

DESIGNING ARCHIVAL COLLECTIONS TO SUPPORT LANGUAGE
REVITALIZATION: CASE STUDY OF THE
BORO LANGUAGE RESOURCE

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Indigenous communities around the world are losing their languages at accelerating rates to the effects of the climate crisis and global capitalism. To preserve samples of these languages facing endangerment and extinction, samples of language use (e.g., audio-video recordings, photographs, textual transcriptions, translations, and analyses) are created and stored in language archives: repositories intended to provide long-term preservation of and access to language materials. In recent years, archives of all kinds are considering their origins and audiences. With the emergence of the community paradigm of archiving framework, the roles of archivists, communities, and institutions are under re-examination. Language archives too are reflecting this trend, as it becomes more common for speakers of Indigenous languages (also known as language communities) to document and archive their own languages and histories. As the landscape of language archiving expands, we now see increased emphasis on the re-use of archival material, particularly to support language revitalization—efforts to increase and maintain the use of the language. There are calls for language documentation (and, by extension, language archiving) to prioritize revitalization efforts. This dissertation is a case study of one language archive collection: the Boro Language Resource in the Computational Resource for South Asian Languages (CoRSAL) archive. The Boro Language Resource was created by Boro community members who are both experienced in linguistics and pedagogy and active in language revitalization efforts including research, educational, and cultural initiatives. This case study explores how the collection was designed, and how the material will be used in future language revitalization activities. Because this collection exemplifies the view of language

documentation and archiving as revitalization-driven practices, the findings of this case study stand to inform future community archiving efforts aiming to support language revitalization.

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CHAPTER 1

INTRODUCTION

1.1 Introduction to the Research Area

Indigenous communities around the world are losing their languages at accelerating rates to the effects of the climate crisis and global capitalism. To preserve samples of these languages facing endangerment and extinction,¹ samples of language use (e.g., audio, video recordings, photographs, textual transcriptions, translations, and analyses) are recorded and stored in language archives: repositories of language data intended to provide long-term preservation of and access to the language materials (Henke & Berez-Kroeker, 2016). Language archives hold a wealth of knowledge about traditional medicines, critically-endangered wildlife, folklore, migration patterns, and oral histories from Indigenous people worldwide. They were initially created by linguists to support language description, discovery of typologically-rare linguistic phenomena, new understandings of historical language contact, and cross-language comparison. Beyond linguistics, the contents of language archives have applications in disciplines such as anthropology, biology, musicology, agricultural studies, environmental studies, and history.

In recent years, archives of all kinds are considering their origins and audiences. With the emergence of the community paradigm of archiving framework (Cook, 2013), the roles of archivists, communities, and institutions are under re-examination. Lane and Hill (2009) describe a shift from “neutrally representing the record” towards creating resources which address the needs of archives’ users (p. 20). Language archives too are reflecting this trend, as it becomes

¹ As used throughout this work, the term *endangered* encompasses those languages rated as vulnerable, threatened, endangered, severely endangered, and critically endangered on the Language Endangerment Index (LEI). The LEI rates languages based on inter-generational transmission, absolute number of speakers, speaker number trends, and domains of use. See Lee and Van Way (2016) for more information on the LEI, and Belew and Simpson (2018) for a further discussion of the vitality of the world’s languages. Related terms include *low-resourced*; *under-documented*; *un-documented*; *minority/minoritized*.

more common for speakers of Indigenous languages (also known as *language communities*) to document and archive their own languages and histories (Czaykowska-Higgins, 2009). Linguists are the primary contributors to language archives (Burke et al., 2021); but, with the proliferation of digital recording technologies and infrastructure, language communities are documenting their own languages and ways of life, and are starting to be represented in language archives. Though designed primarily for linguists at their inception, language archives now seek to “break traditional boundaries between depositors, users, and archivists” by welcoming language community perspectives (Henke & Berez-Kroeker, 2016, p. 412).

As the landscape of language archiving expands, we now see increased emphasis on the re-use of archival material (Olko & Wicherkeiwicz, 2016; Spence, 2018; Seyfeddinipur et al., 2019; Khait et al., 2022), particularly to support *language revitalization*—efforts to increase and maintain the use of the language.² There are calls for language documentation (and, by extension, language archiving) to become “revitalization-driven practice[s]” (Nathan & Fang, 2013, p. 42).

1.2 Statement of Problem

For many endangered or low-resourced languages, archival material is the only extant record of the language, and the only potential source of authentic resources. However, archival material varies widely depending on factors like the time of creation, the focus of the creator, or the degree of involvement of the language community. Material created and collected for linguistic research contains language samples and information about the language, but may lack

² As used throughout this work, the term *language revitalization* refers to a wide range of activities undertaken to promote a language facing various levels of endangerment. This is discussed further in section 2.3.1 herein. Related terms include *language reclamation*; *language maintenance*; *language shift reversal*. See Olko and Wicherkeiwicz (2016, p. 649-653) for extended discussion of these terms.

the intellectual access needed for language communities to effectively utilize primary language data for language revitalization efforts such as language pedagogy (Spence, 2018). For example, an audio recording of a traditional narrative about a tiger is an authentic resource which could form the basis for a grammar lesson on conjugating verbs in the past tense, or a vocabulary lesson about animals. But, if the audio recording is not accompanied with sufficient descriptive information (e.g., metadata, transcription, translation), educators cannot easily access the recording, let alone develop appropriate classroom activities incorporating such resources into their lessons.

So, while language archives contain invaluable records of languages, re-using archival materials for educational purposes may not be feasible because they are not generally created in a ‘revitalization-driven’ context. Further, the variation in needs and approaches to revitalization make it impossible to develop a one-size-fits-all solution, or definitive checklist of what needs to be archived. Instead, we can look to examples to understand how a revitalization-driven archival collection manifests itself, as language communities create collections addressing the needs for language revitalization activities in their own communities. As we see more collections being designed in response to revitalization needs, we can understand what material is included in collections of this kind, and how creators make those decisions.

1.3 Purpose and Research Questions

This dissertation is a case study of one such collection: the Boro Language Resource³ in the Computational Resource for South Asian Languages (CoRSAL) archive.⁴ The Boro Language Resource was created by Boro community members with expertise in language and

³ <https://digital.library.unt.edu/explore/collections/BLR/>

⁴ <https://digital.library.unt.edu/explore/collections/CORSAL/>

literacy pedagogy who are active in language revitalization efforts including academic, educational, and cultural initiatives.

The goal of this dissertation is to understand how this collection is being designed, and how the material will be used in language revitalization activities. Because this collection exemplifies the view of language documentation and archiving as revitalization-driven practices, a thorough documentation of its creation will inform future community archiving efforts aiming to support language revitalization. This study seeks to address the following research questions:

1. What are the current language revitalization activities happening in the Boro community?
2. What genres of information resources⁵ did the creators choose to include in the Boro Language Resource, and why?
3. How will these information resources be used in language revitalization activities in the Boro community?

In exploring these questions, this dissertation is informed by theoretical frameworks in language documentation and archival science related to how archival materials are created and used. These are the community paradigm of archiving (CPA) and community-based language research (CBLR) frameworks, both detailed in Chapter 2.

1.4 Stakeholders

This section provides brief backgrounds on the two stakeholders in collaboration for this research: members of the Boro language community and the CoRSAL archive.

1.4.1 Boro Language Community

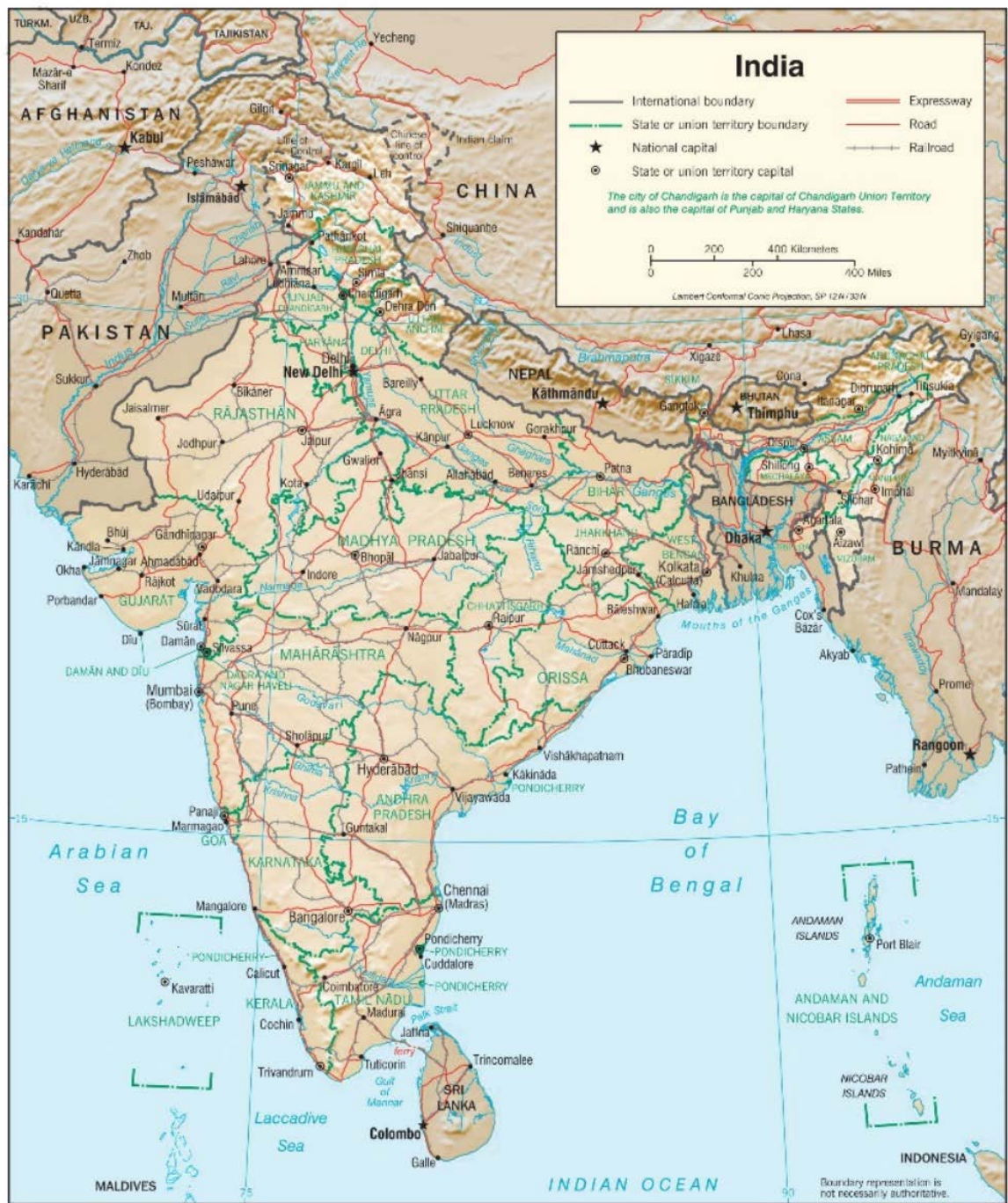
Boro, also known as Bodo,⁶ is a Trans-Himalayan⁷ language spoken primarily in the state of Assam in India and Nepal. (See Figures 1.1 and 1.2 for maps of India and the Northeast region, respectively.) With over 1.5 million speakers, Boro is recognized as one of India's 22 official languages (Ministry of Home Affairs, 2011).⁸ In Assam, Boro is used in administrative, educational, commercial, social, and religious spheres, among other languages. While Boro films, literature, and public radio and television broadcasts can be found in Assam, there are relatively few digital resources available in the language overall (Baruah, 2007; Brahma, 2013).

⁵ As used throughout this work, the term *information resources* refers to audio and video recordings, photographs, and textual material—the terms *information resources*, *archival materials*, and *materials* are used interchangeably.

⁶ For additional variants of the language name, see Ethnologue (Eberhard et al., 2023) and Glottolog (Hammarström et al., 2023), respectively: <https://iso639-3.sil.org/code/brx>; <https://glottolog.org/resource/language/id/Boro1269>.

⁷ Also known as *Sino-Tibetan*. See van Driem (2014) and DeLancey (2021) for further discussion.

⁸ See section 2.2 for further discussion of Indian language policies.



Despite the large number of speakers, Boro faces pressure from the dominant regional languages; it is common for Boro speakers to use Assamese, Bengali, English or Hindi in addition to Boro (Basumatary, 2023).

