the river so that they could put up salmon for the winter.</p>
<p>La'am 'wi'la x̄wadł̄akwi lodł̄an̄amx̄da'x̄was ḱut̄ala la'mi gux̄gawit̄ laḱa x̄ł̄atsi.</p>	<p>All of the fish that they had caught, and cut is hanging in the smokehouse.</p>
<p>Galago le kw̄al̄x̄'idida ḱw̄al̄'yaḱw̄agi x̄wan̄ux̄ws la ix̄am laḱa x̄ł̄atsi.</p>	<p>Before the eldest son went to bed, he went into the smokehouse.</p>
<p>La'am duk̄w̄al̄ex̄ax̄s d̄ł̄obał̄a'ida ḱut̄ala ḱax̄s ḱ̄enamida ḱos lax̄is tikwał̄a'ast̄simas.</p>	<p>Then he saw that the fish had been disturbed because there were many missing where they were hanging.</p>
<p>La'am la nił̄ax̄es ump, " la ḱiyosida wa'ox̄w x̄amas."</p>	<p>He told his father, "Some of our smoked fish are not there."</p>
<p>"Hega 'i's'migants lax̄w." niki umpas.</p>	<p>"We're the only ones here," said his father.</p>
<p>"Yax̄gants 'namx̄d̄ł̄aḱi hega'mants yulox̄w."</p>	<p>"We're the only ones from our family."</p>
<p>"ł̄ł̄aliwilaga 'o'am ḱa it'idamił̄gants lot̄ł̄.</p>	<p>"Just forget about it, we'll get some more."</p>

Dzunuḱwa Dł̄awida Ḵut̄ala Story by James (JJ) Wallas Kwakwala Version

<p>Ḵa le it'id ga'ala, la'mida gangananam la laḡwiḱaxa xalatsi, la'am duxwat̄alaxsa la'i ḱenamida la k'iyosi.</p>	<p>The next morning when the kids built the fire in the smokehouse, then they noticed even more were missing.</p>
<p>"Ka'o ganuḱ'idt̄u. La'misan 'wa'niḱ qan duxw'wat̄alet̄ax galut̄exants ḱut̄alax.</p>	<p>"When it becomes night, I will hide in it to see who is stealing our salmon."</p>
<p>"Lat̄ant̄asan ḱakwis, qa bagwanamt̄u'. 'st̄at̄an han̄i'idaqe."</p>	<p>"I'll take my bow and arrow, if it's a man I won't shoot him.</p>
<p>Ḵi'si 'walasi laḡwiḱa's, ha'nakwile ḱalx'aliḱ.</p>	<p>There wasn't a big fire, it soon burned out.</p>
<p>La'mida gananam 'wa'niḱ laxa unigwiḱ.</p>	<p>Then the boy hid in a corner.</p>
<p>Olaḱala ḱos hadzxstala, hega'mida yola d̄la'wida wa.</p>	<p>There was really no noise, just the wind and the river.</p>
<p>Ḵi's geḱa la'e wat̄aleda gananamaxa hiḱala.</p>	<p>It wasn't long before the boy heard a sound.</p>
<p>Ṭipala! Olaḱala gwanta ṭipala.</p>	<p>Footsteps! Really heavy footsteps were approaching the camp.</p>

Dzunuḱwa Dławida Kútala Story by James (JJ) Wallas Kwakwala Version

<p>Gaxa naxwakalā'nakwala lax t'asano'yasi xalatsi</p>	<p>The sound came closer outside of the smokehouse.</p>
<p>La'am ka'idida gananam, La'am gwałatāxis łakwis</p>	<p>Then the boy was frightened, then he finished getting his bow and arrow.</p>
<p>La'am wix'idi ugwesasi xalatsi.</p>	<p>Then their smokehouse roof was lifted up.</p>
<p>La'am nixidāxis łakwis.</p>	<p>Then the boy got his bow and arrow ready.</p>
<p>La'am duxwatłalaxa e'a'ya'asu, La'am paxso ka's dax'idi laxa kutala, La'am gwałatasis łakwis.</p>	<p>Then he dimly saw hands, then they reached in toward the salmon. Then he finished with his bow and arrow.</p>
<p>Olaḱala ḱwasa. La'am tsax'idamasxa wa'o.</p>	<p>There was a real cry, it woke then up the others.</p>
<p>"Laxsta'axw'man lotłakw!</p>	<p>"I think I shot it!"</p>
<p>"Dzunuḱwaxsta'axwi," nikida gananam laxes giga'oł'nakw."</p>	<p>"I think it's  dzunuḱwa ," said the boy to his parents."</p>

Dzunuḱwa Dławida Ḳutala Story by James (JJ) Wallas Kwakwala Version

"Lalagexants lasgalmi ke'."	"Let's go after him."
"Isařalagexantsax řanstřa ga'alatřa."	"We'll wait till morning."
"Ixtřants dukwalařa kařas'mut řanstřa, ka'su yařkwamařa_ařak laxař'mi řa'la."	"We will see the trail better tomorrow, if you shot him he will probably be dead."
La'am gagusto 'w'la	They all rose early.
La'mida umpi dřa'wis sařam řas'ida lasgami laxa dzunuḱwa.	The father of his children headed out on the trail of  dzunuḱwa .
Alx'alřwas'ida řayař.	The trail had drops of blood on it.
La'la'eda řayařařa řwařsařam gukw.	The trail led to a house built of branches.
Řus'ida 'wap nařwařařa gukw. řaředa dřo's lax iřayasa řu's.	A pool of fresh water was near the house, and a tree leaning over the pool.

Dzunuḱwa Dławida Kútala Story by James (JJ) Wallas Kwakwala Version

<p>"Isaḱalaga laḱw," niki umpas, "la'man laḱ atḱanudalatḱwa gukwiḱ dła'wos ḱsa'yakus."</p>	<p>"You wait here," said the father, "I'll go around to the back of the house with your younger brother."</p>
<p>Lam ḱḱapidid nulesa gananam, olaḱala ik duḱwalaxa ba'ni.</p>	<p>The eldest boy climbed up the tree, it was a good place to see below.</p>
<p>Gaxeda 'wala gananam habas'an, ḱwanukwasā dzunuḱwa, dalaxa nagatsi la laxeda ḱu's 'wapa.</p>	<p>Soon, hairy girl, daughter of  dzunuḱwa , came with a bucket in her hand and walked to the pool of water.</p>
<p>Gwel'am tsix'idida dzuniḱwasa nagatsi laxa 'wap. La'e duḱw'watḱalaxa saḱstalasida ḱḱaxdława'ye gananam laxa 'wap.</p>	<p>When the  dzunuḱwa  scooped up water with the bucket, she saw the reflection of the boy who was up in the tree in the water.</p>
<p>"ḱi'san ḱotḱalagan iksukwigaxutḱ."</p>	<p>"I didn't know how pretty I was."</p>
<p>"Ugwaḱaḱa'an laxalnu'sw waxa'as."</p>	<p>"I'm different than the rest of my family."</p>
<p>"Xwixwābistu'wan waxa'as ḱiḱḱan."</p>	<p>"Their eyes all sink in their heads and mine don't."</p>

Dzunuḱwa Dł̄awida Ḵut̄ala Story by James (JJ) Wallas Kwakwala Version

"Ha'ebas'anan wa'okwi ki'st'an."	"They are hairy and I'm not."
Ya'wix'idida gananam kuḱwxa t̄anak.	The boy moved and a branch broke and fell.
La'am iḱigamx'ida gananamgas duḱw'wat̄alaxa gananam ḱwaḱ laḱa iki.	The girl jerked her head up and saw the boy sitting up above.
"O, so'edḱan dugwaḱ laḱa 'wap.	"Oh, it's you that I see in the water."
La 'nika, "olakala tsaxḱan umpan gayabala gaxa ne'naxwaxa ganut̄."	Then she paused and added, "my father has been terribly sick since he came home at night."
"Ḵosas gwix'ida'asnuxw ka's waxl'ida'osax ixi'idamaskan ump."	"Can you come and help my father?"
"La'man laḱ t̄ilaḱan umpa."	"I'll get my father."
Gax'mida gananam a'ida'aḱa laxes ump, "he'amxan gukwa'la'atsida bagwanama galut̄exants ḱut̄ala."	When he reached his father and brother he said, "This must be where the person lives who was stealing fish from us."

Dzunuḱwa Dł̥awida Ḵut̥ala Story by James (JJ) Wallas Kwakwala Version

"La'amx̄anti olak̄ala ts̄x̄ak̄asis yalk̄we gayalax̄an hanat̄am."	"I think he is very sick from my arrow."
"Ax̄e'ax̄sti x̄wanukwas gants li ga'wala."	"His daughter wants us to help him."
"Ix̄amt̄i, wegax̄ants."	"Okay, let's go."
La'am lax̄eda Ḵax̄sam gukw, yax̄eda 'wala bagwanalm ḥabals'an kw̄aliḱ lam 'ya'yaka gayalax̄a hanat̄am.	They went into the cedar bark house and a big hairy man lay almost dead with an arrow in him.
O'am le d̄tax̄d̄ta'wiḱ d̄ta'wis gan̄am d̄ta'wis sas̄am	His wife and children were just standing around him.
La'mida gan̄anam Ḵa's le nanix̄a'wax̄a hanat̄am.	The boy tried to pull the arrow out.
Ḵi'si naḴa law̄a'e, lams salkwi'lela.	It would not come out straight, he had to twist it this way and that way.
La'dzola'am lawe.	Finally, it pulled free.
"La'uda'migan iga'nakwala," 'niki dzunuḱwa."	"I'm getting better quickly," said  Dzunuḱwa .

Dzunukwa Dławida Kútala Story by James (JJ) Wallas Kwakwala Version

<p>"La'ma'aḱus olaḱala wax'ida gaḱan la'mosaṅ tsoḱsgaṅ ḱwaṅukw ḱa's gagaḱa'os."</p>	<p>"You have helped me so I will give my daughter to one of you to marry."</p>
<p>"Ki, aḱe'aḱstaṅtḱaḱ ix sukwa ḱan gaṅama."</p>	<p>"No, I want a pretty one for a wife."</p>
<p>"Kiṅaṅ nixḱaṅ gagaḱi'sus ḱwaṅukwaḱus."</p>	<p>"I do not wish to marry your daughter."</p>
<p>"Kiṅaṅ nixḱaṅ gagaḱi'sus ḱwaṅukwaḱus," nikida gaṅtaḱo'yi."</p>	<p>"I do not wish to marry your daughter," said the youngest.</p>
<p>"Kosaṅ ugwa'la tṱuḱwala'yo?"</p>	<p>"Have you another offer then?"</p>
<p>"Ga'maṅ tṱuḱwala'yu'wotḱagada: la'am aḱanutaḱaṅu'xw laḱes ki'aḱwos dḱa'wi yaḱwamaḱa."</p>	<p>"My offer is this: you may use us on your totem poles and masks."</p>
<p>"O'amḱaṅ nanaxḱsa'waḱgaṅu'ḱw gugwamigaṅu'xw."</p>	<p>"You can make the mask just like our face."</p>
<p>La'am dadela ḱwaṅukw dḱa'wis ump.</p>	<p>The father and the son took the offer and went home.</p>

Dzunuḱwa Dł̄awida Ḳut̄ala Story by James (JJ) Wallas Kwakwala Version

La'am dax'id̄aḱas hanat̄am.	They took their arrow with them.
Ḳosi hegwiksi yaḱwam̄t.	No other had a mask like theirs.
Ḳant̄ala kaḱam'ida yaḱwam̄t 'wi'w̄angistu.	It was a frightening mask with the eyes sunk deep in the head.

(Wilson & Wallas, 1982)

Dzunuḱwa Dł̄awida Ḳut̄ala Story by James (JJ) Wallas Kwakwala Version

Ḳat'idax̄us d̄figamos \_\_\_\_\_

<p>1. 'Masi dugw̄aḱa'sa ḡanan̄am d̄lob̄aḱ laḱa x̄alaḱsi?</p>	<p>What did the child see missing in the smokehouse?</p>
<p>2. 'Wigileda ḡanan̄amaḱa la it̄id ḡanut̄?</p>	<p>What did the boy do the next night?</p>
<p>3. 'Masi wad̄ḱa'sa ḡanam̄amaḱsa la'i wa'niḱ?</p>	<p>What did the boy hear while he was hiding?</p>
<p>4. 'wix'idiḱa Dzunuḱwa?</p>	<p>What did he do to the  Dzunuḱwa ?</p>
<p>5. 'Wilax̄wt̄i lat̄ alexda'x̄wt̄aḱa Dzunuḱwa?</p>	<p>When are they going to look for the  Dzunuḱwa ?</p>

6. 'Masi dugwaxda'xwas laxa kayas laxa awinakwas?	What did they see on the trail on the ground?
7. 'Widi la'la'esdi kayas?	Where did the trail go?
8. 'Angwi dugwaxasa tsadaki xwanuxwsa Dzunu'kwa laxa ku's?	Who did the  Dzunu'kwa 's daughter see in the pool of water?
9. Lawiyuda'mida gananamxa hanatlam laxa Dzunu'kwa?	Did the boy take the arrow out of the  Dzunu'kwa ?
10. Gagada'ixsda'ma'ida gananas xwanukwasa Dzunu'kwa?	Did the boy want to marry  Dzunu'kwa 's daughter?

(Wilson & Wallas, 1982)

## **25. Online access to study materials**

Online access to the materials and word lists developed during the study and earlier was an important goal for the study. This was intended to contribute to the documentation of [Bakwamkala] and to provide the teachers with copies and examples of the materials that we developed during the study. Initially, I provided print, MS-Word, and PDF versions of the materials. This document included copies of draft materials used in class, lists for place names, and a printed word list which was circulated for Elders in the community. In 2017 I began to develop a website for students, teachers, researchers, and the general community. The goals for the website were discussed with teacher and researcher colleagues in the North Island and Campbell River areas. The initial goals included searchable access to words and phrases, background information for teachers and researchers, and example materials that could be downloaded and modified. In addition, goals for the website required display in both community orthographies (U'mista and NAPA), coding for semantic domains, dialect, and grammar. Design requirements included cell phone friendly display for words and phrases. This section provides background information on the site and the various solutions to technical, organizational, and access difficulties I encountered.