Literature societies like the Bodo Sahitya Sabha (BSS) and student activist groups—namely, All Boro Students’ Union (ABSU)—have played pivotal roles in spreading awareness of the Boro language and sustaining Boro education. The Natives’ Institute of Bodology (NIB) has recently undertaken various projects to strengthen the academic study of Boro language and culture, including creating digital resources in the Boro language. The collection in focus for this research, The Boro Language Resource (BLR), is being developed by four primary creators: Dr. Prafulla Basumatary, Dr. Bihung Brahma, Dr. Krishna Boro, and Mr. Hirok Jyoti Lahari Boro.⁹ Dr. Krishna Boro graduated from the University of Oregon Department of Linguistics; Drs. Basumatary and Brahma are graduates of the Gauhati University Department of Linguistics,¹⁰ where Mr. Hirok Jyoti Lahari Boro is completing his MA at the time of writing.

1.4.2 CoRSAL

The Computational Resource for South Asian Languages (CoRSAL) is a language archive developed in 2016-2019 through a partnership between University of North Texas (UNT) Linguistics faculty, Dr. Shobhana Chelliah, and the UNT Digital Library, namely, Associate Dean for Digital Libraries, Dr. Mark Phillips. CoRSAL began with two collections created by UNT Linguistics faculty (i.e., Lamkang Language Resource¹¹ and Burushaski

⁹ While many more are involved in collecting and creating language material, these individuals are leading the process of depositing the material in the archive.

¹⁰ <https://www.gauhati.ac.in/academic/arts/linguistics>

¹¹ <https://digital.library.unt.edu/explore/collections/SAALT/>

Language Resource¹²), and now includes over 15 collections of South Asian language material contributed by researchers and language community members. The CoRSAL team (6-8 UNT graduate students and faculty members) developed specialized metadata guidelines based on these two pilot collections and input from those who have archived language data in the past.¹³

CoRSAL prioritizes providing training and support during the archiving process, and the accessibility and re-use of archival material. Because many CoRSAL depositors are based in India, Pakistan, and Myanmar, the archiving process accommodates varying levels of internet connectivity and technical experience. Training and guidelines are intended to be readily interpretable by first-time depositors from any background. Yearly conferences and workshops since 2016 (both in the United States and India) have centered capacity-building and developing frameworks for sustained international collaboration. Through specialized attention to this issue, the CoRSAL team has formed unique connections with universities, local organizations, and language communities throughout India's Northeast region.

The following chapters review related work in this area (Chapter 2), describe the methodology followed for this research (Chapter 3), report the findings of the case study (Chapter 4), and conclude the dissertation (Chapter 5).

¹² <https://digital.library.unt.edu/explore/collections/BURUS/>

¹³ See Burke et al. (2022b) for further discussion of CoRSAL infrastructure development.

CHAPTER 2

RELATED WORK

This chapter provides necessary context for the present research. First, section 2.1 introduces the Boro language community, their history in Assam, and current language-related activities. Section 2.2 reviews Indian language and education policies and highlights their impacts on Boro education. Then, section 2.3 details the history and current trends in language documentation, archiving, and revitalization, synthesizing two theoretical frameworks from linguistics and archival studies. Finally, a brief summary is given in section 2.4.

2.1 Boro Language and People

The Boro people are concentrated in the state of Assam in India, though varieties of Boro are also spoken elsewhere in Northeast India (i.e., Meghalaya, Arunachal Pradesh, West Bengal), and in adjacent countries including Nepal, Bhutan, and Bangladesh. With an estimated 1.5 million speakers (Ministry of Home Affairs, 2011), the Boros are among the largest ethnic groups in Assam. Boro culture is agrarian, with rich traditions of mythologies, dance, music, food, religion, and textiles (Basumatary, 2023).

The Boro language is part of the Trans-Himalayan language family. Alternate names include *Bodo*, *Boro-Mech*,¹⁴ and *Mech(e)*.¹⁵ As a member of the Bodo-Konyak-Jinghpaw subgroup, Boro is closely related to neighboring languages such as Garo, Dimasa, Kokborok, and Tiwa (Burling, 2003). It is recognized as one of 22 official languages of India, and the official language of the Bodoland Territorial Region (BTR) in Assam (also known as *Bodoland*). In Assam, Boro is in frequent contact with languages including Assamese, Bengali, Hindi, and

¹⁴ Refers to the variety spoken in West Bengal, India

¹⁵ Refers to the variety spoken in Nepal

English (Basumatary, 2023). This section overviews the Boro language movement, the Bodoland movement, and current language-related initiatives.

2.1.1 Boro Language Movement

While a comprehensive account of Assam's historical development is beyond the scope of the present work, key points regarding the Boro language movement in Assam are summarized here.¹⁶ Figure 3 shows the state and territory boundaries of India in 1951.

These borders were then redrawn in 1956 in an effort to form states according to linguistic groups, per the States Reorganisation Act (King, 1997). As seen in Figure 3, prior to 1956, the areas now known as Arunachal Pradesh and Nagaland were considered frontier territories and Naga Tribal Areas (indicated as *N.F.* and *N.T.*, respectively, in Figure 3). These were incorporated into Assam when the States Reorganisation Act was enacted. The resulting state of Assam in 1956 spanned what is now the entire Northeast region of India, excluding Manipur, Sikkim, and Tripura.

After the borders were redrawn, Baruah (1999) describes that British colonial officials considered Assam “an extension of Bengal” in the late 1950s (p. 38). As such, Bengali was the official language used for civil and educational purposes in Assam. This was due to the predominant cultural influence of Bengali and its established use as a medium of instruction in neighboring areas.¹⁷ The Assamese language movement, however, sought to use Assamese as the official language in Assam, rather than Bengali. Assamese groups like Assam Pradesh Congress Committee and Assam Sahitya Sabha published a statement in 1959 calling to name Assamese as the official language of the state (Chattopadhyay, 1990; Goswami, 1990).

¹⁶ See Baruah (1999) for a detailed history of immigration and conflict in Assam.

¹⁷ Chelliah (2005) describes similar impacts of Bengali influence in Manipur.

The Boro language movement arose in the 1950s and 1960s in response to the Assamese language movement. Spanning what is now five separate states,¹⁸ Assam was home to several linguistic groups during this time, with Bengalis and Assamese being the largest, followed by the Boros and other language communities such as Karbi, Mising, Rabha, Tiwa, and Deori (Baruah, 1999). The Assam Official Language Act, put forth in 1960, named Assamese and English as the official languages of Assam (*Assam Official Language Act*, 1960). In 1961, the Act was amended to include Bengali after extensive protests from Bengali groups in Cachar (Baruah, 1999). Still, the Boro language and many others were not included; violent protests and backlash from the state continued for decades (Barua, 1972; Baruah, 1999).

Grassroots organizations like the All Boro Students Union (ABSU) and the Bodo Sahitya Sabha (BSS) played key roles in the Boro language movement. They advocated for Boro to be recognized as an official language in Assam, so that Boro could be used for administration and education alongside Assamese and Bengali.¹⁹ This proposal was complicated by the choice of script that would be used to write the Boro language. To be recognized as an official language by the Indian government, it is required that languages have a codified script (King, 1997; Ray, 2000; Chelliah, 2018). Because some of the earliest known records of the language were written in Latin, Assamese, and Bengali scripts (Sarmah, 2014), these were the original considerations for the choice of script used to write Boro. However, given the context of the Assamese language movement, Boro advocates did not endorse the Assamese script.

Instead, the adoption of the Latin script was announced at the 1970 annual conference of the BSS. Their 1971 proposal for Boro to be recognized using the Latin script was rejected by

¹⁸ Arunachal Pradesh, Assam, Meghalaya, Mizoram, and Nagaland

¹⁹ Further details of Indian language and education policies are discussed in section 2.2.

the Assamese government, citing that the Latin script was foreign, and thusly, not appropriate (Narzary, 2013; Sarmah, 2014). In 1975, Devanagari was proposed as the official script for Boro. At the 1976 annual conference of the BSS, Devanagari was officially adopted, though not unanimously accepted due to concerns over its suitability for representing the Boro sound system. Finally, Boro (with the Devanagari script) was included as an Associate Official Language of Assam in 1985, and as one of the 22 official languages of India in 2003 (*Assam Official Language (Amendment) Act, 1986; The Constitution of India, Eighth Schedule*).

Since then, grassroots organizations have continued advocating for the Boro language, particularly for its use in schools, and raising awareness of the language throughout Assam. The BSS aims to produce knowledge in and about Boro, including creative writings like poetry and drama, and non-fiction such as histories, literary criticisms, and biographies of influential Boro figures (Ralhan, 2006). These organizations remain key players in the development of the Boro language to this day, working to support Boro education by creating educational material and organizing community members.

2.1.2 Bodoland Movement

Following the Boro language movement, the Bodoland movement sought additional autonomy for the Boro community through a series of peace agreements with state and national governments. As a result of the first peace agreement in 1993, the Bodoland Autonomous Council (BAC) was formed to develop the educational, economic, linguistic, and cultural status of the Boro community. However, because the BAC was not given jurisdiction over any specific area of Assam in the 1993 agreement, their power to implement these developments was limited. In 2003, a second peace agreement established the Bodoland Territorial Council (BTC) and designated their area of operation: the Bodoland Territorial Administrative Division (BTAD)

(*Bodoland Territorial Council (BTC) Accord*, 2003). The BTAD included the Kokrajhar, Chirang, Baksa, and Udalguri districts of Assam, shown in Figure 4.

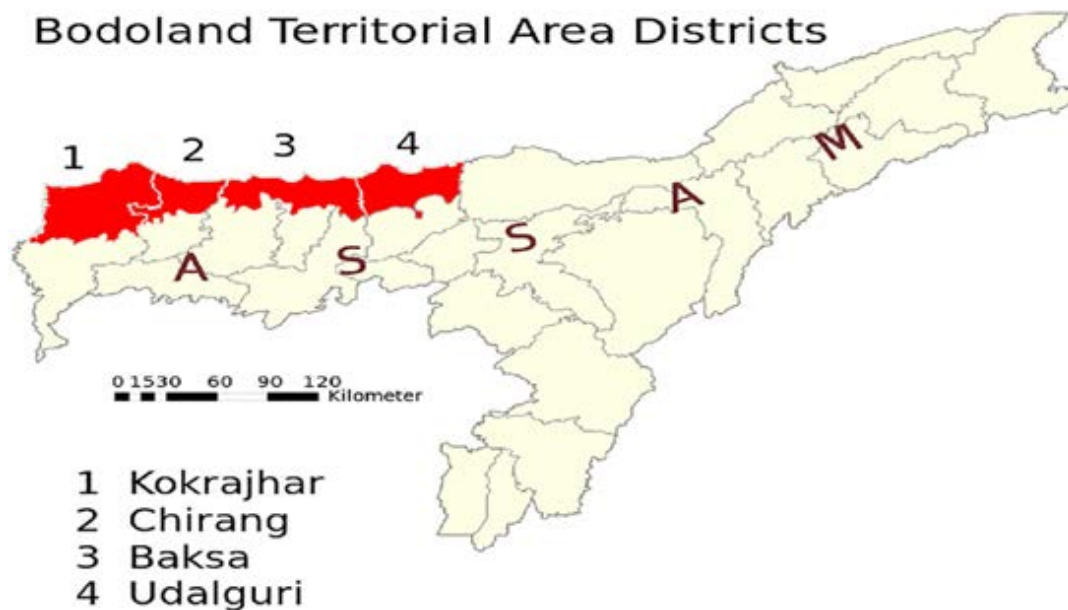


Figure 2.2: Districts included in the Bodoland Territorial Administrative Division (Wikimedia Commons, 2014)

The BTAD was then officially recognized as the Bodoland Territorial Region (BTR) in 2020 after the latest peace agreement between the national and state governments and Boro grassroots organizations including National Democratic Front of Boroland (NDFB), ABSU, and United Boro People’s Organisation (UBPO) (*India Today*, 2020). With this status, the BTC is afforded additional executive and legislative authority over land management practices, civil matters, and education in the BTR (*The Constitution of India*, Sixth Schedule, Article 3B). Most importantly, the 2020 peace agreement granted the BTC jurisdiction over the language of education.

It is necessary to review these historical developments to fully understand the present circumstance of the Boros in Assam. When Assam’s borders were redrawn in 1956, dominant languages (i.e., Assamese, Bengali) were privileged, while Boro and the other languages of

Assam became increasingly marginalized. Throughout the Boro language and Bodoland movements, the Boros sought recognition at the state and national levels to gain access to social, economic, and educational opportunities. These decades of conflict and violence hindered the Boros from promoting their language and culture and developing Boro education. As a result, the Boros are still severely lacking language and educational resources, despite their sustained efforts in these areas.

2.1.3 Current Boro Language Initiatives

Now, the Boros continue to advocate for their language, particularly in the area of education; this section overviews current initiatives to promote the Boro language. The Natives' Institute of Bodology²⁰ (formerly, National Institute of Bodology) (NIB) is a research institute in the Boro community. Their goals include conducting research on Boro language, history, and culture to “help the Boro to identify their own strengths and weaknesses,” and increasing the presence of Boro in scholarly arenas (Natives' Institute of Bodology, 2022). They aim to encourage unity and discussions throughout the Boro community, and to enhance the presence of the Boros on the world stage “to keep pace with the development of time” (Natives' Institute of Bodology, 2022). NIB is conducting research projects and disseminating knowledge in the Boro community through events (seminars, workshops) and by making available existing research in books, journals, magazines, and dissertations and theses, which are unavailable elsewhere.

It is especially significant that NIB's research is designed and produced *for* Boros and *by* Boros; they note that much of the early research on the Boro history, language, and culture was designed by non-Boros and, therefore, lacks essential context. That is not to say that NIB does

²⁰ <https://www.nibodology.org/>

not work with non-Boros; rather, they prioritize the interests of the Boro community in their work. In fact, NIB prioritizes collaboration with other groups as a research and dissemination strategy. Currently, NIB has partnerships with local and foreign universities including UNT, Central Institute of Technology-Kokrajhar, Gauhati University, and Bodoland University.

Among NIB's main research activities is collecting, creating, and making available resources in the Boro language, such as oral histories, accounts of social customs (e.g., weddings, recipes, health practices), and samples of regional variation. This work will add to the existing Boro resources in digital collections in PARADISEC,²¹ CQPweb,²² a corpus hosted by Lancaster University, CoRSAL,²³ and the Bodo Dimasa Heritage Digital Archive.²⁴ These collections include folk songs, traditional and procedural narratives, digitized textual materials (e.g, magazines, pamphlets, books), and photographs of significant cultural artifacts, like instruments and agricultural tools.²⁵ Additionally, NIB plans to digitize various physical materials in Boro to make them more widely available. Beyond collecting resources *in* Boro, NIB is furthering research *on* Boro topics, for example, in history and anthropology, by studying the migration patterns of Boro people over time. Linguistic research activities include compiling a multilingual dictionary, describing regional variation, and developing a linguistic grammar of Boro.

Finally, a major concern throughout the Boro community, and another area of NIB's research is the quality of *Boro medium education*, or education offered in the Boro language.

²¹ https://catalog.paradisec.org.au/collections/BRX1?items_per_page=23&page=1

²² <https://cqpweb.lancs.ac.uk/>

²³ <https://digital.library.unt.edu/explore/collections/BLR/>

²⁴ <http://bododimasaarchive.org/>

²⁵ See Basumatary (2023) for an overview of digital resources on Boro.

Though some Boro medium schools were established as early as the 1960s in Assam, they have received limited support for teacher training and the production of Boro language educational materials. Boro leaders and researchers have identified Boro medium education as fundamental to the continued vitality of the Boro language. The following section provides context on India's language and education policies.

2.2 Indian Language and Education Policies

2.2.1 Indian Language Policy

On the national level, India is highly multilingual, with 22 official languages, and as many as 453²⁶ languages spoken throughout the country. Although India's Northeast region is widely recognized as a hotspot of linguistic and cultural diversity (Post, 2020), only five of the 22 official languages are spoken in the Northeast region.²⁷ Official languages, or those included in the Eighth Schedule of the Constitution of India, may be used “for all or any of the official purposes” including administration, education, official examinations, and national media like television and radio (*The Constitution of India*, Article 345). The national government, however, strongly encourages the use of Hindi for these purposes whenever possible “through persuasion, incentive and goodwill” (Department of Official Language, 2015).

Many language communities, particularly in the Northeast region, seek inclusion in the Eighth Schedule to access government support for the development of their language. To become an official language, representatives of a language community submit a proposal to the Committee of Parliament on Official Language under the Ministry of Home Affairs. Proposals

²⁶ As many scholars have noted, we may never arrive at a discrete number of languages spoken in India due to imprecise nature of existing metrics for distinguishing dialects and languages (Post, 2020; DeLancey, 2021). Figures, based on Ethnologue (Eberhard et al., 2023) as of February 2023, are included only to provide the reader with a frame of reference.

²⁷ Assamese, Boro, Santali, Nepali, Meithei

typically include relevant information such as number of speakers, geographical distribution, domains wherein the language is spoken, and script used to write the language. The process of submitting a proposal for inclusion is an intensive undertaking, as it requires an extensive time commitment, and may involve travel. Further, the requirement for the language to be written in a codified script poses a significant barrier to language communities with traditionally unwritten languages. A proposal may be rejected based on the choice of script, as the Boros' was. Language communities must use an existing Indian script or create a unique script for their language.

When reviewing proposals for additions to the Eighth Schedule, the committee is asked to consider “the just claims and the interests of persons belonging to the non-Hindi speaking areas in regard to the public services” (*The Constitution of India*, Article 344, part 3). At the time of writing,²⁸ 38 language communities have submitted proposals for inclusion in the Eighth Schedule. A 2014 report of the Ministry of Home Affairs states that “no time frame can be fixed for consideration of the demands for inclusion of more languages in Eighth Schedule to the Constitution of India” (Ministry of Home Affairs, 2014, p. 3).

Historically, India's language policies and implementation thereof have emphasized those languages of religious interest (i.e., Hindi, Sanskrit), and have been criticized for their lack of transparency (Abbi, 2004; Mohanty, 2010; Singh, 2022). These national policies directly affect citizens' access to government services—most notably, education—discussed in the next section.

2.2.2 Indian Education Policy

To accommodate the multilingual population, Indian education has traditionally

²⁸ February 2023

employed the three language formula, which prescribes Hindi, English, and a regional language as the medium of instruction in secondary education (Ministry of Home Affairs, 1968a). In states where Hindi is the majority language, the third language would be a “modern Indian language (preferably one of the southern languages)” (Ministry of Home Affairs, 1968b, p. 143). The policy does not explicitly define the permitted modern Indian languages, but instead, lists acceptable third languages by state. For example, according to the 1968 policy, Rajasthan allowed Sanskrit, Urdu, Sindhi, Punjabi, or Gujarati; Uttar Pradesh allowed any of the languages in the Eighth Schedule at that time (Ministry Of Home Affairs, 1968b). In states where Hindi is not the majority language, a regional or state language would be included in addition to Hindi and English (e.g., Kannada in the state of Karnataka).

Many non-Hindi speaking states did not endorse the three language formula. Critics of this policy objected to its lack of provisions for regional languages and ineffective implementation, pushing instead for *mother tongue education*—education offered in the students’ *mother tongue* (i.e., the language used in the students’ homes by caretakers), rather than the majority language of the area (Petrovic & Majumdar, 2010). Globally as well, organizations like UNESCO and the World Bank have advocated for mother tongue education since the 1950s (UNESCO, 1953; 2003; World Bank, 2005). This is because educational research has consistently shown that literacy in one’s mother tongue increases students’ access to education overall (Cummins, 2000; Ball, 2010; Pflapsen, 2011). The Constitution of India acknowledges the calls for mother tongue education, stating that state and local governments are responsible for providing “adequate facilities for instruction in the mother-tongue at the primary stage of education to children belonging to linguistic minority groups” (Article 350A, p. 237).

However, implementing mother tongue education initiatives has proved challenging.

Firstly, teachers and pedagogical materials are not available in every mother tongue spoken in India. Even those languages included in the Eighth Schedule do not have adequate resources to support mother tongue education, as evidenced by the case of the Boros. For many unrecognized languages, there are virtually no existing resources (Mohanty, 2010). The Indian government estimates that as many as 50,000,000 students do not achieve foundational literacy²⁹ in any language by the elementary school level (Ministry of Human Resource Development, 2020, p. 8; 53). Students speaking minoritized languages drop out of schools at higher rates due to a number of factors including language barriers, geographic distance, and mistreatment (Jhingran, 2005; MacKenzie, 2009; Sundar, 2010).

Further, high quality teacher training is not widely available—Das (2020) cites a 2012 study where over 90% of teachers surveyed did not pass the Teacher Eligibility Test (TET). The impact of economic inequality on mother tongue education is seen in the vast disparity of education opportunities available between wealthy and poor areas (Gouda et al., 2013). While high caliber private schools tend towards English medium, government (public) schooling is provided in state or regional languages. Local schools receive limited support from national and state governments, and suffer as a result—especially in the Northeast region (Assumi, 2021).

2.2.2.1 Boro Medium Education in Assam

In Assam, the same issues identified at the national level are present. Case studies report a critical lack of teachers themselves, and resources like school infrastructure, teacher training, and educational materials (Arulmozi & Phani Krishna, 2022; Brahma, 2022; Chetia & Brahma, 2020; Wary, 2015). Wary (2015) cites a 60:1 teacher:student ratio in some areas. Administrative

²⁹ Foundational literacy is defined as “the ability to read and comprehend basic text” in the National Education Policy (Ministry of Human Resource Development, 2020, p. 8).

boards like the Board of Secondary Education Assam (SEBA) and the Assam State Council of Education Research and Training (ASCERT) are intended to address these shortcomings by overseeing textbook creation, setting educational standards, and providing teacher training. However, the extensive needs of Boro education have only been partially met by these measures thus far.

For example, under SEBA, only materials for the Boro subject are created under supervision of the Boro Literary Committee; materials for all other subjects are translated from Assamese into Boro. The quality of translation of these materials varies widely (Kundu, 1994; Wary, 2015). Textbooks translated without consultation of the Boro Literary Committee or area specialists may even leave conceptually complex portions untranslated from the original Assamese. Reference books like encyclopedias or atlases are not translated into Boro (*The Sentinel*, 2018; Wary, 2015). Textbooks are not prepared in time for the school year due to overall lack of coordination between state- and local-level administrations (*Assam Times*, 2017). Boro education advocates are proposing to write new textbooks for all subjects in Boro, rather than translate Assamese material into Boro. Further, they are pushing for increased representation of Boro culture and history in the general curriculum throughout Assam.

ASCERT translates the learning outcomes for each grade set by the National Council of Education Research and Training (NCERT) into Assamese, Bengali, and Boro. First graders are expected to write their name and respond to basic comprehension questions about a story; eighth graders should be able to write a “coherent and meaningful paragraph” and deliver a speech (Government of Assam, 2023). However, researchers note that teachers are not adequately trained to help students achieve these learning outcomes (Brahma, 2022; Wary, 2015). Without usable textbooks and properly trained teachers, Boro medium schools struggle to meet the

prescribed educational standards and prepare students for examinations. Teachers report being enlisted for tasks outside the classroom like census-taking. They are not regularly compensated for their work, with delays in payment of several months (Wary, 2015). Such management practices lead to disruptions in teacher attendance in Assam's government schools, exacerbating the already dramatic lack of teachers statewide.

Engagement of students' families is also noted as a major contributing factor to educational difficulties in Assam (*The Sentinel*, 2018). Often, students do not receive support for their education outside of school, as families may lack sufficient awareness or time.

Unemployment rates reflect the history of discrimination against Boros which has demotivated families from prioritizing education in some cases. Students may be encouraged to leave school to contribute financially to the family's livelihood (Wary, 2015). While recent efforts and policy developments are encouraging, Boro medium schools in Assam remain in need of additional attention.

2.2.2.2 National Education Policy as of 2020

In 2020, a major revision to the National Education Policy (NEP) was released. The revised policy seeks to address these known issues through a series of educational standards and programs with dedicated funding. Among other goals, the revised NEP resolves to:

- Promote mother tongue education up to Grade 5 (p. 13)
- Hire and train teachers in all languages (p. 8; 13; 20)
- Create and distribute centralized pedagogical resources (p. 9; 14; 59)
- Preserve Indian languages and culture (p. 55-56) (Ministry of Human Resource Development, 2020)

Though the revised policy still prescribes the three language formula, it does not require that Hindi be one of the three languages. Rather, it holds that the languages should be international,

national, and regional; for example, English (international), Hindi (national), and Boro (regional).

As the NEP was revised only in 2020, the impact it will have on mother tongue education remains to be seen, as schools gradually return to in-person learning in the wake of the COVID-19 pandemic. It is unclear whether, or the extent to which, these initiatives will extend to those languages not included in the Eighth Schedule. Educators are concerned with how the policy will be implemented in the Northeast region, which has historically been excluded from national education initiatives (Haokip, 2015; Paul, 2021). Moitra and Ghosh (2021) question “how quality [education] might be achieved without equity or access” in the Northeast region (p. 98). Bradley (2022) too highlights the need for clear policies for the implementation of mother tongue education promised by the revised NEP.

Developing mother tongue education in the Northeast region will require both teacher training programs and the creation of education material. Because local teachers may lack fluency, literacy, or confidence in their mother tongue, they are likely to rely heavily on the material used in the classroom (Bradley, 2022). As such, educational material must be designed with teachers from a variety of backgrounds in mind. The next section introduces one mechanism by which educational material is created for under-resourced languages: language documentation and archiving.