## **25.1. Site development**

Initially, I explored creating a website to connect to the MS-Access relational database I developed for the study analysis. I had used MS-Word data connectivity to format and print out word lists from the MS-Access database, such as the word list provided to Elders in 2017 (Wilson P. , 2017a). After initial discussions with the data specialists at the Macodrum Library at Carleton University, I determined that estimates to complete the transition from MS-Access to online were expensive and required significant reprogramming to meet the design requirements outlined above.<sup>132</sup> After examining various options, I decided to utilize Wordpress (2020) to develop the site and Searchable Pro (2020) to house the online database.<sup>133</sup> The choice of Wordpress enabled me to program the site and meet the design requirements. The site is registered with two domain names: "ourvoicesourstories.company" and "ourvoicesourstories.net." This was done to reserve two domains which we could split off to two separate sites in the future.

## **25.2. Site navigation**

Site navigation is a work in progress and includes front page links to the database,

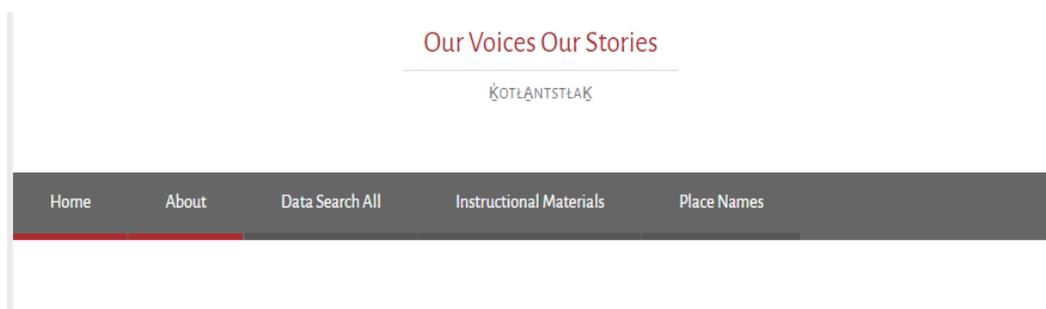
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<sup>132</sup> Although hosting the site at the university would be free, programming estimates ranged from \$40,000 to \$65,000.

<sup>133</sup> I decided to use Wordpress as I was already familiar with Wordpress. The cost of the site is approximately \$500.00 (CDN) per year including domain registration, database connectivity, and database housing at Searchable Pro.

instructional materials, place names, and information about the site.<sup>134</sup> Access to the data includes two methods, the top menu bar and the sidebar. Figure 8 is a screen capture of the top menu bar for the site.

Figure 8 Top menu navigation

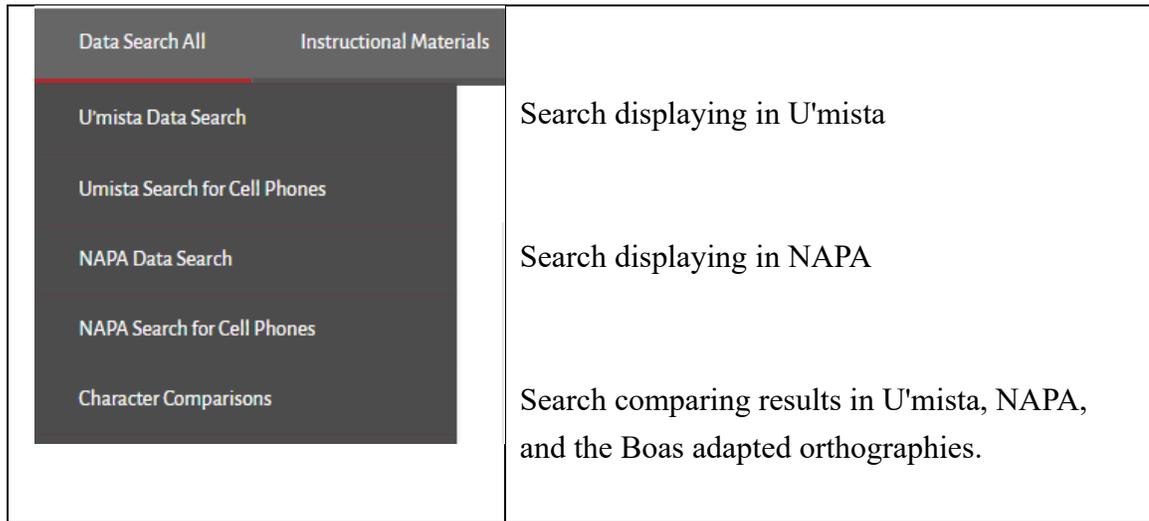


Clicking on the various items in the top menu bar leads to drop-down boxes. For example, "Data Search All" leads to a drop-down selection box for accessing one of the various database displays. Results include displays in either U'mista or NAPA with fields for Kwakwala sort handle, English sort handle, Kwakwala stem word, Kwakwala word, English translation, sentence example, dialect(s), and primary semantic category. Cell phone display restricts fields to Kwakwala and English word entries only.

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<sup>134</sup> Details regarding the challenges of designing the navigation are addressed in Section 25.4, Design challenges.

Figure 9 Data search drop-down box

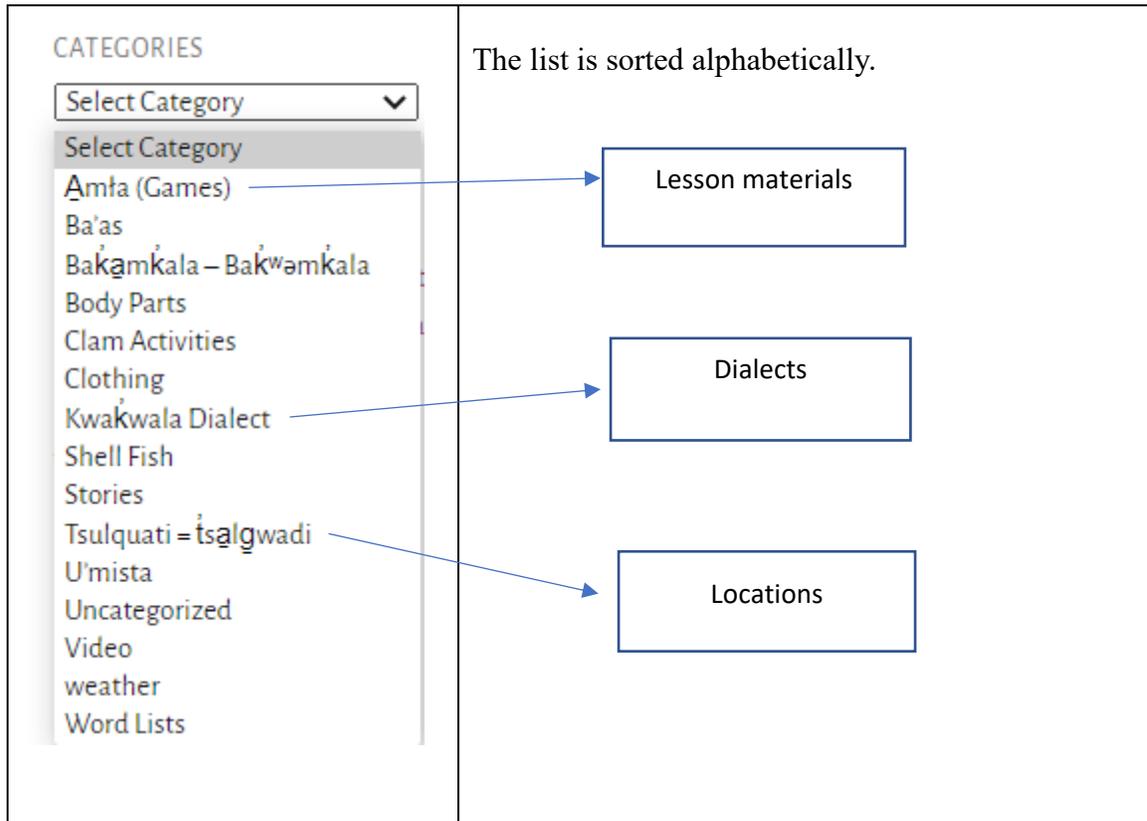


The character comparisons link includes display in U'mista, NAPA, and the Boas adapted orthography developed for the study (see Section 17.1). The Boas orthography was included to assist place name researchers to compare entries in Boas' place name publication (1934) with current orthographic standards.

The side bar "Categories" drop-down box is an alternate method to access content. Each page is coded for one or more categories. These include semantic domains, e.g., |Amł̄a| (Games), dialects e.g., |Kwāk̄wala|, and locations, e.g., Tsulquate. See

Figure 10 Categories drop-down box.

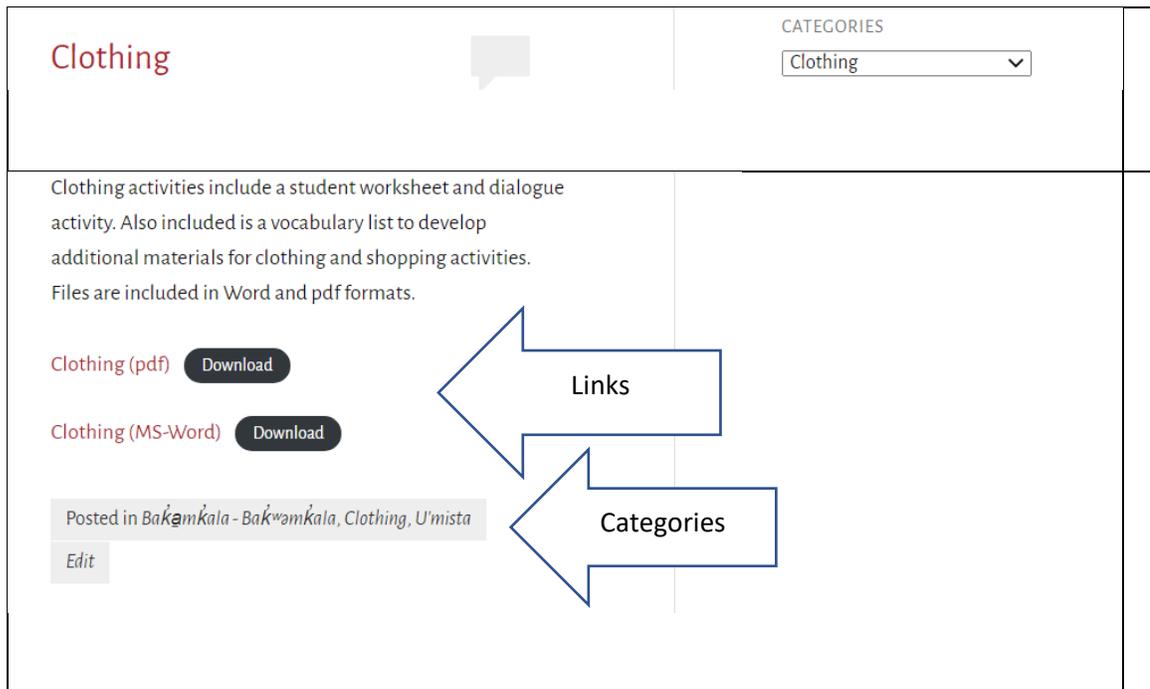
Figure 10 Categories drop-down box



(Wilson P. , Our Voices Our Stories, 2020e)

Clicking on a category item links to all pages marked for the category, as noted below in (Figure 11), where a mouse click on the "Clothing" category links to the Clothing pages. Both PDF and MS Word pages are available. Also note that the Clothing pages are also categorized as |Bak̄w̄am̄kala| and U'mista. A click on "U'mista," for example, will open a page that links to the Clothing pages.

Figure 11 Clothing category link



(Eke Me Xi, 2021d)

The goal of the online materials is to provide example activities and lessons in both U'mista and NAPA orthographies and across three dialects: |Bakwamkala|, |Kwakwala|, and |Gutsala|. The materials contain lessons, activities, and word lists. Work is ongoing to include PDF and MS-Word versions of the materials. MS-word versions provide teachers with the opportunity to modify the work to suit the needs of their class. The PDF versions are included as some printers are not equipped to handle the various character sets and line spacing required to display the materials accurately. Links to the materials in the categories list are automatically connected to new pages based on the assigned categories.

### 25.3. Database

The main MS Access database was modified to provide online access for school staff, students, researchers, and community members. The online version includes searchable access to words and sentences in |Bakwámkala|, |Kwakwala|, and |Gutsala|. Users can search by Kwakwala or English, and filter results by semantic codes, grammatical codes, and dialect. Results can be displayed in U'mista, NAPA, Boas (adapted from Boas (1947; 1948)), and ASCII (adapted from Grubb (1977)) orthographies. The online database is housed on the WordPress (WordPress, 2020) site and uses the search engine from Searchable Pro (Searchable Pro, 2020).

The online version of the database was developed based on feedback from a draft print version of |Bakwámkala| data from the main database (Wilson P. , 2017a). Community Elders, school staff, and the place name project researchers provided informal comments on the print-out. During the review Gwa'sala-'Nakwaxda'xw Elders made suggestions regarding a dictionary/word list for their dialect, |Bakwámkala|. They suggested that the dictionary/word list should not only provide a word list for their dialect, but also include words from other dialects so that these differences could be known and preserved. A draft version of the multi-dialect online word list was made available online early in 2020 (Wilson P. , Data Search, 2020g). The initial online version includes entries in all three

dialects and is accessible in both community orthographies (NAPA and U'mista).

Included in the display are codes identifying the dialect for each entry.

Currently, the online version provides searchable access in English or Kwakwala through a search box. Drop-down boxes and buttons provide filters for dialect, grammatical codes, and semantic categories. Choice for orthographic display is made through the main menu before accessing the data.