2.3 Language Documentation, Archiving, and Revitalization

Thus far, this chapter has reviewed the Boro community’s efforts to advocate for their language and education, key developments of India’s policies regarding these issues, and current challenges in Boro education. The previous sections have illustrated the crucial role education plays in supporting the vitality of the Boro language. Now, to understand the language-related

goals of the Boro community, this section provides background on *language documentation*, *archiving*, and *revitalization* (each defined below). Two theoretical frameworks are employed to situate the present research within the broader contexts of linguistics and archiving scholarship: community-based language research (CBLR) and the community paradigm of archiving (CPA). This section defines language documentation, archiving, and revitalization, describes these activities in India, chronicles developments in archiving (both language archives and general archives), and summarizes current areas of focus in the language archiving community.

Language documentation is a subfield of linguistics which seeks to preserve linguistic diversity by recording samples of language in use (Hale et al., 1992; Himmelmann, 1998). Through the language documentation process, language communities work alongside linguists to record information in and about their languages. For example, they collect audio and video recordings of traditional stories, recipes, customs, and natural speech like informal conversations. These samples are then analyzed to understand the structure of the language.

Language archives are repositories designed to store the output of language documentation projects for long-term preservation. They house primary language data (audio and video recordings, textual material in the language), and derivative material like transcriptions, translations, and linguistic annotations of primary data. Language archives may be hosted by institutions such as universities, or cultural heritage centers like museums and libraries. Archival materials are meant to be a lasting record of the language, and a starting point for further linguistic analysis, or other applications like the creation of pedagogical materials.

Language revitalization is the process of reversing language shift, or language endangerment—i.e., promoting the use of the language in multiple domains (home, school, online) (Hinton, Huss, & Roche, 2018). The approaches used to revitalize a language are

determined by multiple factors such as resources available, and the number, age, geographical dispersion, and fluency of language community members (Dwyer, 2010; Hinton, 2011; Olko & Wicherkiewicz, 2016; Pine & Turin, 2017). While the specific activities involved will vary between language communities, language revitalization efforts share the common goal of transmitting knowledge of the target language and culture to future generations.

2.3.1 Language Documentation and Archiving in India

Language documentation, archiving, and revitalization take on varying manifestations in different parts of the world. This section describes these activities in India and considerations for language-related efforts specific to the Northeast region. Nationally-funded organizations like the Central Institute of Indian Languages (CIIL)³⁰ support the documentation of Indian languages and promote awareness of language issues via events like training workshops and lectures. Materials like books, audio cassettes, and CDs can be purchased from their website. The Sahitya Akademi³¹ publishes literature in India's 22 official languages, in addition to English and Rajasthani. Similarly, the Indira Gandhi National Centre for Arts (IGNCA)³² curates manuscripts and other language materials. In the academic context, Centres for Endangered Languages were established by the University Grants Commission at several Central Indian universities in the 2010s (Ministry of Culture, 2021); however, these Centres have not received consistent funding over time.

Non-government organizations (NGOs) also engage in language work. These organizations include, for example, the Society for Endangered Languages³³ based in India, SIL

³⁰ <https://ciil.org/>

³¹ <https://www.sahitya-akademi.gov.in/>

³² <https://ignca.gov.in/>

³³ <https://selindia.org/>

International³⁴ based in the United States, and the Centre for Cultural-Linguistic Diversity Eastern Himalaya³⁵ based in Australia. Additionally, language-related projects are funded by federal agencies in Australia, Europe, and North America such as the United States National Science Foundation,³⁶ the United States National Endowment for the Humanities,³⁷ the Endangered Languages Documentation Programme,³⁸ the Firebird Foundation for Anthropological Research,³⁹ and the Endangered Language Fund,⁴⁰ among others.

Chelliah (2018) details the trajectory of language documentation in India, stressing the need for open-access resources, increased collaboration between language communities, scholars, and government stakeholders, and scientific rigor in future language documentation and description activities. There is need for more extensive work, as hundreds of languages have not yet been included in existing efforts (Chelliah, 2018; Post, 2020). Further, the output of these initiatives is largely inaccessible in the absence of Indian digital infrastructure (Annamalai, 2003; Singh, 2022). Though digital centralized repositories of language resources are mentioned in the updated NEP, initiatives focused on digital material have not yet gained traction at the national level.

At the regional level, Northeast India faces additional challenges. Particularly in remote areas, the lack of consistent infrastructure like electricity and internet connectivity constrains the use of technology in language work. Given the exceptional linguistic diversity of the region,

³⁴ <https://www.sil.org/>

³⁵ <http://ccld-eh.org/tricl/>

³⁶ <https://www.nsf.gov/>

³⁷ <https://www.neh.gov/>

³⁸ <https://www.eldp.net/>

³⁹ <https://firebirdresearchgrants.org/>

⁴⁰ <http://www.endangeredlanguagefund.org/>

discrete languages are difficult to distinguish across religious, ethnic, and political borders (Burling, 2003; Post, 2020). For these reasons, varieties which are not mutually intelligible may be regarded as belonging to the same language; conversely, two varieties with overwhelming similarities may be codified as two separate languages (Haokip, 2011). Addressing variation in the documentation and description process requires cultural sensitivity and extensive collaboration with language community members from a wide range of villages.

Finally, many languages spoken in this region have traditionally been unwritten (Burling, 2003). In this case, language communities must decide whether to invent a unique script or represent their language with an existing script, (e.g., Devanagari, roman script) (Cahill & Rice, 2014). Even after a script has been selected, language communities may struggle to reach consensus on the orthographic conventions used to represent their language in a given script (Hock & Bashir, 2016). These compounding factors result in a lengthy process of establishing a writing system for many language communities in the Northeast region.

2.3.2 Language Archive Development

The previous section overviewed ongoing language-related efforts in India and special considerations for language work in the Northeast region. Moving beyond India, this section summarizes the development of the global digital language archiving community. Then, sections 2.3.3 and 2.3.4 draw parallels between language archives and the broader archiving community using two theoretical frameworks: community-based language research (CBLR) and the community paradigm of archiving (CPA).

In a comprehensive review of language archiving, Henke and Berez-Kroeker (2016) outline four phases of development—the first beginning with analog materials and limited access. The second phase was then marked by the gradual transition to digital formats. During

the late 1990s and early 2000s, the Open Language Archives Community (OLAC)⁴¹ was formed to develop protocols for language archives and facilitate interoperable repositories for the storage of language materials (Bird & Simons, 2003; OLAC, 2006).

Greater emphasis on archiving and wider accessibility of technology enabled the third phase, wherein OLAC and the Digital Endangered Languages and Musics Archives Network (DELAMAN)⁴² worked to publicize the benefits of archiving and to solidify it as an integral part of the language documentation process (Digital Endangered Languages and Musics Archives Network, n.d.). Evidence of this raised awareness was seen in the increased institutional support for language archives (Henke & Berez-Kroeker, 2016), as well as in changes to requirements from funding agencies. For example, in 2011, a data management plan was required for all projects funded by the United States National Science Foundation (United States National Science Foundation, 2018). Though archiving was not explicitly mandated, the data management plan required applicants to state how and whether research products would be managed after the term of funding. Later in 2013, the Documenting Endangered Languages program⁴³ set additional requirements for archiving language materials. The revised solicitation states: “Language documentation is of little value if it cannot be accessed... Backing up data on hard drives, servers, optical media, and cloud based services does not constitute archiving” (United States National Science Foundation, n.d.). Applicants are instructed to include a letter of agreement from the selected archive, factor archiving into their budgets and methodologies, and

⁴¹ <http://www.language-archives.org/>

⁴² <https://www.delaman.org/>

⁴³ This program, now called NSF Dynamic Language Infrastructure - NEH Documenting Endangered Languages (DLI-DEL), is jointly supported by the United States National Science Foundation and the United States National Endowment for the Humanities. See <https://beta.nsf.gov/funding/opportunities/nsf-dynamic-language-infrastructure-neh> for more information.

make materials publicly accessible as appropriate at the end of the project. This requirement caused language archives' holdings to increase significantly by introducing new researchers to the archiving process.

The aim of the fourth and present phase of language archiving is “expanding audiences for archives and breaking traditional boundaries between depositors, users, and archivists” (Henke & Berez-Kroeker, 2016, p. 412). Increasingly now, depositors are disseminating archival materials; for instance, by writing guides to their collections (Sullivant, 2020), sharing them on social media and YouTube (Burke et al., 2021; Burke et al., 2022a), and citing primary language materials in grammatical descriptions (Gawne et al., 2018).

2.3.3 Towards the Community Paradigm of Archives

Having reviewed the development of language archives, we can now examine language archiving in the broader context of archival studies using two theoretical frameworks: community-based language research (CBLR) from linguistics, and the community paradigm of archives (CPA) from archival studies. This section first briefly recounts the evolution from early Western archival studies to the present. Then, the CPA and CBLR frameworks are introduced, and parallels are drawn between the principles of these frameworks and trends in language archiving.

Historically, traditional archival theory has emphasized the importance of retaining the original order of material (known as *respects des fonds*) (Wailly, 1841, as cited in Bartlett, 1992). Early influential works in European archival studies are centered on archivists, instructing them to maintain neutrality when ingesting records by avoiding the *appraisal* of material

altogether (Muller et al., 1898; Jenkinson, 1922).⁴⁴ To accommodate an increase in the volume of archival material, Schellenberg (1956) advocated for a limited appraisal process; however, one that still strived for neutrality of the archivist. These seminal works guided the creation of archival collections through the decades—material was acquired, catalogued, preserved, and made available.

But, since their inception, archives have shifted focus, and the range of their holdings has expanded (Caswell, 2016). This expansion has welcomed questions about whose voices belong in archives, what audiences archives might serve, and whether neutrality is truly possible in the archiving process (Cook & Schwartz, 2002; Trace, 2002; Huvila, 2008; Flinn & Stevens, 2009; Theimer, 2011). Further, the increased availability of technology signaled a turning point for archives, as Cook (2013) notes: “With the Internet, every person can become his or her own publisher, author, photographer, film-maker, music-recording artist, and archivist” (p. 113). Using digital tools, ordinary people can create and disseminate their own materials in ways that were previously impossible (or, prohibitively difficult and expensive). In this way, communities can gain agency through taking an active role in the archiving process.

This theoretical framework, known as the community paradigm of archives (CPA), challenges traditional archival practices and seeks to re-define the roles that archivists, institutions, and communities play in the archiving process (Cook, 2013; Caswell, 2014; Bastian & Alexander, 2009). Caswell (2014, p. 31) defines five key principles of the CPA framework:

- Broad participation in all or most aspects of archival collecting from appraisal to description to outreach

⁴⁴ In this context, *appraisal* refers to “the process of identifying materials offered to an archive that have sufficient value to be accessioned” (Society of American Archivists, 2022).

- Shared ongoing stewardship of cultural heritage between the archival organization and the larger community it represents
- Multiplicity of voices and formats, including those not traditionally found in mainstream archives such as ephemera and artifacts
- Positioning archival collecting as a form of activism
- Ongoing reflexivity about the shifting nature of community and identity

As Henke and Berez-Kroeker (2016) do for language archives, Cook (2013) chronicles the shifts in past eras of archiving. In this current phase, the archivist is one of many stakeholders involved, alongside those communities whose histories and memories are being archived. The CPA framework seeks to include wider ranges of people, ideas, and materials in the archiving process, while prioritizing communities' agency. The following sections draw parallels between the shifts described in the CPA framework and three emergent trends in language archiving: collaboration, expanded audiences, and activism.

2.3.3.1 Collaborative Workflows

The CPA framework values strong relationships between archives and communities. Similarly, recent work in language documentation is beginning to recognize the importance of involving language communities at every level of research (Yamada, 2007; Czaykowska-Higgins, 2009). The community-based language research (CBLR) framework asserts that “knowledge can and should be constructed for, with, and by community members, and that it is therefore not merely (or primarily) for or by linguists” (Czaykowska-Higgins, 2009, p. 17).

Participatory models are presented in opposition to traditional practices in language documentation, criticized both for their exploitation of language communities and for the lack of context in the resulting outputs. Davis (2017) refers to these practices as “linguistic extraction,” whereby information about languages is “extracted from the personal lives, communicative

practices, and embodied experiences in which they are inherently embedded” (p. 39-40). In the CBLR framework, the needs and interests of language communities should determine the trajectory of language documentation projects. Similarly, Evans (2007) advocates for archives to collaborate with communities, working towards “a view of archives as a common and public good rather than as the protected property of an institution” (p. 394). As participatory models become more popular, language documentation projects give more priority to creating (and archiving) products desired by language communities. This may include, for example, systems for writing the language, dictionaries, mobile applications, and pedagogical materials.