The online database was developed by exporting the data and fields in the main database into a MS Excel spreadsheet to prepare the data for porting in CSV Unicode (UTF-8) format to Searchable Pro (2020). Codes for dialect, grammar, and semantic category were adapted in MS Excel for online "drop-down" or "button-select" entry. For example, dialect codes were developed as "button-select" to enable users to choose one, two, or all three dialects. Semantic codes, on the other hand, were developed in "drop-down" format.

#### **25.4. Design challenges**

There are a number of challenges I encountered while developing the website to support teachers, students, researchers, and community revitalization. Challenges in website development include programming (e.g., character display and sorting), end user access (e.g., navigation, desktop computers, cell phones, Chromebooks), and coding data to

meet the needs of end users (e.g., three different dialects, four different orthographic conventions, semantic codes, grammatical codes, curriculum-based codes).

The current focus of the website development is creating a structure to support a variety of different community and school uses. These range from data searches for words using cell phones to supports for school administrators seeking to support the implementation of Kwakwala activities and courses in their schools. These include the need to:

- connect materials and data to the curriculum through data codes
- key in more data
- develop sort handles for Kwakwala
- provide options for multiple orthographies
- implement methods to include access for multiple dialects and methods to code and display data relevant to users
- continue to expand categories for semantic codes
- develop and display paradigm inflection examples
- enable integration with Treaty database
- provide information and sample activities that integrate other curriculum

The goal is to develop an effective structure, receive feedback from the community, and then finish uploading materials and keying in previous notes which do not exist in digital form.

The design requirements for the online educational and community access are significantly different from the MS-Access inflection database developed for Section 10, or the Nvivo database developed for the ethnographic multimodal analysis in Section 11. The educational materials focus on the curriculum for teachers, students, and the community. The inflectional database supports linguistic word paradigm analysis of the language in materials relative to the curriculum. The NVivo database provides the means to examine and analyze the capacity of materials to reflect the authenticity of settings and language for the community. The place name topographic database provides the ethnophysiology (from Mark & Turk (2021)) of traditional |Gwasa-la-'Na'kwaxda'xw| territories. The over-arching theory of situated-learning ties these various disciplines together for development activities and evidence-based analysis of the materials that result. The different design requirements for each highlight the transdisciplinary nature of revitalization documentation.

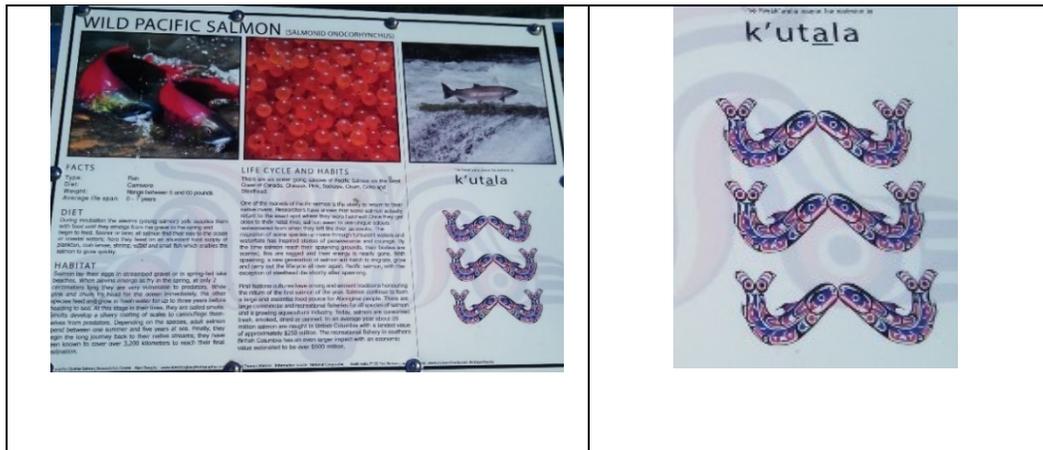
## **26. Background and resources**

### **26.1. Linguistic landscape: Kwakwala in the North Island**

Research into linguistic landscape indicates that visuals and language(s) represented on signs reflect the importance of the language in a community (Valijarvi & Kahn, 2017, p. 1). However, as concluded in Vessey & Sheyholislami (2020, p. 804), language diversity other than English or French in Canada is devalued and perceived as a threat. The study by Vessey & Sheyholislami (2020), for example, examined the negative community reaction to the use of Chinese signage in Richmond B.C. If this is the case, one might expect that Kwakwala would not be evident in North Vancouver Island municipalities.

In the public areas on North Vancouver Island, the majority of signs are in English, as expected. However, Kwakwala does occur on some signs. This includes areas frequented by tourists and in health centres. For example, the first column in Illustration 19 Kwakwala signage 1 shows an informational plaque on a walkway by the downtown beach. This includes the word for salmon in Kwakwala along with a traditional salmon representation. Column 2 provides an enlarged version of the Kwakwala section of the sign. In this illustration, the majority of the language is in English while the Kwakwala and traditional visual representation of a salmon is less prominent.

Illustration 19 Kwakwaka'wan signage 1

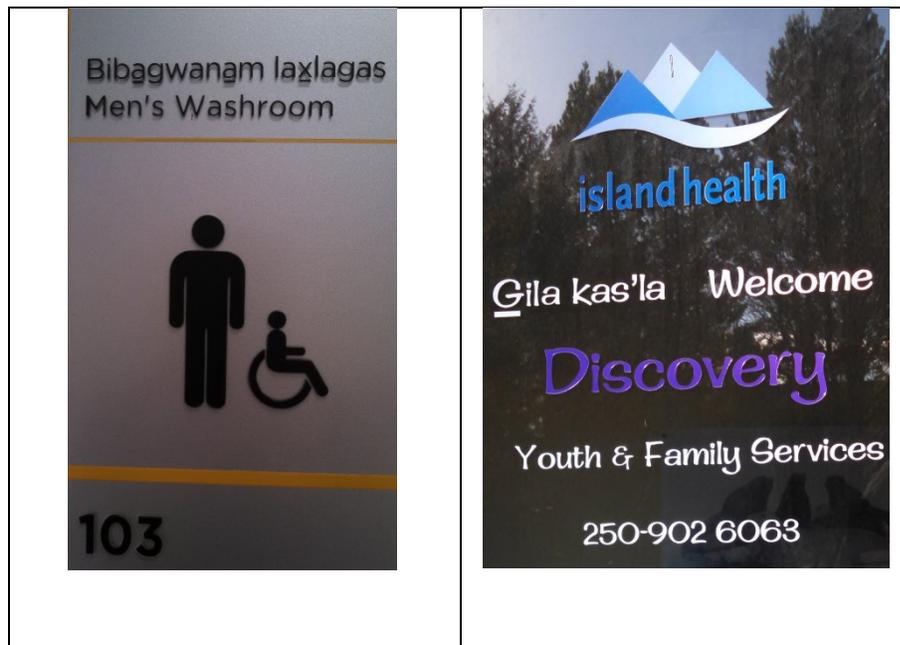


(Photo, Peter Wilson, 2020)

Various spellings of **|Gɪlakas'la|** occur on signs in Port Hardy, however, similar to the one below, English is otherwise used.

Illustration 20 Kwakwaka'wan signage 2 contains visuals with Kwakwaka'wan and English wording. The sign in column 1 is from the Port Hardy Primary Health Care Center and the sign in column 2 is from the Island Health and Family Services offices. The sign in column 1 is **|Bibagwanam |laxlagas|**. **|Bibagwanam|** is the word for 'men' and **|laxlagas|** is a word that means 'a place to go'. In **|Bakwamkala|**, the more common way of expressing this would be **|Laxlagasa bibagwanam|** 'the going place of the men'. In the second column the word "Gila kas'la" is an expression of gratitude and welcome.

Illustration 20 Kwakwala signage 2



(Photos, Peter Wilson, 2020)

From a distance, the linguistic landscape on North Vancouver Island promotes English and appears consistent with the assimilation of Indigenous languages to English. Few signs are in Kwakwala. Signs that include Kwakwala do not provide the range of language as those in English.

Although observations of the linguistic landscape on North Vancouver Island support conclusions similar to Vessey & Sheyholislami (2020), there is evidence that the signs were developed in collaboration with Elders and language experts from the local Kwakwala speaking communities. First, there is an Indigenous perspective on the salmon plaque and inclusion of a traditional design to represent salmon. Second, all three signs

utilize the U'mista orthography, one of the approved community orthographies. Although Kwakwala signage has a great distance to overcome and Canadian institutions need implement “proactive policies that promote diversity of language and culture” (Vessey & Sheyholislami, 2020, p. 804), the growth of Kwakwala North Island school programs and Indigenous communities has the potential to change the landscape.

## **26.2. Selected language materials (NILDP & Canada Works)**

- Wilson & Henderson (Kwakwala Language Lessons, 1979a)
- Wilson & Henderson (Kwakwala Pattern Practice Activities with numbers, 1979b)
- Wilson & Henderson (Wilson & Henderson, Advanced Kwakwala Lessons, 1981c)
- Wilson & Henderson (Advanced Kwakwala Lessons 2, 1982c)
- Wilson & Henderson (Wilson & Henderson, Stories for Children, 1981a)
- Wilson & Henderson (Culture Lessons, 1982d)
- Wilson & Henderson (Kwakwala Word List, 1982b)
- Wilson & Johnny (Gwa'sala children's dictionary and fishing terms, 1978)
- Wilson and Walkas (Gwa'sala Word List, 1978a)
- Wilson & Wallas (Stories for Children 2a [Kwakwala], 1982)
- Wilson, Wallas & Peters (Ĝu'čala Lessons, 1980a)

- Wilson, Wallas & Peters (Wilson, Wallas, & Peters, Stories for Children 2 - [Gutsala], 1982c)
- Wilson, Wallas & Peters (Ĝuĉala Word List, 1982b)

### **26.3. Language materials referenced**

- Powell, J.V., Vickie Jensen, Agnes Cranmer, and Margaret Cook. (Learning Kwak'wala Series, Books 1 to 12, 1981)
- Grubb, D. (A Practical Writing System and Short Dictionary of Kwak'wala (Kwakiutl), 1977)
- First Voices: (Kwak'wala Community Portal, 2017)
- Shaw, P. (Kwak'wala Dictionary: English to Kwak'wala, 2006a)
- Shaw, P. (Kwak'wala Dictionary: Kwak'wala to English, 2006b)
- Rath, J. (A Practical Heiltsuk-English Dictionary with a Grammatical Introduction, 1981)

#### **26.3.1. Web Based Language Resources**

- (First Voices, 2017). Kwak'wala Community Portal.
- (Naknakim, 2011). Learning with K<sup>wik</sup>.
- (Naknakim, 2013). Where are you going?

### **26.3.2. Online Resources pragmatics and social cognition.**

- (Alfred, 2020). Kwak'wala Respect.
- (Walkas, 2015). Language is Our Lifeline.

### **26.3.3. Indigenous Knowledge Based Curriculum Resources**

- (BCED, 2003), The Languages 5 to 12 Template: Development Package. Province of British Columbia: Ministry of Education.
- (SD85, 2010), Kwakwala Integrated Resource Package
- (Williams & Snively, Understanding and Acknowledging Indigenous Science: Knowing Home: Braiding Indigenous Science with Western Science, Book 1 , 2016), Understanding and Acknowledging Indigenous Science: Knowing Home: Braiding Indigenous Science with Western Science, Book 1
- (BCED, 2010), English 10 and 11 First Peoples
- (BCED, 2016a), BC First Peoples 11
- (BCED, 2006), BC First Nations Studies 12

## **27. Native Indian Language Diploma Program (NILDP)**

The Native Indian Language Diploma Program (NILDP), University of Victoria, was developed in the 1970's to train Indigenous language instructors, researchers, and Elders to develop materials and implement school-based activities in B.C. schools. The program was a one-year program leading to a diploma.

NILDP was a joint program between the Department of Linguistics and the Faculty of Education. Program leads included Thom Hess (Professor, Department of Linguistics) and Bill Zuk (Professor, Faculty of Education), both with extensive experience in educational activities with Indigenous communities. The Department of Linguistics focussed on language analysis, documentation, transcription, grammatical analysis, and second language education. The Faculty of Education provided a course on lesson development and classroom pedagogy. It also included a supervised teaching opportunity in a school (Zuk & Evanechko, 1977a). In addition to in-class activities, NILDP provided curriculum development opportunities to support communities on Vancouver Island. These activities enabled program graduates to develop materials with support from researchers and students in linguistics and education. This section provides examples of NILDP class activities and curriculum development.

NILDP recognized that fluent speakers were often elderly and might not be able to engage in active teaching roles.<sup>135</sup> In order to compensate for this, the NILDP classes provided training for Elders to gain expertise in curriculum and materials development, as well as training for speakers who planned to work directly with students in schools. Single language focus NILDP activities, such as those conducted for Kwakwala for School District 72 in Campbell River and School District 85 in Port Hardy, provided opportunities for Elders to mentor younger adults, e.g., Master-Apprentice programs.<sup>136</sup>

The materials discussed in this study draw from research activities from when I was involved as a graduate student, research assistant, and sessional lecturer with the University of Victoria. I developed the materials in collaboration with class participants and one-on-one research with Elders. The class participants included fluent speaking Elders, speakers interested in teaching the language, and Kwakwala language learners. Members of the program included participants from Victoria, Campbell River, Port Hardy and Quatsino. My activities from 1978-1982 included instructing NILDP courses and assisting the development of programs in School Districts 85 and 72. In addition, I observed NILDP students in school placements and taught demonstration Kwakwala classes from grades 4-10 to model lessons and test-out methods.<sup>137</sup>

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<sup>135</sup> Personal observation.

<sup>136</sup> The mentoring was informal in the sense that there were no formal criteria.

<sup>137</sup> Observations and demonstration lessons occurred in Campbell River (School District 72) and Coal Harbour (School District 85).