2.3.3.2 Expanded Archives and Audiences

This section discusses the expansion of audiences for archival material, and the roles of archives and language communities. Just like the archives mentioned in the CPA framework, language archives are re-defining the archiving process and the roles that stakeholders play. While a language archive may have traditionally been viewed as a final resting place for language material, language documenters are increasingly encouraged to consider how the materials they archive could be accessed and re-used by a range of audiences in the future. Woodbury (2014), for example, urges language documenters to create “documentations that people can read, use, understand and admire: documentations that genuinely address their audiences” (p. 20).

Another principle of the CPA framework reflected in the language archiving community is the changing role of the archive. In the CPA framework, the emphasis placed on preserving archival material in the past is directed instead to including more voices in the archiving process. The archivist is not seen as the sole expert or authority, but becomes an “apprentice,” learning how communities conceive of archiving or representing their community memory (Galloway,

2009, p. 81). Rather than archives defining the parameters of the archival process (e.g., what the final product should look like, how value is determined, who creates and controls records), proponents of the CPA framework would adapt their practices to accommodate the relevant communities (Greene, 2002; Yeo, 2009). As more focus is placed on audiences, archives are regarded as living, rather than static, repositories—Ishizuka and Zimmerman (2009) envision “a retrieval machine defined by its revision, expansion, addition, and change” (p. 27).

Changes can also be seen in the roles linguists and language communities play in language documentation and archiving. In early language documentation, outside researchers designed the documentation agenda according to their research interests, while language community members’ had limited agency to decide what was documented and/or archived. In a participatory framework like CBLR, documentation projects would seek to identify language community goals and then prioritize the research outputs most directly relevant to those goals.

At the same time, the definition of archives is expanding beyond those hosted by cultural heritage or academic institutions (Greene, 2002). Communities may be deterred from working with archives affiliated with governments, universities, or other organizations for a variety of reasons, ranging from financial barriers to religious beliefs to a history of erasure or discrimination within such institutions (Flinn & Stevens, 2009). Instead, some language communities are developing and maintaining independent repositories for their materials. These include physical, local libraries, and websites or blogs maintained by community members using content management systems, such as Mukurtu (Christen, Merrill & Wynne, 2017).

Because such resources are often developed with minimal or no access to institutional support, concerns about the long-term preservation of the material on these platforms have been raised (Ferriera et al., 2021). One response to these concerns is a practice called *distributed*

linguistic archiving, wherein the content in community-created language resources (local libraries and websites) is mirrored in a trusted repository for long-term preservation (Barwick, 2004). See, for example, Berez et al. (2012), which describes the partnership between the C'ek'aedi Hwnax Ahtna Regional Linguistic and Ethnographic Archive and the Alaska Native Language Archive. Narayanan and Takhellambam (2021) discuss similar experiences at the Sikkim-Darjeeling Himalayas Endangered Language Archive (SiDHELA),⁴⁵ noting that local access to material may ease language community concerns about ownership. This practice of providing long-term storage for community-maintained archival material is one way that language archives can act as facilitators for language communities' goals.

2.3.3.3 Archiving as Activism

Finally, the CPA framework holds that creating an archive is a form of activism. A community creating and sharing their own resources is a way to set the record straight by combating inaccurate and/or pejorative historical narratives (Flinn & Stevens, 2009). In language documentation, this idea is reflected in recent calls for language documentation and archiving to become “revitalization-driven practice[s]” (Nathan & Fang, 2013, p. 42). These disciplines are becoming more connected with broader social issues impacting language endangerment, beyond the field of linguistics, or academia as a whole.

Florey, Penfield and Tucker (2009) define a *language activist* as “a person who focuses energetic action towards preserving and promoting linguistic diversity and supporting language rights” (p. 4). This includes language community members and non-community activists from a variety of backgrounds, including linguistics. In the Indian context, Singh (2022) uses the term

⁴⁵ <http://14.139.206.50:8080/jspui/handle/1/6541>

language manager to describe a language community member who advocates for their language in terms of policy and recognition. Language activism encompasses a range of activities beyond language documentation and archiving; for example, the Language Activism course at the 2022 CoLang⁴⁶ Institute covered, among other topics:

- Methods for raising awareness of Indigenous language issues amongst the wider public, utilizing media, social networks, and lobbying
- Creating new venues for public use of language, especially as a way to build grassroots support for language programs
- Ways of reaching out to youth and children to engage them in language advocacy and language learning
- How activism can work in settings which require government, community or institutional approval, recognition and or support for activities (colang 2022 Workshops, n.d.)

While the CPA framework centers the creation and development of archives as a form of activism, in linguistics, language documentation and archiving are included as one of many activities language communities engage in to promote their language, alongside raising awareness of language endangerment, and involving youths in language-related activities. This section has drawn parallels between the principles of the CPA framework and developments in language documentation and archiving. Next, recent trends in language archiving and revitalization are reviewed.

2.3.4 Current Language Archiving Focuses

In response to the call for revitalization-driven language documentation, current research is exploring how to more directly connect archival materials to their potential applications in

⁴⁶ The Institute on Collaborative Language Research (CoLang) offers training in language documentation with courses taught by a teaching team comprised of a language community member and a linguist with relevant expertise.

language revitalization (Nathan & Fang, 2013, p. 42). Three areas of focus—accessibility, collaboration, and pedagogy—are discussed in the following sections.

2.3.4.1 Accessibility

Accessibility of primary language data is beginning to be recognized by the linguistics community as crucial for research reproducibility, production of pedagogical materials, and typological discovery (Henke & Berez-Kroeker, 2016; Berez-Kroeker et al., 2018; Gawne et al., 2018). As a result of this increased emphasis on language community audiences and re-use of archival material, the accessibility of language archives has become a concern in recent research. Though digital accessibility of language data has improved since the early 2000s, there are still significant barriers which leave language archives under-utilized (Austin, 2011; Thieberger, 2014; Woodbury, 2014). Ongoing research aims to understand how language archives can be maximally useful for various user groups, such as language communities and researchers in other disciplines in addition to linguists. Issues identified thus far include inadequate metadata to facilitate discovery and provide cultural context, complex user interfaces, and the lack of a bulk download option for archival material (Harris et al., 2019; Wasson et al., 2016; Burke & Zavalina, 2020; Burke et al., 2021; Burke et al., 2022a; Yi et al., 2022).

Researchers are exploring needs of language archive users generally; though, as of yet, there have been no large-scale studies on language community users of language archives. Carrying out research on this topic presents unique difficulties. One language archive manager interviewed by Burke et al. (2021; 2022a) described the challenges of reaching out to remote language communities about digital resources:

We did a survey a year ago inviting [Indigenous] people to share their thoughts, but it was about 90% non-Indigenous people who responded. *It's harder to access Indigenous people and communities, who are our ideal audience...and find out why they are or aren't using it....* My feeling is that people in [region] communities where the languages

are spoken aren't necessarily using the materials, but it's very hard to identify something that's not happening. I feel like that's going on, but *how do you track that down? Are they not accessing it because they don't know about it? They don't know how to use it? They don't see the value in it?* (arch_1). (Burke et al., 2022a, p. 10 [emphasis added])

As this language archive manager's experience demonstrates, user studies conducted on digital platforms may fall short in reaching language community audiences. Khait et al. (2022) report preliminary results of an online survey about language community experiences with accessing digital material. The survey was completed by nine respondents from language communities in Africa, South America, Europe, and Asia, who indicated that they access language materials primarily on mobile devices and via social media platforms rather than the archival interface itself. While preferences and access to digital resources will certainly vary between language communities, this initial study reflects the challenges identified in previous research (Wasson et al., 2016; Burke et al., 2021; 2022a).

In the absence of formal user studies, Seyfiddinipur et al. (2019) recommend that language documenters discuss these barriers to access with language community collaborators in the early stages of documentation projects. These discussions are intended to aid in project planning and to ensure that the resulting material will be made available to language community members at the end of the project. In cases where access to digital resources is not feasible, this may mean creating printed copies of textual material, storing audio and video on CDs or DVDs, or backing up digital files on hard drives kept in a local library. This may also involve mirroring or sharing archival material on platforms that are more easily accessible to language communities based on their area. For example, some researchers share material on popular social media sites widely used by their language community collaborators (e.g., YouTube, Facebook) (Burke et al., 2021), or even set up local wifi transmitters (Thieberger, 2018; Thieberger & Harris, 2021).

2.3.4.2 Collaboration

As language documentation and archiving move toward participatory models, language communities are becoming more involved in the creation and maintenance of archival collections. For example, some language archives are eliciting the expertise of language community members to enrich existing metadata. Harris et al. (2019) describe a recent example from PARADISEC wherein a language community representative, Steven Gagau, identified gaps and errors in the metadata of multiple collections of Papua New Guinean languages. He added contextual information to fill those gaps and increase intellectual access to legacy recordings. In a similar project at CoRSAL, language community representatives added information about people, places, and events to photographs in the Lamkang and Burushaski collections (Burke, 2021).

Here, we see the beginnings of language archives adapting to accommodate language communities with the collaborative workflows and focus on accessibility discussed in the previous sections. However, with language archives lacking institutional support across the board (Burke et al., 2021), it is not a realistic expectation for archival staff to provide a unique, tailored archiving approach for each collection. In addition to increased collaboration between linguists, archives, and language communities, the language archiving community has become interdisciplinary, incorporating best practices from other academic areas, such as information science and digital humanities (Mamtora & Bow, 2017; Hu et al., 2018; Hildebrandt et al., 2019; Kung et al., 2020).

2.3.4.3 Pedagogy

The final area of focus is making archival material usable for language pedagogy, as developing educational material is a primary goal for many language communities (Hinton &

Hale, 2001; Hinton, 2011; Nathan & Fang, 2013). In one extraordinary case, a linguist, Daryl Baldwin, was able to learn his ancestral language, Myaamia,⁴⁷ which had not been spoken for generations, solely from archival material. He taught his children, developed a digital archive using language material dating back to the 1700s,⁴⁸ and began a language and cultural revitalization program at Miami University (Baldwin, Costa & Troy, 2016). This program conducts research on preserving language and culture, and provides learners exposure to Myaamia. The program has since expanded to the Myaamia Center,⁴⁹ which holds yearly conferences and supports research on language revitalization.

Successful models like this have spurred further interest in incorporating archival material into pedagogical applications. Spence (2018) reviews the practical challenges faced in these endeavors:

- Processing work is required
- Each collection is arranged differently
- Materials vary in quality, origin, and format
- Accompanying metadata often lacks cultural context

Spence writes “it is not feasible to simply hand raw, unprocessed language documentation to new learners and expect them to do the rest on their own,” but, rather, posits that linguists should first “transform the materials into something that is useful for people who are just getting started in the language” (2018, p. 184). Indeed, no direct route has been established between accessing an item in a language archive and incorporating that item into a lesson plan or curriculum.

In the United States, the National Breath of Life Archival Institute for Indigenous

⁴⁷ <https://iso639-3.sil.org/code/mia>

⁴⁸ <https://mc.miamioh.edu/ilda-myaamia/>

⁴⁹ <https://miamioh.edu/myaamia-center/>

Languages⁵⁰ is a program designed to facilitate the type of transformation discussed in Spence (2018) (Fitzgerald & Linn, 2013; National Breath of Life Archival Institute for Indigenous Languages, 2022). To help language communities approach the daunting task of interpreting legacy archival material, participants are paired with researchers with relevant expertise. Together, they engage with items from national archives such as the Smithsonian and the Library of Congress with the goals of creating digital resources from the archival material and developing language revitalization programs around them.

2.4 Summary

To establish the context for the present research, this chapter has provided historical background on the Boro language community (section 2.1) and overviewed the current status of language and education initiatives in India at the national level and in Assam, noting specific challenges for language and education work in Northeast India (section 2.2). Key developments in language documentation, archiving, and revitalization were reviewed in section 2.3, highlighting the emphases on collaboration and data accessibility and re-use in recent research.

Two theoretical frameworks were introduced to contextualize this case study within the disciplines of linguistics and archival studies: community-based language research (CBLR) and the community paradigm of archiving (CPA). To understand how these frameworks relate to each other, consider the following four potential workflows for language documentation and archiving:

1. Linguists create and archive language material with minimal involvement of language community.
2. Linguists create and archive language material in consultation with language community.

⁵⁰ <https://mc.miamioh.edu/nbol/>

3. Linguists and language community co-create documentation material, according to language community's goals and priorities.
4. Language community creates and archives documentation material, according to their goals and priorities, with support of linguists and archivists.