The NILDP materials were developed before the Ministry approved a curriculum framework for Indigenous language programming in schools.<sup>138</sup> The materials that I developed during the NILDP classes and research activities, therefore, were intended as draft exemplars to train teachers and researchers and are unpublished. These materials were based on a grammatical-functional method, where complexity of language and formal analysis were factors in the development of language activities. The draft materials included varying grade levels and a range of language activities (e.g., pronunciation, listening, dialogue, stories). In addition, the class and related research activities provided opportunities to gather language revitalization data including dialect and place names.

### **27.1. NILDP curriculum development**

The details of a summer curriculum project (1977) are documented in the report "Native Indian Bilingual Bicultural Curriculum Project" (Zuk & Evans, 1977b). This project enabled NILDP students to "pursue their studies and develop many teaching materials" (Zuk & Evans, 1977b, p. 1). Three NILDP graduates worked on the project: Freda Shaughnessy (Kwakwala), John Thomas, (Dididaht), and Ellen White (Halq̓əmin̓əm). These graduates collaborated with Ruby Peter (Cowichan-Ladysmith), Pauline Alfred (Alert Bay), Mary Dick (Alert Bay), Jim Dick (Alert Bay), Ruby Dawson (Campbell

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<sup>138</sup> It wasn't until the 1990's that the Ministry of Education began circulating a draft curriculum framework, which later resulted in BCED (2003).

River), and Hilda Sewid (Campbell River). Support for the project included Jodie Wicken (curriculum co-ordinator), Cecile (Hamel) Wilson (geography-ethnobotany), Bob Macrae (illustrations), and Barbara Scott (illustrations). I was involved in the project as the linguistic consultant.

I organized a curriculum development project in 1978 with support from a Canada Works grant. The project focussed on work in the North Vancouver Island and included documentation of additional dialects of Kwakwaka'wakw and North Wakashan languages. Elders engaged in the project were Lillian Johnny, |Gwa'sala| sub-dialect of |Bakwamk'ala|, Harry Walkas, |Gwa'sala| dialect of |Bakwamk'ala| and |Xa'isala| (Haisla) language, Alice Peters and Chief James Wallas, |Gutsala| dialect, and Hilda Smith, |A'wikuḡw| dialect of Bella Bella. Lessons and materials developed during this work were processed at the University of Victoria. Brenda Hoogerdyk was project manager, Chief John Thomas and Freda Shaughnessy provided supports for documenting narratives, and Joanne Hamel illustrated lesson materials. I provided linguistic support and lesson development. Materials developed during the project were coded and printed using the NAPA orthography including:

|Ĝu'ala| Dialect of Kwakwaka'wakw language

- Ĝu'ala Lessons (Wilson, Wallas, & Peters, 1980a)

- Stories for Children 2 - |Gutsá| (Wilson, Wallas, & Peters, 1982c)
- Ğúcala Word List (Wilson, Wallas, & Peters, 1982b)

|Gwa'sá| sub-dialect of |Bakwámkala| of Kwakwala language

- Gwa'sá children's dictionary and fishing terms (Wilson & Johnny, 1978)
- Gwa'sá Word List (Wilson & Walkas, 1978a)

|A'wikinuxw| (Rivers Inlet) dialect of Bella Bella language

- Awik'á Language Lessons (Wilson & Smith, 1978)

|Xa'isá| (Haisla) language

- Xa'isala word list (Wilson & Walkas, 1978b)

## **27.2. NILDP and digital technology**

At the time when NILDP was first started, there were no orthographic standards for community based Indigenous writing systems and no computer-based capacity to represent the non-English Kwakwala characters. During the 1970's community standards were developed, the NAPA system was adapted for use in School District 72, and the U'mista system was developed by the U'mista Society in Alert Bay. In the early years of my activities (1974-1978), materials and notes were typed on an IBM Selectric with a typeball containing characters for Northwest Coast languages. Beginning in 1978, a collaboration between the Linguistic Department, the Computing Department, and Continuing Education at the University of Victoria developed computer-based input and

database processing for Indigenous language materials. This enabled materials and word lists to be entered at the university. The computer database also led to the development of coding entries for semantic domains, generating English to Kwakwala lists from Kwakwala to English entries, and merging lists from lessons and stories to create a master word list. In addition, lessons were entered directly into the database including works for |Gut'sala| (Wilson, Wallas, & Peters, 1980a; 1982b), and |Awik'ala| (a closely related North Wakashan language to Kwakwala).<sup>139</sup> Unfortunately, digital versions of the computer-based work are no longer available.

### **27.3. Grammatical-functional lessons**

The materials I developed from 1976 to 1986 were based on a grammatical-functional method. Unlike communicative-experiential method, grammatical-functional methods introduce activities that provide functional language activities that are constrained by grammatical complexity. The materials I developed were based on a gradual introduction of language structures and consideration for students whose first language was English. For example, lessons included sections on pronunciation, listening, and sound-symbol correspondences based on the difficulties that English speakers might have with Kwakwala sounds.

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<sup>139</sup> Hilda Smith and I developed draft lessons for |Awik'ala| through a Canada Works Grant in 1978 (Wilson & Smith, 1978).

Key difference between the grammatical-functional materials I developed with Elders and the communicative ones in the Eke Me Xi project is the method of documentation and organization and presentation of materials. Eke Me Xi materials were developed based on situating documentation and recommendations from the teachers relative to students and integration with other courses. The NILDP and CW materials were developed based on language structures and semantic themes, such as introducing oneself, fishing, and family terms. The choices of themes were based on recommendations from the Elders.

The grammatical-functional materials can be divided into two main categories, introductory and advanced. The introductory lessons were presented thematically, for example, a lesson on words, phrases, and dialogue for the family. These lessons were supported by a pattern practice workbook and word lists. These thematic choices were based on suggestions from the Elders and followed similar principals to those found in materials developed in NILDP activities at the University of Victoria. The advanced materials were arranged and organized based on grammatical structures which were supplemented by dialogues, stories, and activities, e.g., Wilson and Henderson (1981c) and (1982c).

Introductory lessons for the |ǧuɕala| Dialect were developed during the Canada Works grant from 1979 to 1980 (Wilson, Wallas, & Peters, 1980a). The University of Victoria provided data processing. Elders Chief James Wallas and Alice Peters collaborated with the project to provide the |ǧuɕala| dialect. The lessons exemplify the structure I developed for the project team. The thematic concepts for the first four lessons are listed below.

#### |ǧuɕala| Lessons 1-4

Lesson 1: asking and telling name, asking and answering the question "how are you?", sound drill and symbol for |x|, vocabulary

Lesson 2: animals: names and asking and answering questions "what is that"  
sound drill and symbol for |t|, vocabulary

Lesson 3: actions, commands e.g., "stand up, walk"

sound drills, minimal pairs and symbols |λ, λ̣, λ̥, k, ḳ, k̥, ḳʷ|

(Wilson, Wallas, & Peters, 1980a, pp. 2-12)

Lesson 4 is presented in full in Lesson Example 54 .

Lesson Example 54 (Wilson, Wallas, & Peters, Ğuĉala Lessons, 1980a)

Lesson 4 family: Part One: Introduce the words

- |     |                       |          |
|-----|-----------------------|----------|
| 1.1 | bəg <sup>w</sup> anəm | man      |
| 1.2 | ĉədaq                 | woman    |
| 1.3 | gənanəm               | child    |
| 1.4 | gəngənanəm            | children |

Note: Use four different pictures to illustrate these words, a picture of man, a picture of a woman, a picture of a child, and a picture of many children. Have your class say each word after you and then quiz them on the word associated with each picture.

Part Two:

Hold up a picture of a family, e.g., a father and mother with their children. Point at each person in the picture and pronounce the name.

- |     |                                                        |                        |
|-----|--------------------------------------------------------|------------------------|
| 2.1 | ʔump                                                   | father                 |
| 2.2 | ʔəbəmp                                                 | mother                 |
| 2.3 | bəg <sup>w</sup> anəm ʃ <sup>w</sup> ənux <sup>w</sup> | son                    |
| 2.4 | ĉədaq ʃ <sup>w</sup> ənux <sup>w</sup>                 | daughter               |
| 2.5 | sasəm                                                  | children (same parent) |

Lesson Example 55 | Ğuĉala | Dialect: (Wilson, Wallas, & Peters, 1980a)

Part Three: Whole class (point at the picture and ask)

- |     |                                       |                         |
|-----|---------------------------------------|-------------------------|
| 3.1 | ʔŋg <sup>w</sup> oĥ <sup>w</sup> da?  | Who is that?            |
| 3.2 | ʔUmpoĥ <sup>w</sup> .                 | That is the father.     |
| 3.3 | ʔƏbəmpoĥ <sup>w</sup> .               | That is the mother.     |
| 3.4 | ʔEʔəng <sup>w</sup> oĥ <sup>w</sup> ? | Who are these?          |
| 3.5 | Sasəmoĥ <sup>w</sup> .                | These are the children. |

Part Four: Student centered: say a student's name and ask:

- |     |                                 |                             |
|-----|---------------------------------|-----------------------------|
| 4.1 | ʔŋg <sup>w</sup> axλes ʔumpos?  | What is your father's name? |
| 4.2 | e.g., Ǻaṅaxλe.                  | His name is Ǻaṅa.           |
| 4.3 | ʔŋg <sup>w</sup> axλes ʔƏbəmpo? | What is your mother's name? |
| 4.4 | ʔAdaxλe.                        | Her name is ʔAda.           |

Part Five: Sound Drill |Ǻ<sup>w</sup>|:

- |     |                                    |                   |
|-----|------------------------------------|-------------------|
| 5.1 | Ǻ <sup>w</sup> ita                 | to stir           |
| 5.2 | Ǻ <sup>w</sup> əld <sup>z</sup> us | tommy cod         |
| 5.3 | Ǻ <sup>w</sup> əltʔit              | to scratch a line |
| 5.4 | Ǻ <sup>w</sup> əmduma              | land otter        |

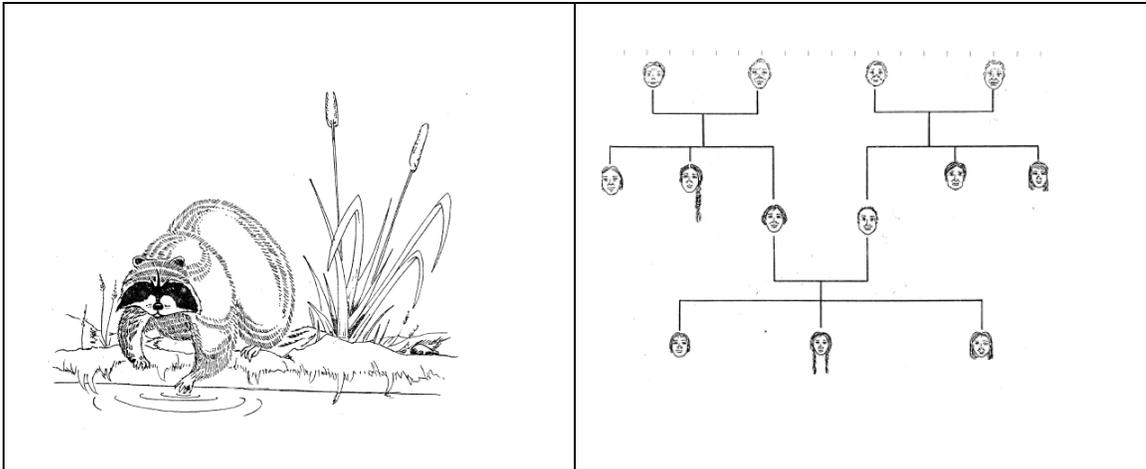
Part Six: Extra Vocabulary

ğəğəmp      grandfather      Ǻ<sup>w</sup>əlkə      fish knife      t<sup>u</sup>to      star

(Wilson, Wallas, & Peters, Ğuĉala Lessons, 1980a)

In addition to the lessons in the book, illustrations were included as exemplars for classroom use and drawn by Joanne Hamel, illustrator and teacher. The family terms illustration below was part of the materials for Lesson 4 exemplified above.

Illustration 21 Examples from animals and family terms



(Wilson, Wallas, & Peters, Ğuĉala Lessons, 1980a)

The Canada Works Grant program developed a |Ğuĉala| word list (Wilson, Wallas, & Peters, Ğuĉala Word List, 1982b) and story book (Wilson, Wallas, & Peters, Stories for Children 2 - |Gutsala|, 1982c).

Introductory materials developed during the NILDP and CW curriculum projects also included pattern practice activities and advanced lessons. Advanced lessons were organized based on Kwakwala structures and supplemented with functional language activities. For example, the first advanced book included a chapter on grammar lessons

for location, person, and possessive markers (Wilson & Henderson, Advanced Kwakwala Lessons, 1981c, p. 10). The second advanced book included more complex inflections including object and other object marking in transitive constructions in section 10 (Wilson & Henderson, Advanced Kwakwala Lessons 2, 1982c). The advanced work was largely accomplished through my work with James Henderson.

Although the advanced books were organized by structural and grammatical information, they contained a variety of functional language for each lesson including dialogue, stories, reading materials, and writing activities. All chapters contained words lists and example games for review.

NILDP and CW curriculum materials included:

- introductory lessons
- pattern practice activities
- advanced lessons part 1
- advanced lessons part 2
- story books with supplementary activities
- word lists
- cultural activities and technologies

Advanced Materials included: (developed through collaboration with James Henderson for the |Kwakwala| dialect).

- Grammar Lessons: location markers, subject person markers, possessives, questions, stems and suffixes, and subject and object 1
- Listening comprehension: 10 lessons on sound discrimination
- Speaking: talking about the weather, weather terms everyday conversations, cedar bark gathering, (and vocabulary)
- reading lessons
- writing composition
- locational stems with index and vocabulary
- teacher answer keys

Advanced Materials 2 included:

- tense, questions, possessives, comparatives, transitive sentences
- intro dialogue
- identifying the pattern
- grammar explanation
- mechanical/pattern drills
- patterns and paradigms
- functional and communicative activities related to grammatical lessons
- word lists (Kwa to Eng, Eng to Kwa)

#### **27.4. Word Lists**

The word lists that were developed in NILDP and CW activities were developed from words in lesson materials. In addition, some word lists were elicited to determine dialect differences, e.g., Wilson & Walkas (Gwa'sala Word List, 1978a). The first lists were developed manually and typed on an IBM selectric typewriter with a NAPA orthography. Words included in the lists were taken from the lessons and stories. The lists from lessons and stories were developed during a review of materials that I undertook with James Henderson (see for example, Table 94 below). Towards the end of 1978, NAPA computer-based input and processing became available at the University of Victoria. This made it possible to extract words from lessons and stories automatically. The computer-based lists included the stem forms along with derivational, tense-aspect, and inflectional markers. Following discussion with the members of the NILDP and CW programs, I decided to include the stem forms with the various suffixes and enclitics in the word lists for teachers and students. This was done in order to support teachers unfamiliar with the morphological-morphophonemic processes of the language. It was also done as a support for students, who would have access to the full form of each word in the lesson. I used the same concept of developing word lists from lessons and stories in the current study by copying words from lessons stories into the MS Access database. In the current study, however, words are coded for root base, stem form, tense, aspect, and inflectional

information. This was done in order to support the development of dictionary-based and word paradigm-based listing in future work.

### **27.5. Dialect**

As noted above, the NILDP activities in the 1970's and 1980's engaged in gathering dialect-based information. At the beginning of the NILDP class in Campbell River in 1978, the Elders suggested that our initial work should focus on the |Kwakwala| dialect of Kwakwala which had been the focus of most of the linguistic and documentary activities from earlier research. At that time, NILDP participants came from a variety of Kwakwala speaking communities, many of whom were residing in Campbell River due to the diaspora from many of the island communities and North Island. During the classes, I had to the opportunity to complete dialect inventories and develop lessons and stories for |Gutsala| (Wilson, Wallas, & Peters, 1980a; 1982b). In addition, the second story book was developed in both |Kwakwala| (Wilson & Wallas, 1982) and |Gutsala| (Wilson, Wallas, & Peters, 1982c) and a dialect comparison was developed by members of the NILDP and CW programs (NILDP-CW, 1982).

### **27.6. Stories**

The NILDP program materials included stories about everyday activities in addition to traditional narratives. The first group of stories provided reinforcement for the language

lessons we were developing (Wilson & Henderson, *Stories for Children*, 1981a) while the second group of narratives focussed on legends that were traditionally told to children and youth (Wilson, Wallas, & Peters, *Stories for Children 2 - |Gutsala|*, 1982c; Wilson & Wallas, *Stories for Children 2a |Kwakwala|*, 1982). Stories that are common knowledge and typically told to children are different from the formal legends found in some materials documented by George Hunt and Franz Boas, e.g., Hunt (1918) and Boas (1902a). These are different from "House Stories" (Berman, 1991b), which represent the formal and traditional histories for a family<sup>140</sup> and ownership.<sup>141</sup>

The following story beginning with Table 90 is the story and materials that accompany "|Wisa| and |Ǿna| pick and dry huckleberries." This is the first story I developed with James Henderson (Wilson & Henderson, 1981b). The following pages contain the unpublished typed draft of the story and additional support materials. The tables below include activities and the original typed word list, and the first computer-based story word list developed on computer.

- Table 90 and Table 91 Story Part 1
- Table 92 and Table 93 Story part 2
- Table 94, Table 95 and Table 96 Vocabulary

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<sup>140</sup> For example, chief's family, tribe, or nation.

<sup>141</sup> See Berman, *The Production of the Boas-Hunt Kwakw'ala Texts* (1991a) and *The Seals' Sleeping Cave: The Interpretation of Boas' Kwakw'ala Texts* (1991b) for a detailed account of the Boas and Hunt texts.

- Table 97 word search
- Table 98 and Table 99 exercises
- Table 100 extra dialogues
- Table 101 questions, Table 102 teacher answer key
- Table 103 computer generated word list (University of Victoria)

The space between the lines in the story was designed for follow-up activities. During the testing of draft materials in 1980, grade 5 and 6 students illustrated parts of the story and grade 8 students used the space to make notes about words and phrases.<sup>142</sup>

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<sup>142</sup> These activities took place in an elementary and junior high school in Campbell River in 1980.

Table 90 Wisa and Ğona pick and dry huckleberries page 1

<u>Section Two: Story</u>	
The story took place in July.	
<u>Part One: Picking the berries</u>	
laxʔidi homsi wisa lu Ğona	Wisa and Ğona went berry picking.
laxʔidi həmsa ʃa Ğʷadəm	They went to pick huckleberries.
ʔixʔidi ńala	It was a nice day.
ʔixʔidi la həmsaxdəm ʃa Ğʷadəm	It was a nice day to pick berries.

(Wilson & Henderson, 1981b)

Table 91 Wisa and Ğəna pick and dry huckleberries page 2

1.4	
<p>q̄enəmidə ǧʷadəm laʰa tən̄kəs</p>	<p>There are lots of huckleberries on the hill.</p>
<p>"ǧelaga qənc ?olakali q̄aq̄ayuʰa qa həmxʰitcuʰsənc liləlola," niki ǧəneʰ wisa</p>	<p>"Come on, let's pick lots for our family and friends to eat." said ǧəna to wisa.</p>
<p>sənbəndəmi həmsaxdaʰʰə ʰa ǧʷadəm</p>	<p>They picked huckleberries all day.</p>
<p>quʰaməsdoʰʰəmi ʰis həmyaʰeʰs ?is̄m̄e neʰəkʰ</p>	<p>They filled up their basket before they went home.</p>

(Wilson & Henderson, 1981b)

Table 92 Wisa and Ğəna pick and dry huckleberries page 3

<u>Part Two: Drying the berries</u>	
The process of drying berries is begun as soon as wisa and Ğəna get home.	
Ƨəqagilaxda?Xʷʷi Ƨis həmyanəm Ƨʷadəm	They are going to dry the huckleberries that they picked.
qʷiɬʷətʃaləʷi Ƨa Ƨʷadəm qaʷs gʷiɬədʷudis laʃa ƧətƧədis	They are going to pulverize (smash) the berries and spread them on the rack.
čagapələʷi Ƨa maməməšə Ƨəkaʷukʷ	Underneath the berries will be skunk cabbage leaves.

(Wilson & Henderson, 1981b)

Table 93 Wisa and Ğəna pick and dry huckleberries page 4

<p>ləmx<sup>w</sup>ləmo<sup>?</sup>əsi laʔa ʔasanoy qa<sup>?</sup>s ʔisələsəwi</p>	<p>They are placed outside to dry in the sunshine.</p>
<p>gel<sup>h</sup>is ʔug<sup>w</sup>əx<sup>?</sup>idəʔs la<sup>?</sup>e la<sup>?</sup>iləm</p>	<p>When it rains then they'll move them inside to dry.</p>
<p>gel<sup>?</sup>əm ləmx<sup>w</sup>ʔidəʔs la<sup>?</sup>e kuku<sup>ʔ</sup>səmcu qa<sup>?</sup>s gicudaywi laʔe gəldəs</p>	<p>When they are dry then they'll fold them up and store them in a box.</p>

(Wilson & Henderson, 1981b)

Table 94 Wisa and Ğəna pick and dry huckleberries Section 3: vocabulary page 1

<u>Section Three: Vocabulary</u>	
Please copy the following words and phrases into your alphabet book.	
həmsa	to pick (e.g. berries, fruit)
ǧʷadəm	huckleberries
ʷidi	where is...?
həmyaʕi	berry basket
niki	said
ʔəwabəwi	under
hamadʷu	table
ʔəʕodaʔs	get it (reach out and take hold of)
qenəm	many, lots
tənkəs	hill
ǧelaga	come on
ʔolaʕala	real
qəqayurʕa	to get lots
həmʔit	to eat
liʕəʕola	family, friends
sənbənd	from daylight to dark
qurʕa	full
ʔisʕe	before

(Wilson & Henderson, 1981b)

Table 95 Wisa and Ğəna pick and dry huckleberries vocabulary page 2

ʔis	not
neñəkʷ	to go home
ṭəqa	dried berries (mostly huckle and salal)
həmyanəm	something that has been picked
q̣ʷiṭa	to smash, to pulverize
gʷiṭa	to spread
gʷiṭadʷud	to spread on flat surface
kəṭkədis	drying rack
ṭagapəla	underneath, at the bottom of
ṭagif̣	matress
mameña	leaf
kəkaʔukʷ	skunk cabbage
ləmxʷa	to dry
ʔasanoy	outside
ʔisəla	sun
geḷmis	when
ʔugʷa	rain
laʔe	then
laʔiləm	take inside
gelʔəm	when

(Wilson & Henderson, 1981b)

Table 96 Wisa and Ğəna pick and dry huckleberries vocabulary page 3

kuŋ'a	to fold
gicud	to put something into something
gəldas	box

(Wilson & Henderson, 1981b)

Table 97 Wisa and Ğəna pick and dry huckleberries word search

Section Four: Word Search Puzzle

This Word Search contains words from your vocabulary.

ğ <sup>w</sup>	g	ə	l	d	a	s	i	ğ
a	d <sup>z</sup>	ṭ	m	č	g <sup>w</sup>	k	?	ħ
d	a	ħ	ə	q̣ <sup>w</sup>	i	ṭ	a	ħ
ə	h	s	n	n	ṭ	o	ṭ	a
m	a	m	e	ṇ	a	g <sup>w</sup>	u	ỵ
p̣	ṃ	λ	q̣	?	?	d <sup>z</sup>	q	d
č	a	g	a	p	ə	l	a	ḳ
ṭ	d <sup>z</sup>	ə	c	d	w	a	č	k
ħ	u	l	ə	g <sup>w</sup>	a	ħ <sup>w</sup>	u	ḳ
b	?	d	l	c	b	ṭ	ħ	?
p̣	ə	a	a	l	ə	s	i	ħ
q <sup>w</sup>	?	s	?	ħ <sup>w</sup>	w	u	k	ṭ
e	c	x <sup>w</sup>	e	ẉ	i	d	i	d <sup>z</sup>
ħ	x	q̣	k <sup>w</sup>	ə	ṇ	e	n	k <sup>w</sup>

Word List

gəldas	ğ <sup>w</sup> adəm
q̣enəm	g <sup>w</sup> iħa
q̣ <sup>w</sup> iħa	ħaməd <sup>z</sup> u
niki	quħa
?əwabəwi	čagapəla
gəldas	ḳuħ <sup>w</sup> a
la <sup>?</sup> e	ħisəla
la <sup>?</sup> e	ẉidi
neħək <sup>w</sup>	

(Wilson & Henderson, 1981b)

Table 98 Wisa and Ğəna pick and dry berries exercise

Section Five: Exercise

Translate and complete the following sentences:

1. laxʔidi \_\_\_\_\_ wisa lu ğəna  
\_\_\_\_\_
2. ʔixʔidi \_\_\_\_\_  
\_\_\_\_\_
3. ǰənəmidə \_\_\_\_\_ laħa \_\_\_\_\_  
\_\_\_\_\_
4. ǰəqagilaxdaʔħʷħi ħis \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_ laħa ʔasanoy qaʔs \_\_\_\_\_  
\_\_\_\_\_
6. "hedi le ʔəwaboʔasa \_\_\_\_\_," niki \_\_\_\_\_ ğəna  
\_\_\_\_\_
7. "widi ledə \_\_\_\_\_," niki ğəna  
\_\_\_\_\_

(Wilson & Henderson, 1981b)

Table 99 Wisa and Ğəna pick and dry huckleberries exercise page 2

8.	_____	ǰa manəməsə kəkəʔukʷ	_____
9.	quʔaməsdoʔxʷni	ǰis _____	ʔisne _____
10.	_____	həmsaxdaʔxʷ ǰa ǰʷadəm	_____

(Wilson & Henderson, 1981b)

Table 100 Wisá and Čóna pick and dry huckleberries: extra dialogues

<u>Section Six: Extra Dialogues</u>	
<u>Dialogue 1</u>	
həmsanaxʷəməsi ʃa ʒədəm	Do you pick huckleberries?
ʔe, həmsanaxʷməŋəʃa ʃa ʒədəm	Yes, I pick huckleberries.
<u>Dialogue 2</u>	
həmsanaxʷəməsi ʃa ʒədəm	Do you pick huckleberries?
ki, ʔisən həmsa ʃa ʒədəm	No, I don't pick huckleberries.
məsis ʔisitəʔus həmsa ʃa ʒədəm	Why don't you pick huckleberries?
ʔisən ʔixak ʃa ʒədəm	I don't like huckleberries.
qəmsən həmsa ʃa ʒədəm	I am too lazy to pick huckleberries.
<u>Dialogue 3</u>	
həmsanaxʷəməsi ʃa nəkʷət	Do you pick salal berries?
ki, ʔisən həmsa ʃa nəkʷət	No, I don't pick salal berries.
məsis ʔisitəʔus həmsa ʃa nəkʷət	Why don't you pick salal berries?
ʔixakağawayəŋəʃa ʃa ʒədəm laʃa nəkʷət	I like huckleberries better than salal berries.
həməŋ lagitən ʔis həmsa ʃa nəkʷət	That's why I don't pick salal berries.

(Wilson & Henderson, 1981b)

Table 101 Wisa and Ğəna pick and dry huckleberries: questions

Section Seven: Questions

The answers to the following questions may be copied from the story.