The first scenario represents the extractive methods described by Davis (2017) where the outside researcher primarily controls research and archiving. The CBLR framework encourages researchers to work toward the second and third workflows by incorporating language communities' needs into the research design. The CPA framework posits the fourth workflow wherein the creation and archiving of materials is solely directed by the language community. Here, outside linguists' and archivists' roles are to support language communities throughout the process, for example, by providing technical support and infrastructure, while the language community dictates the research and archiving agendas.

CHAPTER 3

METHODOLOGY

3.1 Overall Research Design

This chapter outlines the research design and methods used to carry out the case study. The goal of this dissertation is to explore how language communities can support their language revitalization goals through the archiving process, as illustrated by the example of Boro community. The research questions are as follows:

1. What are the current language revitalization activities happening in the Boro community?
2. What genres of information resources did the creators choose to include in the Boro Language Resource, and why?
3. How will these information resources be used in language revitalization activities in the Boro community?

The case study approach was employed to get an in-depth look at a single collection in a language archive. While the findings of case studies are not expected to be universally generalizable, they do provide insights into phenomena that are novel or in development (Choemprayong & Wildemuth, 2017). Because it is community-driven, the creation of the Boro Language Resource (BLR) represents an emerging phenomenon worthy of further study. This case study offers a close look into the process of creating the collection, allowing future language documenters to learn from the decision-making processes and experiences of the creators.

To understand how the BLR was designed and how the information resources therein will be used, this case study included two components:

1. Pilot study: a review of existing materials and a preliminary series of semi-structured interviews and focus groups with relevant stakeholders
2. Main study: a series of semi-structured interviews and focus groups with relevant stakeholders

Both components are described in the following sections. The purpose of the pilot study was to survey the current language revitalization efforts in the Boro community and the contents of the BLR. The review of existing materials informed the development of the semi-structured interview and focus group guide (henceforth referred to as *interview guide*) used in the main study. The interview guide was then tested during the pilot study with preliminary interviews and focus groups. The main study included a series of semi-structured interviews and focus groups with relevant stakeholders identified during the pilot study.

3.2 Pilot Study

The pilot study included a review of existing materials to develop the interview guide, and preliminary interviews and focus groups to further refine the interview guide as the data collection instrument used in the main study. The data collection and analysis methods used in the pilot study are described in the following sections.

3.2.1 Review of Existing Materials

The first set of materials reviewed was the content of the BLR itself (154 items total). The second set of materials was the metadata spreadsheet completed by the creators of the collection. In addition to the necessary metadata for each item (e.g., Title, Description, Date, etc.), the metadata spreadsheet included a column wherein the creators described their reasoning for adding each item to the BLR, here called *inclusion criteria*. The findings of this review informed the data collection instrument used in the main study: the interview guide.

3.2.1.1 Data Collection

Reviewing existing materials offers the benefit of an unobtrusive data collection method (Wildemuth, 2017). When employing this method of data collection, it is crucial to demonstrate

the connection between these existing materials and the phenomenon of interest (Neuman, 2006). This case study explored the creation of the BLR and its application in language revitalization. This section details the relevance of both sets of material to the research questions, as well as the data collection methods used for each set.

The BLR includes 154 items (134 audio recordings and 20 textual items) publicly available at <https://digital.library.unt.edu/explore/collections/BLR/>.

The genres of the items in the BLR were reviewed to address the second research question: What genres of information resources did the creators choose to include in the Boro Language Resource, and why?

The metadata spreadsheet included a column for *inclusion criteria* wherein the creators described their reasoning for adding each item to the BLR. This information was provided during the metadata creation process, in addition to necessary metadata for each item (e.g., Title, Description, Creation, etc.).⁵¹ The inclusion criteria were reviewed to address the second part of the second research question: What genres of information resources did the creators choose to include in the Boro Language Resource, *and why?* Here, the creators provided direct reflections on why they chose to archive a particular item, its cultural or historical significance, and possible applications of the item.

3.2.1.2 Data Analysis

The two sets of material were analyzed using conventional qualitative content analysis. This method involved examining the items and creating categories inductively based on their content (Hseih & Shannon, 2005; Zhang & Wildemuth, 2017). Because the two sets of material

⁵¹ This review was limited only to the inclusion criteria column, and did not include the metadata provided by the depositors.

vary in format and extent, the approach to data analysis was tailored to each set, described in the following sections.

3.2.1.2.1 BLR Contents

The purpose of this analysis was to describe the material comprising the collection. A spreadsheet was created which compiled the following information for each item:

- Item title
- Content description
- Item type (audio, text)
- Identifier

This information is public on the CoRSAL archive. To understand what types of material were included in the collection, each item was coded for genre categories. A set of genre categories was developed based on the items and corresponding metadata (specifically, Title and Content description) provided by the creators.

Because the metadata for this collection was created according to the CoRSAL metadata creation guidelines, Titles were expected to overlap with the suggested title templates provided in the CoRSAL guidelines, for example: “**Performance of:** use this for someone singing, dancing, reciting a poem; **Performance of** the ritual blessing song” (CoRSAL, n.d., [emphasis in the original]). The CoRSAL metadata creation guidelines were developed based on items across multiple collections in CoRSAL; the suggested templates do not correspond to any published standards. The set of genre categories for this review was developed based only on the items in the BLR, rather than the suggested templates in the CoRSAL metadata creation guidelines.

For each item, the Title and Content description were used to identify a genre category the item could belong to. For example, an item titled ‘Description of how the Onla curry is

prepared’⁵² would indicate *description* as a potential genre category; ‘Personal narrative on family and early education,’⁵³ *personal narrative*. Content descriptions were consulted for items without English titles. This process was followed for all 154 items to form a set of potential genre categories. Near-synonym terms from that set (e.g., *narrative* and *narration*) were then combined.

A total of twelve genre categories were identified: *traditional narrative*, *personal narrative*, *socio-historical narrative*, *conversation*, *discussion*, *poetry*, *formal speech*, *description*, *performance*, *translation*, *magazine excerpt*, and *elicitation*. Each genre category was given an operational definition; for example, the *poem* category has the definition “creative text including verses and/or figurative language.” This definition was created based on the items coded for the *poem* category. Operational definitions for each genre category are included in Appendix C.

Each item was coded for genre categories using the binary coding approach, wherein an item was assigned a ‘1’ if it was coded for that genre category, and a ‘0’ if not. Items were coded for as many genre categories as were applicable. This accounted for items with multiple components; for example, an audio recording containing a performance of a song followed by a conversation between the performers.

Though the genre categories were developed based on the items’ Titles and Content descriptions, items were considered holistically during the analysis. A Title may contain a term like ‘discuss’ without being coded for the *discussion* genre category. See, for example, the item ‘Mwnsrang Swargiary discusses the process of harvesting.’⁵⁴ This item was coded for the

⁵² <https://digital.library.unt.edu/ark:/67531/metadc1752458/>

⁵³ <https://digital.library.unt.edu/ark:/67531/metadc1752457/>

⁵⁴ <https://digital.library.unt.edu/ark:/67531/metadc1727545/>

description genre category because it meets the criteria in the operational definition:

“explanation of an ethnographic topic (e.g., cooking, social customs).” This item was not coded in the *discussion* genre category because it does not meet the criteria in the operational definition: “dialogue between three or more individuals.”

3.2.1.2.2 Inclusion Criteria

A separate spreadsheet was used to analyze the inclusion criteria provided by creators, which compiled the following information for each item:

- Item title
- Item type (audio, text)
- Identifier
- Inclusion criteria

Inclusion criteria were given for each item. Additional information may also be included, such as a brief description of the item and/or details of the context where the item was collected.

The following is an example of the inclusion criteria provided for an audio recording:

This recording is a good example of the use of natural formal speech. It describes the prevailing social situation of the Boros, what people need to do for social transformation. The speaker is a respected social worker of the locality who expresses his gratitude to the outgoing headmaster and welcomes the new teacher. This will be useful as part of a pedagogical packet geared towards adult moderate to advanced Boro language learners in order to learn politeness features, expression of gratitude and advice to the juniors.
[emphasis added]

The above example indicates that the item was included because the speaker is significant in the community, it describes current events, and it is an example of natural, formal speech, which may benefit learners.

A total of seven inclusion criteria categories were identified: rarity, tradition, regional variation, pedagogy and teacher training, language learning, historical and cultural significance,

and linguistics research. These categories were identified based on common themes seen in the inclusion criteria, such as the language learning and historical and cultural significance demonstrated in the above example. Each inclusion criteria category included an operational definition; for example, regional variation has the definition “content included because it documents aspects of Boro language and culture which vary by region.” Operational definitions for each inclusion criteria category are included in Appendix D.

Inclusion criteria were coded for as many categories as were applicable. This accounted for inclusion criteria which reference multiple reasons for including the item. Inclusion criteria were coded using the binary coding approach, wherein inclusion criteria were assigned a ‘1’ if it was coded for that category, and a ‘0’ if not. The review of existing materials informed the development of the primary data collection instrument: the interview guide. Additionally, this analysis highlighted teachers and language learners as relevant stakeholder groups.

3.2.2 Preliminary Interviews and Focus Groups

The interview guide was initially developed based on the findings of the review of existing materials and the research questions of the study. Preliminary semi-structured interviews and focus groups with the creators of the collection and Boro community stakeholders were conducted to further develop and refine the interview guide. The interview guide includes separate sections for the creators of the BLR and other participants. For the creators, interview questions address their decision-making process for developing the collection, and how they intended for the items to be used in future language-related activities. For other participants, questions address their engagement with language-related activities and archival material. Additionally, the interview guide includes definitions and examples of terms used in interview

questions which may be unfamiliar to some participants, such as *language revitalization* and *archival collection*.

Semi-structured interviews and focus groups offer the benefits of allowing participants to express themselves freely, and allowing interviewers to ask follow-up questions to clarify responses and obtain additional information (Dörnyei, 2007; Alshenqeeti, 2014). See Appendices A and B for interview guides in English and Boro, respectively. Preliminary interviews were conducted during a research trip to Assam for CoRSAL-related activities in March-April 2022 supported by the UNT Libraries. The following sections describe the data collection and analysis methods used for preliminary interviews.

3.2.2.1 Participants and Recruitment

The creators of the BLR were instrumental in recruiting interview participants via professional contacts gained through language and research activities. Participants were recruited from Boro medium schools in Assam, universities including Gauhati University and the Central Institute of Technology-Kokrajhar (CIT-K), and local organizations including NIB and the All Boro Students Union (ABSU). Participants of all backgrounds and genders were permitted; all participants were over 18 years old.

3.2.2.2 Data Collection Protocols

Preliminary interviews and focus groups in the pilot study included four focus groups and five individual interviews conducted during March-April 2022. Participants were informed of the study protocols and given information about participation (e.g., time commitment, purpose of study, future uses of interview and focus group recordings) via the UNT Institutional Review

Board (IRB) informed consent form.⁵⁵ Participants were given options for whether they preferred to remain anonymous or have their names included, and whether they consented to audio and/or video recording. Finally, they were informed that interview and focus group recordings may be archived, and they could choose whether the recordings be made public or not.

Participants were given the choice to speak in Boro or English. For those speaking in Boro, collaborators Dhanjita Swargiary, Prafulla Basumatary, and Bihung Brahma interpreted participants' responses and asked questions in Boro. English interviews and focus groups were conducted by the researcher.

Interviews and focus groups were recorded using a mobile phone via the Voice Recorder Android app. A Zoom Q4n Handy Video Recorder was used for video recordings. Audio and video recordings were then stored on personal devices, hard drives, and cloud storage. Files were named according to the following naming convention: 'YYYYMMDD_0n,' where 'n' represents the sequence of recordings on a given date. For example, a file named '20220323_02' would be the second recording taken on the date 23 March 2022. All recordings were then transcribed and, if necessary, translated into English. Transcription of English recordings was done by the researcher; transcription and translation of Boro recordings was done by Dhanjita Swargiary.

3.2.2.3 Data Analysis

The data collected from preliminary interviews and focus groups was analyzed using qualitative content analysis. Following the March-April 2022 research trip, all transcripts were stored as Microsoft Word documents. Interview and focus group transcripts were then coded

⁵⁵ Copies of the informed consent form and letter of approval from the UNT Institutional Review Board are included in Appendices E and F, respectively.

using the Dedoose qualitative analysis software⁵⁶ following the iterative pattern coding approach wherein common themes were identified through repeated reading of the transcripts (Miles & Huberman, 1994; Hsieh & Shannon, 2005). Topics which arose in the preliminary interviews included future plans for language-related activities, motivations for archiving and creating digital resources, regional variation, and mother tongue education.

Conducting preliminary interviews afforded the opportunity to validate and refine the data collection instrument to be used in the main study: the interview guide. Additionally, preliminary interviews and focus groups informed the data collection protocols followed for the main study. For example, preliminary interviews and focus groups brought to light the advantage of including focus groups in addition to individual interviews to minimize the effect of the interviewer's presence. Focus groups were employed to gain multiple perspectives on a topic; participants were able to build on each other's ideas in a more casual environment than would be possible in a one-on-one interview. Further, preliminary interviews and focus groups provided crucial context regarding education in Assam and the role of local organizations in the Boro community.

3.3 Main Study

The main study included additional semi-structured interviews and focus groups with the creators of the collection and Boro community stakeholders. These were conducted during a research trip in August 2022 sponsored by the Graduate Research Experiences Abroad Travel (GREAT) Grant administered by University of North Texas International Affairs.

⁵⁶ <https://www.dedoose.com/>

3.3.1 Data Collection Protocols

Participant recruitment and data collection for the main study followed the protocols described in section 3.2.3 for preliminary interviews and focus groups conducted in the pilot study. Though the same interview guide was used in the main study, follow-up questions were asked of participants based on relevant topics identified during the pilot study. For example, because the pilot study revealed the creators' emphasis on education, interviews and focus groups in the main study prioritized participants involved in education initiatives and local organizations. Interviews and focus groups in the main study sought additional context for areas of ambiguity noted during the pilot study.

The main study included one focus group and eleven individual interviews. In combination with the pilot study, a total of 21 interviews and focus groups were conducted. Participants are detailed in Table 3.1.

Table 3.1: Interview and focus group participants

ID	Type	Participant(s)	Role(s) in Boro community
1	Focus group	Teachers and administrators at Sijou Swlwngsali school in Bijni, Assam (~20)	Teachers and administrators in Boro medium school
2	Interview	Ms. Dhanjita Swargiary	NIB research assistant (Anthropology)
3	Focus group	Boro undergraduate students at CIT-Kokrajhar (3)	Undergraduate students (Engineering, Technology)
4	Interview	Dr. Bihung Brahma	Collection creator NIB leader (Treasurer) Researcher (Linguistics)
5	Focus group	Teachers and administrators at Bodofa Memorial School in Kokrajhar, Assam (~20)	Teachers and administrators in Boro medium school
6	Interview	Ms. Chaitali Brahma	Researcher (Design, Communication) Registrar of CIT-Kokrajhar
7	Interview	Mr. Surat Narzary	Writer, elder NIB leader (Original founder)

(table continues)

ID	Type	Participant(s)	Role(s) in Boro community
8	Interview	Dr. Prafulla Basumatary	Collection creator NIB leader (Project Coordinator) Researcher (Linguistics, Education)
9	Focus group	Boro graduate students (3) (anonymous)	Graduate students (Humanities)
10	Interview	Mr. Anjalu Alvis Basumatary	Literature society member
11	Interview	Mr. Sansuma Brahma	NIB member Researcher (Linguistics)
12	Focus group	NIB research assistants (10)	NIB research assistants (Economics, Linguistics, Anthropology, Political Science)
13	Interview	Mr. Sushanta Narzary	Graduate student (Agriculture)
14	Interview	Dr. Mondipa Brahma	Researcher (English, Film)
15	Interview	Fr. Kalandai Swami	Writer, documenter Religious leader Education advocate
16	Interview	Mr. Bebikananda Narzary	Writer, elder
17	Interview	Dr. Subash Rabha	NIB research assistant (Education) Education advocate
18	Interview	Dr. Sudev Basumatary	NIB member Researcher (History)
19	Interview	Mr. Santola Basumatary	Teacher (retired) ABSU leader (former president) Education advocate
20	Interview	Dr. Jyotiprakash Tamuli	Professor, Department of Linguistics, Gauhati University (retired) Researcher (Linguistics, Education)
21	Interview	Mr. Hirok Jyoti Larihi Boro ⁵⁷	Collection creator NIB research assistant (Linguistics) Graduate student (Linguistics)

3.3.2 Data Analysis

The main study employed qualitative content analysis, building on the preliminary themes identified in the pilot study using the Dedoose qualitative analysis software. The main

⁵⁷ Dr. Krishna Boro was not available for interview; however, Hirok Jyoti Larihi Boro's interview included comprehensive information regarding both Dr. Krishna Boro's and his own contributions to the BLR.

study content analysis was more extensive than that of the pilot study, with more thoroughly-developed themes identified.

3.4 Limitations, Delimitations, Validity

This section briefly reviews limitations and delimitations of the research design, and the measures taken to ensure validity. This is a case study of the Boro Language Resource—the findings are not expected to be generalizable to every language archiving endeavor. Rather, this exploration of the creators’ decision-making processes and experiences will inform the creation of future archival collections aiming to support language revitalization.

In some cases, the usability of existing materials may be limited by the difficulty of accessing and re-organizing the materials. There is the potential for items to be misinterpreted when removed from their original contexts (Miller, 1997; Denscombe, 2003). Because the existing materials reviewed were born-digital, there were no barriers to access, and challenges of re-arranging material for analysis were minimized. There are also known limitations of semi-structured interviews and focus groups: they are time-consuming to conduct, responses are subjective, and it is difficult to completely anonymize the resulting data (Creswell, 2014; Alshenqeeti, 2014). These limitations can be addressed by supplementing interviews and focus groups with other data sources (Patton, 1999), which was achieved through the inclusion of the review of existing materials in the pilot study.

Further, content analysis can be subjective. To ensure validity of the findings, a second coder was enlisted to independently code a subset of the interview and focus group dataset using the same themes and operational definitions as the researcher, included in Appendix G. The second coder, a graduate student in Linguistics who has taken Information Science courses, performed content analysis on 3 of the 21 interview and focus group transcripts. This included

two interviews and one focus group for a total of 14.3% of the dataset. The themes identified by the researcher and second coder were then compared for each transcript using the binary coding approach; a '1' was assigned if both parties indicated the same theme in a transcript, and a '0' was assigned where the researcher and second coder were not in agreement. The overall level of agreement between the researcher and the second coder was high, at 97.6%.

CHAPTER 4

FINDINGS

4.1 Introduction

This chapter presents the findings of both the pilot and main studies. Findings are organized by section according to the three research questions:

1. What are the current language revitalization activities happening in the Boro community?
2. What genres of information resources did the creators choose to include in the Boro Language Resource, and why?
3. How will these information resources be used in language revitalization activities in the Boro community?

The data sources corresponding to each research question are indicated in Table 4.1.

Table 4.1: Relationship between research questions and data sources

RQ	Data Source
1	Interviews and focus groups
2	Interviews and focus groups Review of existing materials
3	Interviews and focus groups Review of existing materials

4.2 Boro Language Revitalization Activities

Interviews and focus groups with Boro community members revealed the following ongoing efforts to promote Boro language and culture, each described respectively in the following sections:

- Raising awareness of Boro language and culture
- Preserving community memories, arts, and traditions
- Improving mother tongue education

Section 4.2.4 provides a brief summary.

4.2.1 Raising Awareness of Boro Language and Culture

4.2.1.1 Sharing Boro Locally, Nationally, Internationally

Participants expressed enthusiasm to publicize their language and culture—throughout the Boro community, on the national level, and internationally. During the Boro language movement described briefly in section 2.1, many Boros became distanced from their language and cultural traditions due to pressure to assimilate into Assamese culture to avoid discrimination. Drs. Bihung Brahma (BB) and Sudev Basumatary (SB) recounted their experiences:

SB: the Assamese, they began to humiliate the Boros, so in order to be on par with these people, they [Boros] were changing their surnames

BB: they don't speak Boro, and they feel shy to say they are Boros! They started avoiding their own traditional dress!

Researcher: because they don't want to be identified as Boros?

SB: because Boro means you are downtrodden.

BB: that's the point—Boro means tribal, and tribal means, they were hated!

SB: ignored, or neglected

BB: and if you are Assamese, if you speak Assamese, you have higher status, so this concept somehow...

SB: you are a part of those people [Assamese]

BB: it has reduced just recently after this movement and all,

SB: it is because of this Bodoland movement—otherwise, Boro people, all of us, perhaps, we would've been assimilated!

Until the early 2000s, openly identifying as Boro was unsafe. Now, people want to re-affirm and celebrate their Boro identity, and allow those who distanced themselves from the culture to re-connect to their linguistic and cultural traditions. This includes wearing Boro

traditional dress as mentioned above, speaking Boro in public, and participating in traditions like festivals or dance and music performances.

Participants discussed the trends among younger generations of de-valuing their identity or language, and focusing instead on other languages in the effort to increase employment prospects:⁵⁸

People living in some parts, they don't give much importance [to the language]. They're not really concerned about the language, and that's why we [Boros] are really facing some problem.

The Boro kids in the town areas, they mostly speak Hindi, Assamese, Bengali... some, they will try to learn [Boro], but, some, they don't.

This part [Bodoland] was mostly in darkness for many years. Even our young generation, they are not aware of it [Boro culture]!

Noting the influence of other cultures on Boro youth, Chaitali Brahma proposed that cultural influence could go both ways, rather than Boros assimilating to dominant cultures:

We [Boros] are adopting their [non-Boros'] things, but we also have such good things as well, so we want our culture to be adopted by them [non-Boros] also.

Boro youths expressed their motivation to promote positive attitudes regarding language and cultural traditions:

We youngsters, we are now moving up. We should really think about our society, our community.

They are engaging with elders to carry on Boro traditions and instill pride in the culture. Boro students described older generations' reactions when youths participate in Boro traditions:

When we wear our traditional dress, they [elders] are so happy, like "Oh my god! You're finally accepting your culture!"

Beyond spreading awareness within the Boro community, Boros seek recognition on the

⁵⁸ In cases where multiple excerpts from different sessions are presented, or when participants chose to remain anonymous, no attributions are included.

national level. Bihung Brahma noted that this recognition was partially achieved through the Bodoland movement:

That quest for identity was very strong, we want to be recognized. It never happened in India, but because of loads of revolutions and the [Bodoland] movement, the voice has been listened [to], a little bit. The language has been included as one of the scheduled languages. It's a big achievement for the community. At least it is listed somewhere. [emphasis added]

Though included in the Eighth Schedule of the Indian Constitution, it is widely felt that Boro does not share the same prestige as other official languages, even in areas with high concentrations of Boro speakers. Participants shared that, despite its status as an official language, Boro is not used for official purposes in the public sphere, citing the following examples:

We need to raise awareness, in every part, every corner of the world, of the Boro...the Assamese, they don't think to learn our language, but we [Boros] are expected to learn their language [Assamese].

Assamese is the majority language. You need to know Assamese for various purposes...government offices, market. When someone is appointed [to a government job], they must speak in Assamese.

Even if our Boro language is official, the associated language of the state, it's not really used even in the offices, by the government officials. We'll have to give pressure to the government to really use it here, even in most of our Boro[-concentrated] areas.

Boro's status is also reflected in written media, as a Boro student explained: If you take advertisements [for example], there are huge billboards in Assam in Hindi, Assamese. But, you will rarely see a Boro billboard here [in Kokrajhar].

Participants described their aims to share their language and culture on international platforms. While the Boros were relatively isolated due to the violence during the Bodoland movement, many are now eager to participate in global academic and artistic arenas. Bihung Brahma noted that, until recently, Boros had very limited access to higher education or prestigious jobs:

Fifty years back, you could hardly find a person who is having Masters degree. You could hardly find a person who is a bureaucrat. You could hardly find somebody is a good teacher.

Historically, Boros were involved in research primarily as the subjects of studies conducted by non-Boro researchers. Bihung Brahma explained that Boros had minimal involvement in academics during the Bodoland movement as they fought for their language, education, and civil rights:

There were so many ups and downs, the political imbalance in our places. So, in the field of academia, in the field of research, we [Boros] could not contribute much.

Previously, emphasis was placed on literature and advocating for recognition of the language; now, Boro researchers are moving into more complex topics which are relevant to community needs in a trend Bihung Brahma called the *academic revolution*. He went on:

Promotion of language, literature is very, very much needed. But we want, we need studies on a micro-level, more local, more specific [topics]

Boros feel pride in their rich language, culture, and academic contributions, and seek to share these more widely now that this is possible, as participants explained:

Bodoland, as a whole, has got a lot of potential to the world, no? Our cultural identity, it should be known to the world, no?

I hope that, after 20 or 10 years, our Boro language will spread to the world.

They also shared that collaboration with people from various backgrounds is needed to raise awareness. This includes coordination between organizations in the Boro community, as Bihung Brahma described:

All Boro Students Union are working, but this is not everything. Similarly, Bodo Sahitya Sabha [is] working for the language and literature, but this is not everything! So, we need many people, many minds, and many kinds of activities which contribute to the community.