1. māmixʔidi wisa lu ğəna  
\_\_\_\_\_
2. mācāʔi həmsasuwides  
\_\_\_\_\_
3. wīdi ledə həmyače  
\_\_\_\_\_
4. qənəməʔidə ğʷadəm laħa tənķəs  
\_\_\_\_\_
5. wīgilaxdaʔħʷāsis həmyanəm  
\_\_\_\_\_
6. ləmxʷ ləmoʔəsəʔi laħa ʔaʔs ʔisələsəwī  
\_\_\_\_\_

(Wilson & Henderson, 1981b)

Table 102 Wisa and Ğəna pick and dry huckleberries: teacher's answer key

<u>Teacher's Answer Key for Questions</u>	
1. mānix'idi wisa lu Ğəna Where did wisa and Ğəna go and what did they do? lax'idi həmsi wisa lu Ğəna Wisa and Ğəna went berry picking.	
2. mācati həmsasuwides What were they picking? lax'idi həmsa xa Ğ'adam They went to pick huckleberries.	
3. widi lede həmyače Where is the berry basket? hedi le 'əwəbo'yasa həhad'u It's underneath the table.	
4. qənəmə'ide Ğ'adam lafa tonkas Are there lots of huckleberries on the hill? ?e, qənəhida Ğ'adam lafa tonkas Yes, there are lots of huckleberries on the hill.	
5. wəgilaxda?X'wisi həmyanam What are they going to do with the berries that they picked? ləqəgilaxda?X'wi kis həmyanam Ğ'adam They are going to dry the huckleberries that they picked.	
6. ləmx' ləmə'ese'i lafa kasanoy qa's kiselasəwi Are they placed outside to dry in the sunshine? ?e, ləmx'ləmə'esi lafa kasanoy qa's kiselasəwi Yes, they are placed outside to dry in the sunshine.	

(Wilson & Henderson, 1981b)

Table 103 Wisá and Ğóna pick and dry huckleberries computer vocabulary output

STORY1 SORTED AT 1/08/81 21:56		00001 1	
20	čagapala	20	λiləλola
25	Si*underneath. at the Si*bottom	25	Si*family. Si*friends
	of	20	ʃasanoy
20	čagit	25	Si*outside
25	Si*matress	20	ʃisala
20	?awabawi	25	Si*sun
25	Si*under	20	mameña
20	?əʒedaʔs	25	Si*leaf
25	Gen;m -	20	neħakʷ
20	gelʔam	25	to go Si*home
25	Si*when	20	niki
20	gelmis	25	Si*said
25	Si*when	20	?olakala
20	galdas	25	Si*real
25	Si*box	20	qufa
20	gičud	25	Si*full
25	to Si*put something into something	20	qəqəyuxə
20	gʷita	25	to Si*get Si*lots
25	to Si*spread	20	qʷita
20	gʷitadʷud	25	to Si*smash. to Si*pulverize
25	to Si*spread on flat surface	20	sənbənd
20	ʒela ga	25	from Si*daylight_to_dark
25	Si*come on	20	tənkəs
20	ğʷadam	25	Si*hill
25	Si*huckleberries	20	fəqa
20	ħamadʷu	25	Si*dried Si*berries (mainly huckle and salal)
25	Si*table	20	widl
20	ħamsə	25	Si*where is ...
25	to Si*pick (e.g. berries_ fruit)	20	ɟugʷə
20	ħamxʔit	25	Si*rain
25	to Si*eat		
20	ħamyadl		
25	Si*berry Si*basket		
20	ħamyənəm		
25	something that has been Si*picked		
20	?is		
25	Si*not		
20	?isħe		
25	Si*before		
20	kəkəʔukʷ		
25	Si*skunk cabbage		
20	kətʔadis		
25	Si*drying_rack		
20	kuxʷə		
25	to Si*fold		
20	ləʔe		
25	Si*then		
20	ləʔiləm		
25	Si*take_inside		
20	ləmxʷə		
25	to Si*dry		

Codes: [\*] English sort keyword [S1] Story 1 Book 1

(Wilson & Henderson, 1981b)

## 28. Contrasts in Toponymy: British Columbia and Bakwamk'ala

My involvement with the land-based project included updating placenames, settlement descriptors, and topographic terms with reference to the Province of British Columbia Toponymy office. The descriptors and terms required by the Province, however, do not conform to the |Gwa'sala-Nak'waxda'xw| worldview. For example, provincially approved terms for settlements connote a Western European lens that is not consistent with a traditional |Gwa'sala-Nak'waxda'xw| worldview. |Gwa'sala-Nak'waxda'xw| settlements are utilized by communities and families depending on times of the year, food gathering and processing, or during ceremonials. In addition, the relocation and amalgamation of the |Gwa'sala| and |'Nak'waxda'xw| in 1964 from the mainland to Vancouver Island has made access to traditional areas more difficult and less frequent. This has meant that areas of regular use for centuries are not in current use. Descriptors such as "abandoned locality" (Province of British Columbia, 2020a), however, do not describe the intentions of the people. In addition, such descriptors imply a sense of "agency" and "choice" on the part of the people whose locations are not used. For the |Gwa'sala| and |'Nak'waxda'xw| this is clearly not the case, as they were required to relocate to Vancouver Island, as documented in Lisa Jackson's film (How a People Live, 2014).

The project team and Elders met to examine the approved lists and determine the descriptors that best reflected a traditional worldview. Although this work is still ongoing, one example of our discussions regarded traditional community locations that were permanent and contained dwellings referred to as big houses |gux<sup>w</sup>dʒi|. These communities are permanent in nature. Beginning in 1964, many of the sites in Smith and Seymour Inlets, as well as at Blunden Harbour were no longer used regularly. Since 2010, however, the |Gwa'sala-'Nakaxda'xw| have returned to these locations and constructed structures at |Gigak| (a settlement on an island in the mouth of Smith Inlet) and |Ba'as| (Blunden Harbour). During our discussions, it was suggested that we use the term "settlement" to describe all locations which, at one time or another, were populated and contained permanent residences (i.e., big houses). Elders and documentation were consulted. Documents included census, research reports, and surveys from contact to the present.<sup>143</sup>

Settlement: Any permanently occupied, unincorporated area normally identified by a single name, generally rural, and having a recognizable central focus.

(Province of British Columbia, 2020b)

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<sup>143</sup> To the best of my knowledge, this work is ongoing and subject to Treaty negotiations. The example above illustrates the complexity of the legal and trans-cultural issues relating to land-claims and the rights of the |Gwa'sala-'Nakwada'xw|. The reader is referred to the Chief Negotiator of the |Gwa'sala-'Nakwada'xw|.

## 28.1. Translation of topographic features and toponyms

Further work is needed to translate and contrast the topographic features and toponyms used by the Province with the |Bakwamkala| terms. This work requires translation, dialect usage, and semantic range. This would be helpful for researchers working on place names, as many of the toponyms are based on the topographic descriptions. For example, |uxwsola| is the general word for ‘passage’ as well as the toponym for Bradley Lagoon. There is also dialect variation in the use of topographic terms. For example, the word |ku's| refers to a small lake or swimming area in |Gutsala| and to a pond in |Bakwamkala|. It is also the toponym for a lake near Treadwell Bay in the |Gwa'sala-Nakwaxdaxw| territory. The word |dza'lał| in |Kwakwala| and |Bakwamkala| is ‘lake’. Word List 8 is a partial list of topographic descriptors in Kwakwala.

Word List 8 Partial list of Kwakwala topographic descriptors

Bakwamkala (U'mista)	English
bānu'las	lower area
dła'pik	passage
dzał	lake  Kwakwala  and  Bakwamkala
awago'lis	water passage
awila	land
awitba'lis	beach at point of land

ḡwi'nagwis	beach
ḡwi'nakola	land and sea
ḡwi'nak'wa	land
ḡḡḡas	pond: small lake
ikutas	higher area
kālnas	road
kālxas	road for cars
kwatawi	valley between two mountains
kayas	walking path
kākaxulis	water passage which goes dry at low tide
kus	lake  Gutsala , pond  Bakwamkala , Toponym for a lake near Treadwill Bay  Bakwamkala
luxwagwis	rocks on beach
'magwi'sdzi	big rock on beach
'makola	island
nage	mountain
tsaxwaxala	waterfall
taxala	door: path
t'asagwis	beach

t'łasano'yas	beach path
t'ḷa'nas	shortcut path
tsaxwax̣ala	waterfall
ubi'smalis	little passage at end
uṭsolis	bay
uṭsolisbidu	small bay
uḵwso'lisa	little passage
uḵwsola	passage (all dialects), Toponym for Bradley Lagoon  Bakwamḳala
wa	river
wā'a'nāwi	tributary
wānaṭdam's	inlet

(Eke Me Xi, 2021r)

## 28.2. Settlements or Similar

The following information was provided by the Provincial Toponymy office for the purpose of providing the Treaty Department of the |Gwa'sala-'Nakwaxda'xw| Nation with guidelines for documenting the toponyms in their territories (Province of British Columbia, 2020a).

Settlement Descriptors:

**Abandoned Locality:** A previously populated place with no current population.

**Cabin:** A structure offering shelter; often a landmark on a remote or historic route.

**Camp:** A place where tents or buildings serve as temporary residences.

**Community:** An unincorporated populated place, generally with a population of 50 or more, and having a recognized central area that might contain a post office, store and/or community hall, etc., intended for the use of the general public in the region.

**First Nation Village:** A village or community inhabited primarily by members of the same First Nation.

**Former Cannery:** A facility formerly used for canning fish, fruit or meat.

**Former First Nation Village:** A place formerly inhabited by First Nations' people, with no current population or that is usually uninhabited.

**Former Locality:** A once-populated place with no current population, or that is usually uninhabited.

**Indian Reserve:** Tract of land set apart for the use and benefit of a particular Indian band.

**Locality:** A named place or area, generally with a scattered population of 50 or less.

**Village (2):** An unincorporated populated place.

### 28.3. Topographic features and toponyms

The following information was provided by the Provincial Toponymy office for the purpose of providing the Treaty Department of the |Gwa'sala-'Nakwaxda'xw| Nation with guidelines for describing the toponyms and topographic areas in their territories (Province of British Columbia, 2020b). The list below demonstrates the lack of terms required to develop a fulsome ethnophysiological description of territories.<sup>144</sup> There are no descriptors that denote traditional-historical knowledge handed down in legends or family "house" stories. The settlement at |Ba'as| illustrates this knowledge. |Ba'as| is the site where the Killer Whale clan of the |'Nakwaxda'xw| first came ashore and settled as humans, and the three islands at the entrance to the harbour are the transformed chief and family who guard the location (from the video |Gi'gili'am Lilkwalatle| "Killer Whale Clan" (2018) and based on a family history by Henry Seaweed). In addition to providing the historical significance of a location, ethnophysiology provides an approach to account for a wide range of information, such as food sources, water supply, and locations of houses. **Error! Reference source not found.** provides an example of this approach. The map includes food gathering locations at Ba'as for fish, shell fish, and berries, and the locations of houses, guest houses, and gravesites (Wilson & Henderson, Foods and locations at Ba'as, 2018).

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<sup>144</sup> See Mark & Turk (2021).

## **Topographic features Likely within GN Territories**

(Province of British Columbia, 2020b)

**Abandoned Locality:** A previously populated place with no current population.

**Anchorage:** An area of water in which vessels can anchor. usually sheltered water.

**Archipelago:** Group or chain of islands.

**Arm:** Long narrow extension of a water body.

**Bank (1):** Abrupt slope at the edge of a waterbody.

**Bank (2):** An elevation over which the depth of water is relatively shallow, but normally sufficient for safe surface navigation.

**Banks (1):** Plural of Bank (2).

**Bank (3):** Elevated portion of the seafloor or lake bottom, exposed at low water or over which the depth of water is shallow.

**Bar (1):** A ridge or succession of ridges of sand or other unconsolidated material extending across the mouth of a river, harbour or bay and which may obstruct navigation.

**Bar (2):** An offshore ridge or succession of ridges of sand or other unconsolidated material, either perpendicular to or parallel with the shore.

**Basin (1):** A water feature similar to a cove or bay.

**Basin (2):** Bowl-shaped head of a valley in foothills or mountains.

**Bays:** Plural of Bay.

**Bay:** Water area in an indentation of the shoreline of a sea, lake, or large river.

**Beach:** Gently sloping shore of unconsolidated material along the margins of a sea, lake, or river.

**Beaches:** Plural of Beach.

**Bench:** Level strip of land, bounded above and below by steeper slopes; a terrace.

**Bend:** Change in the direction of a watercourse.

**Bight:** Water area in a broad indentation of the shoreline.

**Bluff (1):** A shoreline terrain elevation with an almost perpendicular face.

**Bluffs (1):** Plural of Bluff (1).

**Bluff (2):** A steep-sided hill or promontory.

**Bog:** Wet spongy land area, containing abundant organic matter.

**Bridge:** A structure built to span and afford passage across a waterway, railroad, ravine, etc.

**Brook:** Small watercourse, often a tributary to a river, stream, or creek.

**Butte:** Conspicuous isolated hill with steep sides and a flat top.

**Cabin:** A structure offering shelter; often a landmark on a remote or historic route.

**Camp:** A place where tents or buildings serve as temporary residences.

**Canal (1):** A natural or man-made freshwater channel used for navigation, irrigation, etc.

**Canal (2):** A narrow, saltwater passage between bodies of land.

**Canyon:** Deep, narrow valley with precipitous walls.

**Cape:** Prominent elevated projection of land extending into a body of water.

**Cascade:** Waterfall with a small flow, normally descending over several levels.

**Cave:** Natural subterranean chamber open to the surface.

**Caves:** Plural of Cave.

**Channel (1):** Alternative course in a flowing water body, or a distributary within a delta.

**Channel (2):** Narrow stretch of water connecting two bodies of water.

**Cirque:** Deep, steep-walled, bowl-shaped indentation in a mountain side.

**Cliff (1):** Steep rock face projecting nearly vertically from a body of water.

**Cliffs (1):** Plural of Cliff (1).

**Cliff (2):** Steep rock face projecting nearly vertically from the surrounding land.

**Cliffs (2):** Plural of Cliff (2).

**Col:** Low point on a ridge joining two summits, usually enabling passage between them.

**Community:** An unincorporated populated place, generally with a population of 50 or more, and having a recognized central area that might contain a post office, store and/or community hall, etc., intended for the use of the general public in the region.

**Cone:** Cone-shaped hill.

**Coulee:** Steep-sided valley or ravine, often with a stream flowing in the bottom.

**Cove:** Water area in a small indentation of the shoreline of a sea, lake or river.

**Crag:** Steep, jagged prominence on a mountain or cliff.

**Crags:** Plural of Crag.

**Crater:** Bowl-shaped or funnel-shaped depression at the eruption site on a volcano.

**Creek (1):** Watercourse, usually smaller than a river.

**Creek (2):** Narrow tidal inlet, usually with a watercourse flowing at its head (seldom used in BC).

**Dam:** A barrier constructed to hold back water, to raise and control its level and/or to form a reservoir.

**Depression:** Low-lying land surrounded by higher land.

**Ditch:** Small watercourse.

**Dome:** Mass of rock or ice with a rounded top, elevated above the surrounding terrain.

**Domes:** Plural of Dome.

**Dyke:** Artificial structure to control water flow and flood waters.

**Eddy:** Small whirlpool in a watercourse or in the sea, running contrary to the direction of current or tide.

**Entrance:** Outer end of a channel, harbour, or other water feature; usually allowing access to the waters within.

**Escarpment:** Long laterally continuous, steep slope, often cliff-like.

**Falls:** Perpendicular or steep descent of water. Variation of Waterfall.

**First Nation Village:** A village or community inhabited primarily by members of the same First Nation.

**Fishing Site:** A section in a watercourse or waterbody where there is good fishing, or was historically used for fishing.

**Flat (1):** Almost level land, usually found along a valley.

**Flats (1):** Plural of Flat (2).

**Flats (2):** Level area of land usually composed of fine material, extending from the shore.

**Flats (3):** A large area of flat, wet ground.

**Forest:** Expanse of tree-covered terrain.

**Fork (1):** Branch of a stream.

**Fork (2):** Junction of two streams; a confluence.

**Former Cannery:** A facility formerly used for canning fish, fruit or meat.

**Former First Nation Village:** A place formerly inhabited by First Nations' people, with no current population or that is usually uninhabited.

**Former Locality:** A once-populated place with no current population, or that is usually uninhabited.

**Fort:** Fortified structure built to protect a strategic site.

**Fumarole:** A vent, usually volcanic, from which gases and vapours are emitted.

**Gap:** Narrow opening through a ridge or mountain chain.

**Glacier:** Mass of permanent snow and ice flowing from an area of snow accumulation on higher ground.

**Glaciers:** Plural of Glacier.

**Gorge:** Deep, narrow, steep-sided valley, usually containing a watercourse.

**Group (1):** More than one island in a centralized area.

**Group (2):** A number of peaks or mountains within a range of mountains.

**Gulch (1):** A small stream.

**Gulch (2):** Deep, steeply graded, V-shaped declivity, sometimes containing a stream.

**Harbour:** Sheltered water in a shoreline indentation, suitable for mooring or anchoring vessels.

**Head:** High, prominent land feature extending into a sea or lake.

**Highland:** Area of elevated relief, not as high or rugged as a range of mountains or as level as a plateau.

**Hill:** Elevation of terrain rising prominently above the surrounding land.

**Hills:** Plural of Hill.

**Historical Route:** Route followed, or in close proximity to a historical trail or colonization road.

**Hotspring/Hot Spring:** Site of a natural flow of hot or warm water issuing from the ground.

**Hotsprings/Hot Springs:** Plural of Hotspring/Hot Spring.

**Ice Cap/Icecap:** Large dome-shaped mass of permanent ice and snow.

**Icefall:** Mass of jagged, split ice on a steep glacial slope.

**Icefield:** Irregularly shaped mass of permanent snow and ice, generally forming the accumulation area of two or more glaciers.

**Indian Reserve:** Tract of land set apart for the use and benefit of a particular Indian band.

**Indian Settlement:** terminology used by DIAND: a place occupied by Amerindians but not designated or reserved under the Indian Act; occupation is not restricted to a particular Band.

**Inlet:** Elongated body of water extending from a sea or lake.

**Island:** Land area surrounded by water or marsh.

**Islands:** Plural of Island.

**Islet:** Small island.

**Islets:** Plural of Islet.

**Isthmus:** Narrow neck of land, bordered on both sides by water, and connecting two larger land areas.

**Knob:** Rounded usually isolated part of a mountain; a hill.

**Knoll:** Small rounded hill.

**Lagoon:** Body of water, separated from a lake, river, or sea by a narrow land barrier, which may completely enclose it or leave a shallow passageway into it.

**Lake:** Inland body of standing water.

**Lakes:** Plural of Lake.

**Landing:** A coastal or shore location where boats may put in to load or unload.

**Ledge (1):** Flat rock area, either projecting from a land mass into the water or rising from the sea floor.

**Ledges:** Plural of Ledge (1).

**Ledge (2):** Prominent shelf-like platform exposed on the face of a mountain or cliff.

**Locality:** A named place or area, generally with a scattered population of 50 or less.

**Lookout:** Elevation from which the surrounding terrain or seascape can be viewed.

**Lowland:** A general term for low-lying land or an extensive region of low land, especially near the coast and including the extended plains or country lying not far above tide level.

**Marsh:** Area of low-lying land, often flooded and usually characterized by growth of grass and reeds.

**Meadow (1):** Alpine or sub-alpine treeless area, characterized by seasonal grasses and wildflowers.

**Meadow (2):** Low-lying, flat, seasonally wet, grassy area.

**Mine:** Site where extraction and primary processing of ore take place.

**Mining Camp:** Seasonal or year-round housing and facilities for people working at nearby mines.

**Mount:** Variation of Mountain: Mass of land prominently elevated above the surrounding terrain, bounded by steep slopes and rising to a summit and/or peaks ["Mount" preceding the name usually indicates that the feature is named after a person].

**Mountain:** Mass of land prominently elevated above the surrounding terrain, bounded by steep slopes and rising to a summit and/or peaks.

**Mountains:** Plural of Mountain.

**Mouth:** The point where a river or stream flows into another body of water.

**Narrows:** Constricted section of a water body.

**Notch:** Deep but narrow opening through a ridge or mountain chain.

**Névé:** Accumulation of ice resulting from the transformation of snow on higher ground.

**Ocean:** Large body of salt water, global in scale.

**Pass (1):** Narrow stretch of water connecting two larger water bodies.

**Pass (2):** Low opening in a mountain range or hills, offering a route from one side to the other.

**Passage:** Variation of Pass: Narrow stretch of water connecting two larger water bodies.

**Patch:** Elevation of the bed of a body of water; composed of unconsolidated material and posing a hazard to surface navigation.

**Peak:** Summit of a mountain or hill, or the mountain or hill itself.

**Peaks:** Plural of Peak.

**Peninsula:** Elongated projection of land into a body of water.

**Picnic Area:** A designated area with picnic tables, but no camping facilities.

**Pinnacle:** Small pointed peak, or a hill.

**Plain:** Area of flat or gently rolling terrain.

**Plains:** Plural of Plain.

**Plateau:** Extensive, elevated region, with either level terrain, or nearly uniform summit levels.

**Point:** Land area jutting into a water feature; also used for a convex change in direction of a shoreline.

**Pond:** Inland body of standing water, usually smaller than a lake.

**Ponds:** Plural of Pond.

**Port (1):** Inlet, or part of an inlet, providing shelter to vessels; a bay.

**Port (2):** Natural or man-made shelter for vessels, having the necessary equipment for the taking on and landing of passengers and cargo.

**Portage:** Trail around an obstacle in a watercourse or joining two bodies of water.

**Prairie:** Area of flat or gently rolling grassland; larger than a meadow and often extensive.

**Ranch:** A facility and its estate; most commonly for grazing and rearing horses, cattle and/or sheep.

**Range:** Group or chain of mountains or hills.

**Ranges:** Plural of Range.

**Rapids:** Fast-flowing section of a watercourse, usually with turbulent water or exposed rocks.

**Ravine:** Deep, V-shaped declivity.

**Reach:** Relatively straight section of a river, lake, or inlet.

**Reef:** Rocks rising to or near the surface of a body of water.

**Reefs:** Plural of Reef.

**Region:** A relatively large area having specific characteristics which give it a certain unity.

**Reservoir:** Body of water maintained at a controlled level; the stored water being used mainly for utilitarian purposes.

**Resort:** A seasonal or year-round facility, frequented because of its' purpose or quality, or the nature of the surrounding area.

**Ridge:** Elongated stretch of elevated ground.

**Riffle:** Fast-flowing section of a watercourse, usually with turbulent water or exposed rocks.

**River:** Watercourse of variable size, which has tributaries and flows into a body of water or a larger watercourse.

**Rock (1):** Small mass of rock usually projecting above the water surface.

**Rocks (1):** Plural of Rock (1).

**Rock (2):** Rocky hill, mountain or cliff; or a large boulder

**Rocks (2):** Plural of Rock (2).

**Sea:** A subdivision of salt water next in size to an ocean, partly or sometimes wholly enclosed by land.

**Settlement:** Any permanently occupied, unincorporated area normally identified by a single name, generally rural, and having a recognizable central focus.

**Shoal:** Elevation of the bed of a body of water; composed of unconsolidated material and posing a hazard to surface navigation.

**Shoals:** Plural of Shoal.

**Shore:** Narrow stretch of land bordering a body of water.

**Site:** A named place that has historic, geographic or folkloric significance.

**Slide:** Scar and/or material from landslide or debris flow.

**Slough (1):** Backwater area, usually marshy; or a meander channel cut off from the main drainage.

**Slough (2):** Shallow water-filled or marshy depression with no external drainage.

**Snowfield:** Irregularly shaped mass of permanent snow and ice, generally forming the accumulation area of two or more glaciers.

**Sound (1):** Large body of water from which two or more inlets, arms or channels branch off.

**Sound (2):** Arm of the sea or a lake; inlet.

**Spire:** Tall, slender, sharp-pointed peak; or a mountain.

**Spires:** Plural of Spire.

**Spit:** Long, low, narrow projection of unconsolidated material extending into a body of water.

**Spring:** Site of a natural flow of water issuing from the ground.

**Springs:** Plural of Spring.

**Spur:** Subsidiary ridge extending laterally from a mountain or ridge.

**Steamer Landing:** A scheduled steamer landing, with or without a population.

**Strait:** Passage, usually navigable, connecting two larger bodies of water.

**Straits:** Plural of Strait.

**Stream:** Watercourse, smaller than a river.

**Summit:** Highest point of a mountain or hill.

**Swamp:** Low-lying land, permanently saturated with water and usually having trees and shrubs.

**Tidal Rapids:** Constricted passage with strong tidal current.

**Tower:** A conspicuous mountain or pinnacle.

**Towers:** Plural of Tower.

**Town:** A populated place with legally defined boundaries, incorporated as a town municipality under the provincial Municipal Act.

**Trading Post:** A locality with a trading post.

**Trail:** Footpath or track [see also Historical Route].

**Trench:** Large-scale elongated depression between mountain ranges.

**Trough:** Long depression of the seafloor, characteristically flat-bottomed and steep-sided.

**Tunnel:** Underground passageway for a travel route (under a watercourse or arm of the sea, or through an elevation of terrain).

**Unclassified:** A named or formerly named feature, whose type is unknown or undetermined.

**Valley:** Long relatively narrow depression, commonly containing a river or other water feature.

**Village (1):** A populated place with legally defined boundaries, incorporated as a village municipality under the provincial Municipal Act.

**Village (2):** An unincorporated populated place.

**Volcano:** Hills related to volcanic activity.

**Volcanoes:** Plural of Volcano.

**Waterfall:** Perpendicular or steep descent of water.

**Whirlpool:** A constant, rapid, circular movement of the water.

## 29. Index of Definitions

### 29.1. |Bak<sup>w</sup>əm<sup>k</sup>ala|

|Bak<sup>w</sup>əm<sup>k</sup>ala| refers to the language of the Gwa'sala/Nakwaxda'xw nation. It is one of the Northern dialects of Kwakwala (ISO kwk). |Bak<sup>w</sup>əm<sup>k</sup>ala| has two subdialects: |Na<sup>k</sup>wala| in the areas and watershed of Blunden Harbour and Seymore Inlet, and |G<sup>w</sup>a<sup>č</sup>ala| in the areas and watershed of Smith Inlet.

### 29.2. |Ĝu<sup>č</sup>ala| (or Ĝu<sup>č</sup>a) |G<sup>u</sup>tsala|

|Ĝu<sup>č</sup>ala| is used to refer to the language of the |Gus<sup>g</sup>imu<sup>x</sup>w| Nation located in Quatsino Sound near Coal Harbour. It is mutually intelligible with Kwakwala (ISO kwk) and is part of the Northern dialect.

### 29.3. |K<sup>w</sup>ak<sup>w</sup>ala| |K<sup>w</sup>ak<sup>w</sup>ala|

|K<sup>w</sup>ak<sup>w</sup>ala| is used to refer to the language of the Kwagwł Nation located in Fort Rupert. It is one of the Southern dialects of Kwakwala (ISO kwk) and is also used as the proper name of the language written in English as Kwakwala (ISO kwk).

### 29.4. Accuracy

Accuracy of language and knowledge is a key requirement for Gwa'sala/Nakwaxda'xw

Elders and the community and is a driving component of this research. For the Elders, accuracy includes not only traditional "structural" aspects of the language, such as phonology, morphology, and syntax, but also communicative systems including ethno-syntax and social cognition. For example, the story about two children going berry picking discussed in Section 12.1 (Wilson and Henderson, 1981a) must include locational and evidential information about the route the children are required to take (ethno-syntax), as well as insure that the children speak to community members to let Elders know where they are going and when they expect to return (social cognition). Without this information, the story is not "grammatical," (Wilson, 2016c, personal communication, Elder's Council, November 2016, and field notes (Wilson, 1986)).

The Elder's requirement for accuracy was one of the key considerations in choosing Situated Learning and the Ethnography of Communication as the theoretical foundations for this study. Both theories provide justification for a "unit of analysis" that requires structural and communicative components in the definition of accuracy. This is discussed further in the section on methodology, where I argue that language accuracy must include setting, ethno-syntax, and social-cognitive domains in addition to more traditional linguistic categories such as phonology and morphology.

For the purposes of this study, the examination of language accuracy does not dispute the capacity of |Bak<sup>w</sup>əm<sup>k</sup>ala| speakers to use the language accurately, but rather seeks to ensure that the language is accurately conveyed and reflects traditional knowledge in the context of school curriculum. This is particularly significant at Eke Me Xi, as staff are not fluent in the language. The locational, spatial, evidential, and social pragmatic systems used in materials developed for the clamming unit, thereby, provide an exemplar to examine language accuracy and uncover potential language, cultural, and cognitive biases that may affect the materials.

#### **29.5. Action Research**

Action Research is a qualitative based method often used in school settings to engage teachers and other stakeholders to examine and refine practices (Rust & Hansen, 2013).

#### **29.6. Communicative Act and Unit of Analysis**

A "communicative act," is a minimal unit described in this study. Examples include a sentence, a place name, or a hand gesture. The description of a "communicative act" contains not only grammatical structure, but also the location, situation, social setting, cultural knowledge, and social-cognitive knowledge that enable speech act participants to mediate communication and derive meaning.

### **29.7. Communicative competence**

Communicative competence (Hymes, 1972) includes situational and social use of language, such as the appropriate way to tell a story, apologize to someone, vary one's language depending on situations and settings, or give directions. Communicative competence represents the linguistic knowledge of "cultural insiders" (Goddard, 2013) and connects one's language to one's worldview.

### **29.8. Communicative-Experiential Method of Language Teaching**

The Communicative-Experiential method is based on the belief that language activities are best approached from a communicative standpoint, where language activities are natural and not constrained by complexity of language.

### **29.9. Communities of Practice**

Communities of practice (Lave & Wenger (1991) and Wenger & Wenger-Trayner (2015), are known as "professional learning communities" in education (Hulley & Dier, 2008), They are a working group that collaborates to identify problems, share expertise, and develop improvements.

### **29.10. Coding: In vivo coding**

In vivo coding assigns a code to language or modal data from a video or transcript. The code describes the salient features of the data (Saldaña, 2016). For example, language coding in the study focussed on examining whether the speakers used Kwakwala, English, or translanguaged (switched between English and Kwakwala during a communicative utterance).

### **29.11. Coding: Simultaneous coding**

Simultaneous coding was used to examine overlapping modes (i.e., when more than one modality occurs). Modes overlap, for example when background music, visuals, and dancing co-occur on the timeline (Saldaña, 2016, p. 307).

### **29.12. Ethnographic coding**

Ethnographic coding is used to code the materials developed in the study to analyse whether they meet curriculum and community expectations (Saldaña, 2016). For example, simultaneous coding (see above) is a type of Ethnographic coding.

### **29.13. Ethnophysiography**

Ethnophysiography documents the natural landscape to include language and history, and constructs "ontologies of the geographic domain" (Mark & Turk, 2003, p. 1).

Ethnophysiography includes the study of toponyms across languages. This is particularly relevant to the land-based work revitalizing the toponyms for the traditional territories.

### **29.14. Extension and Elaboration**

Leeuwen (2005, p. 255) notes that modes can elaborate or extend the communication. For example, elaboration provides additional details about a focused object or person, while extension provides information regarding background setting.

### **29.15. Grammatical-Functional Method of Language Teaching**

Grammatical-functional lessons provide a graded approach to functional language acquisition based on complexity of language structure and difficulties that might be expected with students whose first language is English.

### **29.16. Integration of language, curriculum, and Indigenous knowledge**

The integration model at Eke Me Xi seeks to provide traditional language and knowledge-based activities that fulfill Provincial curriculum expectations in the language

program as well as other courses. This is consistent with the "Two World" model from the Hawaiian language education program (Wilson & Kamanā, 2014). In the Two World model, the overall expectations of the wider educational system (i.e., state or province) are maintained, while the Indigenous community develops programming in their traditional language and knowledge systems.

The integration practiced at Eke Me Xi is similar to content-and-language integrated learning (CLIL) in language programs. Dalton-Puffer (2011) describes CLIL as:

CLIL can be described as an educational approach where curricular content is taught through the medium of a foreign language, typically to students participating in some form of mainstream education at the primary, secondary, or tertiary level.

(Dalton-Puffer, 2011, p. 183)

The program at Eke Me Xi differs from CLIL practices. At Eke Me Xi the goal is to use Kwakwala as a medium of instruction similar to CLIL, however, the school goal also aims to integrate Indigenous knowledge and perspectives into content classes as well as language. This practice is most similar to the "Two World Model" in Hawaiian education (Wilson & Kamanā, 2014). The Eke Me Xi integration goals follow Ministry guidelines found in "Indigenous Knowledge and Perspectives in K-12 Curriculum" (BCED, 2020f), and its companion documents, e.g., BCED (2020c).

### **29.17. Linguistic Landscape**

Linguistic Landscape: refers to the visibility and salience of languages on public and commercial signs in each territory or region (Landy & Bourhis, 1997; Vessey & Sheyholislami, 2020).

### **29.18. Linguistic Landscape to support language education**

Signs, notice boards, and printed information in school settings foregrounds the visibility and importance of the language. By including signage and information in Kwakwala, the community, school staff, and students demonstrate their commitment to the program and signal language vitality (Gorter, 2017; Valijarvi & Kahn, 2017; Gorter & Cenoz, 2015). In addition, signs in minority languages provide an opportunity to “identify attitudes towards languages” (Vessey & Sheyholislami, 2020, p. 788).

### **29.19. Material Culture**

Material culture examines "intercultural objects" that in order to gain insight into social and cultural perspectives. In this study, the materials that were developed for Introduction to Kwakwala 11 provide the intercultural objects to examine whether the materials meet the goals of the land-based and school-based improvement activities.

### **29.20. Mediative environment**

A mediative environment is one where communicative acts are situated in an authentic setting where the communication might be expected to occur. This approach claims that learning is enhanced through connections and context of social and cultural settings (Lave & Wenger, 1991; Rogoff, 2003; Vygotsky, 1986).

### **29.21. Participatory Action Research**

Participatory Action Research (PAR) promotes community driven projects and collaboration (Junker, 2018). In this study, I engaged with the |Gwa'sala-'Nakaxda'xw| community to participate and assist with two projects with goals that had been already identified in the community. In this study I joined two professional learning communities engaged in revitalizing traditional homelands and improving the teaching of Kwakwala in schools. The projects included Elders, Chiefs, administrators, researchers teachers, and community members who collaborated to develop goals and implement solutions for their community. These goals addressed the unjust practices of colonization which separated the community from their homelands and their language.

### **29.22. Professional Learning Community**

A professional learning community (PLC) is a working group of practitioners who collaborate to identify problems, share expertise, and work to develop improvements. In the current study, the Elders and Chiefs are key experts in the land-based and school-based PLCs providing Indigenous knowledge and perspectives to teachers, researchers, linguists, historians, archaeologists, biologists, computer programmers, and geographers.

### **29.23. Scaffolding**

Scaffolding is a common educational technique where teachers provide supports for student learning (the scaffold) and then pull back the supports as a student becomes "skillful enough to manage" the activity (Bruner, 1983, p. 60). Scaffolding provides just enough additional information to enable a student to overcome a difficulty on their own.

### **29.24. Situated Documentation**

Situated Documentation focusses on in-situ language acquisition during authentic experiences and provides the method to gather language to utilize in educational or community revitalization activities (Grenoble, 2007; Grenoble & Martin, 2019; Molina-Vital & Manley, 2021). Situated documentation also provides opportunities to engage students and community members in language documentation and encourages wider

involvement in revitalization activities in class and on the land, thereby assisting teachers and researchers to develop materials (Molina-Vital & Manley, 2021).

### **29.25. Spotighting**

Spotighting is also a teacher directed technique and based on the same criteria as scaffolding. During spotighting, the teacher focusses, or “spotlights” a student’s attention on one of the elements in an activity. The focusing of the student’s attention on a key element can often enable the student to overcome a difficulty on their own (Gutstein & Sheely, 2002).

### **29.26. Spirals of Inquiry**

Spirals of Inquiry is a process used to frame improvement activities in British Columbia schools (NOIIE, 2020; Kaser & Halibert, 2013), and at Eke Me Xi (Eke Me Xi, 2016; Hubbard & Demoe, 2017). Spirals of Inquiry engages teachers as researchers to examine their school activities and implement improvements using evidence-based analysis. This approach is supported by the B.C. Ministry of Education and is used in School District 85 (Port Hardy), where the study takes place.

### **29.27. Situated Learning**

Situated Learning claims that learning is enhanced through connections and context of social and cultural settings (Lave & Wenger, 1991; Rogoff, 2003; Vygotsky, 1986).

### **29.28. Traditional Knowledge**

The materials development at the school is framed by Gwa'sala/Nakwaxda'xw Elders, who shared their understanding of traditional knowledge and |Bak<sup>w</sup>əm<sup>k</sup>ala|, which is based on their historic traditions and locations. Traditional knowledge is based on the social customs and technologies of the various Gwa'sala/Nakwaxda'xw family units/tribes located on the B.C. mainland before being re-located to Vancouver Island in 1964.

### **29.29. Transdisciplinary**

A transdisciplinary approach draws from a range of theories, methods, and practices to meet the complex research requirements for a study. (Hiver, Larsen-Freeman, & Al-Hoorie, 2021).

### **29.30. Translanguaging Theory**

Translanguaging theory sees the bilingual as having a single, or unitary, linguistic competence, as opposed to a dual or bifurcated one (Garcia & Wei, 2014).

### **29.31. Translanguaging in the classroom**

Translanguaging makes use of a learners' full linguistic repertoire to make meaning without thinking of the fact that they have one language that is different from the other (Garcia & Wei, 2014). At Eke Me Xi, translanguaging practices engage teachers, staff, and students as "emergent bilinguals" (Kleyn & Garcia, 2019) who use English and Kwakwala to support their language development.

### **29.32. Two World View**

Two World View is an approach to Indigenous language education where the overall expectations of the wider educational system (i.e., state or province) are maintained, while the Indigenous community develops programming in their traditional language and knowledge systems (Wilson & Kamanā, 2014). This promotes the integration of Indigenous language and knowledge throughout school subjects and in the community.

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Kwakwala Word List (Wilson & Henderson, 1982b)

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Kwakwala Pattern Practice Activities with numbers (Wilson & Henderson, 1979b)

Stories for Children (Wilson & Henderson, 1981a)

Advanced Kwakwala Lessons 2 (Wilson & Henderson, 1982c)

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### **33.7. Eke Me Xi materials**

Source(s): Materials developed in this study

Bakwamkala Word List (Wilson P. , 2017a)

Lost Green Socks (Wilson & Henderson, 2020)

Foods and locations at Ba'as (Wilson & Henderson, 2018)

Shucking Clams (Wilson & Wilson, 2017f)

Resources at Ba'as (Wilson & Henderson, 2017d)

Wisa and Gana go berry picking at Tsalgwadi (Wilson & Henderson, 2016)

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Gwa'sala-'Nak'waxda'xw Nations Map

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## **34. Document Background**

### **34.1. Document production**

This document was developed in MS Word (MS Office, 2021). The document utilizes three fonts, Times New Roman 12, Doulos SIL for the NAPA orthography, and Aboriginal Sans for the U'mista orthography. Line spacing is exactly 30 points in the body of the work to account for the additional vertical spacing required for Doulos SIL and Aboriginal Sans fonts.

In order to compensate for the lack of Windows 10 operating system capacity for Kwakwala, the following adaptations were used in the production of this multilingual document:

**Keyboarding:** Keyman keyboard encoders were used for both NAPA and U'mista data entry (Keyman, 2021c).

**Language:** Canadian English was used as the base language for this document.

Additional Windows 10 operating languages were used to differentiate between various fonts used to display Kwakwala. Table 104 lists the Windows 10 languages, the languages they represent in this document, keyboard encoding, their use in this document, and font.

Table 104 Languages, codes and uses in document.

Windows 10 language name	Document Language	Keyboard Encoder	Used for	Font
English Canada	English	English Canada	paragraphs, quotations, and code lumps	Times New Roman 12
English Philippines	Kwakwala	NAPA	Word and sentence examples	Doulos SIL
English Malaysia	Kwakwala	NAPA	code lumps	Doulos SIL
English Singapore	Kwakwala	U'mista	Word and sentence examples	Aboriginal Sans
English New Zealand	Kwakwala	U'mista	Code lumps	Aboriginal Sans
Latin D	Kwakwala	Boas	Word and sentence examples	Times New Roman
German (Germany)	German	German	Quotations and references	Times New Roman
French (Canada)	French	French	Quotations and references	Times New Roman

### **34.2. Citations to field notes**

This document includes examples from my Kwakwala field notes, educational materials, and databases. Examples written in the U'mista orthography are from development activities at Eke Me Xi, unless otherwise indicated. Citations to examples are provided when the materials are published, for example, the Web site "Our Voices Our Stories" (Wilson P. , 2020e). When no citation is given, the examples are from unpublished notes. Examples written in the NAPA orthography are from my work with James Henderson, Alice Peters, Lillian Johnny, Harry Walkas, Chief James Wallas, and materials developed during my activities with the Native Indian Language Diploma Program and Canada Works curriculum project. Citations are provided to published materials.

### **34.3. External factors affecting study**

Two factors affected the preparation of this document and review of Kwakwala examples planned for Winter, 2020. First, I was injured in a fall in December 2019. I was not well enough until late March to return to Port Hardy. Unfortunately, I had to cancel my plans to return to Port Hardy in late March, 2020 for the review due to Covid 19. The reader is referred to the website (Wilson P. , Our Voices Our Stories, 2020e) for any corrections that will be undertaken at a later date.

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