4.2.1.2 Increasing Boro's Digital Presence

During the Bodoland movement, the Boros advocated for the right to openly share their identity. Now, they are using digital platforms to share their linguistic and cultural traditions. Participants described gaining access to the digital world as a way to increase the prestige of the language. As technology becomes more widely available, Boros want to increase the digital presence of their language and culture, as Hirock Boro noted:

Our language, Boro, is still lagging behind in terms of archiving, anything digital.

Young Boro researchers emphasized the need to raise awareness of digital archiving throughout their community:

Those people who are working on Boro culture and Boro language, they have to give more importance on this matter [digital archiving]. Then, only, it [development] will be possible for us.

Participants also noted that simply creating digital resources would not be enough; targeted outreach will be needed to call attention to them:

If we put that [Boro content] online, the main problem, we realize, is that Boro people will not be aware of this thing [archive] because they don't go online. They don't make infrastructure in the Boro schools. So, many students, they don't have good schools, they don't have infrastructure in a rural place. [emphasis added]

Though mobile phones and access to internet and mobile data networks initially became available in the early 2000s, participants explained that these technologies were prohibitively expensive for the general public until approximately 2010. As a result, Boros are still building general technical skills and awareness. Participants indicated this issue persists across the board, most prominently in older generations, as Sansuma Brahma described:

They [elders] think, "I'm already old enough. What will I do with learning the computer now?"

He went on to note that elders may be more motivated to explore technology if they are aware of

the potential benefits:

Until and unless they [elders] know the benefits of it [technology], they are not willing to learn! We can help them learn.

Though the technology may be new to many, younger participants expressed willingness to help the older generations increase their technical skills and gain awareness of digital resources.

Now that more Boros have access to mobile phones and other technologies, they are able to develop digital resources, as Bihung Brahma (BB) and Mondipa Brahma (MB) explained:

BB: This is high time now. We have the technology! Earlier, internet was very expensive. We couldn't afford that. But now, we can do that [create digital resources]!

MB: Yes, we can do it now!

Seeing the relative prevalence of digital resources in other languages, some participants voiced concern that Boro was lagging behind. For example, a school principal observed:

Hindi things like textbooks, when we search, we are able to find it immediately. If we search YouTube, Google in English, we find it all. But, in our Boro language, it is still not available.

In response, Boros have been working to create a digital presence for Boro on par with that of other Indian languages, such as Hindi or Assamese. Bihung Brahma encouraged fellow participants:

We can create these kinds of materials. We now have started to understand, 'What is internet? What is YouTube?'

He explained that creating digital resources would be accomplished partially by digitizing existing print materials:

With time, we wish to see all those books in a digital form.

In the process of digitizing existing resources, researchers are raising technical awareness by introducing Boros from various backgrounds to digital archiving, like elders, artists, and writers.

New materials are also needed. For example, Chaitali Brahma spoke to students' consistent requests for a dictionary of Boro at CIT-Kokrajhar:

[Students] want a dictionary, and they want even a dictionary in audio form also, to keep on listening to the accent, the way of speaking.

Younger participants added that an online reference dictionary would be helpful for recalling forgotten words or checking spelling, especially for those living outside of Bodoland:

I grew up in Guwahati. It's an Assamese-concentrated area, so I don't know a lot of things about the purest form of Boro language myself... We [young Boro speakers] want to look it up so we don't get confused.

Because a dictionary serves as an authoritative text on the language, it is crucial that it accurately reflects the structure of the language. Boro researchers are working towards a comprehensive dictionary with more detailed information than is available in existing dictionaries.

In addition to resources, participants emphasized that they want access to digital tools like search engines, auto-correct and speech-to-text functions, and Google Translate—none of which currently support the Boro language. One participant remarked:

If we want to save our language in today's world, we have to be digitalized.

An initiative to create a digital corpus of parallel texts in all 22 of India's official languages is in progress at the Indian Institute of Technology (IIT) Madras,⁵⁹ which aims to gather sufficient data to enable automatic translation to all 22 languages, including Boro. Boro speakers engaged in this project are preparing manual translations of texts from Hindi and Assamese into Boro. The resulting digital corpus, along with an updated dictionary, would aid efforts to include Boro in these digital tools.

⁵⁹ <https://www.iitm.ac.in/>

4.2.2 Preserving Community Memories, Arts, and Traditions

Another area of concern in the Boro community was ensuring that community memory and traditions in various forms will be preserved for future generations, despite current trends towards modernization. This includes community memories (both oral and written), visual artforms like film, music, dance, and design, and traditional practices related to food, religion, agriculture, and festivals. Ongoing efforts to preserve these materials are reviewed in the following sections.

4.2.2.1 Community Memories, Histories, Literature

4.2.2.1.1 Community Memories and Histories

Though there is a rich tradition of Boro literature and history, much of it is unavailable today. Until recently, relatively few written records of Boro existed because the bulk of Boro history and literature has been transmitted orally, as Mr. Surat Narzary explained:

Our written language had started just then. That's why so many unwritten things are there, hidden underneath, forgotten.

Father Kalandai Swami added that knowledge is stored with village elders, rather than in reference books:

We don't have any resource [reference] books. Our resource is the village, people talking. When they talk, we get to know many things.

However, Sansuma Brahma explained that, while elders are eager to share, younger generations may not always take interest in their knowledge:

Older people, they really want to tell about their older things, their experiences. But, sometimes, we [younger people] don't want to listen, we don't care!

Recently, there is increased urgency around documenting elders' memories, as Bihung Brahma expressed:

It's the time, otherwise, some older people soon will [have passed away]. We have to be very fast, actually!

As elders pass on, the Boro community is working to document and preserve their memories, teachings, and stories. Bibekananda Narzary shared his enthusiasm for this initiative:

Yes, if the new generation like you [young Boro researchers] have come forward, I appreciate and thank you. This [oral literature] is our major wealth. If we can preserve this wealth for future generations, it will be everlasting!

Oral literature is now being written down and recorded with digital audio and video recording equipment.

Boro historians and elders expressed interest in documenting history from a Boro perspective. Some of the earliest existing material about the Boros was created by non-Boros, such as Assamese or foreign anthropologists and historians. Participants noted that these accounts often excluded or minimized Boro people. Sudev Basumatary explained:

With our [Boro] identity, the Assamese wanted to kind of assimilate all the tribal people. So, they [Assamese] felt 'the history for Boro people should not be given in history.'

He went on to describe how early historical accounts conflate the Boros with surrounding communities:

In Hodgson,⁶⁰ that term 'Boro' was used for the first time...Before that, we [Boros] used to be known as 'Mech,' 'Kachari,' 'Tihari.'

In some accounts, Boros were not distinguished from neighboring communities like Dimasa. Participants explained that this conflation served as the basis for historical discrimination and de-legitimization of the Boro identity as a subset of Assamese culture, or part of a monolithic tribal culture in the plains of Assam, as Bihung Brahma explained:

BB: We always are asked to defend, 'What is your origin?' because we have to prove Boro as a specific tribe.

⁶⁰ Hodgson (1847)

Researcher: *To legitimize your existence?*

BB: *Yes, like ‘What is your origin?’ How to defend that? Because the history says some Koch kingdom, Dimasa kingdom, but there is no mention of Boros!*

When they are mentioned in history, Boros are often cast a negative light. Thusly, Boros may be mistrustful of history documented from outsider perspectives, as Mr. Surat Narzary expressed:

Our history, every trace of civilization, achievements, it’s been distorted by those who do not like our [Boro] society...So, we have to clarify all those things...this is our duty.

Though largely absent from existing written records, oral histories passed on through generations describe ancient Boro dynasties and kingdoms. He continued:

We believe that we had kings, we had empires, so many things—civilization. But, these are all eradicated from our memory, from the records, too. We have to go back again to the related [groups]. Although we say we are the descendants of great kings, we are now tribes.

To set the record straight from existing historical narratives, Boro historians and researchers are collecting oral histories from elders and influential figures about their experiences and memories from their ancestors. Oral histories will serve as the basis for an updated historical account written from a Boro perspective, affording this opportunity for the clarification. Participants explained that this undertaking is necessary, not only for the Boros to discover unknown details of their history, but also to assert their identity as a rich and unique culture.

For a wholistic view, researchers plan to collect oral histories from Boro speakers in various regions, including Nepal and other states of Northeast India in addition to Assam. Researchers expressed hope that oral histories would reveal previously unknown migration patterns which may help to identify where the Boros came from geographically. Hirock Boro

described his ongoing work with Dr. Krishna Boro collecting oral histories from the Meches⁶¹ of Nepal:

I have some recordings—conversations between Meche speakers talking about their history, ‘Where were they from? Different places? Or they were inhabitants of those places?’ Some interesting things are there.

Additionally, ongoing research aims to better understand the origin of the Boro language through its genetic relationships to other languages and the effects of language contact. During a recent workshop on this topic, prominent Trans-Himalayan linguist Dr. Scott DeLancey⁶² directed Boro linguists to conduct a comprehensive dialect survey. Bihung Brahma explained:

[Studying] *the dialectal variation is the direction of reconstructing the history.*

Recordings of regional varieties of Boro are being collected for comparative analysis. Hirock Boro shared his future plans to archive these recordings:

I’m looking forward to add some Boro data of different dialects: Kokrajhar and Udalguri,...Bhaksa, Tamilpur, Garasor, Kwalkasi.

Future documentation will include oral histories and elicitations of word lists, among other genres. This effort will constitute a major addition to the existing resources available in Boro, which primarily represent the Kokrajhar variety, the Meche variety spoken in Nepal, and what is known as Standard Boro. In addition to informing new historical narratives, participants anticipated that oral histories in regional varieties of Boro would result in a more representative record of the language.

4.2.2.1.2 Legacy Written Material

Even as more written material was produced in recent decades, it has not always been

⁶¹ Variety of Boro spoken in Nepal

⁶² Professor Emeritus of the University of Oregon Department of Linguistics

well-preserved, leaving significant gaps in the written record. Sudev Basumatary explained:

Among the Boros, we have a lot of [written] things, but we also have nothing! People ask for the history of the Boros. We have written documents, but everything is scattered! [emphasis added]

Participants described the state of written material as such:

Now, in Boro, earlier, many oral folk traditions were in the way of extinction. Now, at least in Boro literature, we started to write it down. But now, those writings are eaten by termites!

Whenever you go and search [in] any book, nothing is there!

The sad fact is that they [Boros] are the original people of the land, but then nothing has been systemized. Everybody writes here and there, and it goes just like that... how to put all these, first in the computer, then being digitalized?... This thing [physical book] was there, but then, we couldn't do anything. [emphasis added]

Early written works are largely unavailable now because they were created by local literature societies and printed by local publishers, many of which are no longer operational, or have not maintained records over time. Remaining hard copies are kept with the original authors, or in private collections without protections against decay or natural disasters. When the owners of these materials pass away, it is not clear whether or where they will be kept. There is no centralized repository or catalog for Boro materials—physical or digital.

Participants proposed that one reason for this issue is that the organizations engaged in publishing and compiling written works are generally volunteer-based, with limited access to resources. Members come from various backgrounds, and often have full-time jobs in addition to their work on Boro literature. For example, Alvis Basumatary explained:

We [literature society] are thinking of digitizing it [textual material], currently. We have not yet, but we are all part-timers. We are not full-timers! We are not from literature backgrounds, proper people. I'm from maths! Some people, they work in an office. We have come together like that, with the little bit of time that we have.

He shared that volunteers have not received professional training on digitizing older material or

managing digital copies of publications. He went on to note the volunteers' lack of awareness of preservation of digital or physical materials:

See, the problem was, all these past founding members, they didn't think too much about digitizing, or these things. They [founders] were more worried about how to publish it [textual material], let it be available to the people, so that people can read and go through it.

Bihung Brahma and Sudev Basumatary added further context on this point, citing the relative isolation of Boro people from global developments in technology during the Boro language and Bodoland movements:

SB: And another factor may be that—Boro people—they were very content with whatever they have done. 'It's momentary. It's done and done!'

Researcher: Okay, they said, like, 'This is good enough!'?

BB: Yes, exactly! Like, 'Today, whatever we have done, it is done. We'll not think about the future. Enjoy! Chill!'...Those days were very crucial, while the [Boro language and Bodoland] movements were going on. No road connections, it [travel] was very difficult. Otherwise, somebody could come to make us aware. Like, 'These things should be preserved nicely!'

They explained that the creators of early textual material were not aware of the need for preservation.

Now, in the effort to preserve early written works, even *born digital* materials—those originally created on computers—must be re-digitized because the digital version (i.e., *soft copy*) sent to printers cannot be located. Alvis Basumatary shared the following example:

I was talking to Father Kalandai Swami regarding releasing the dictionary online, and I asked him whether he had a soft copy or not. He said 'No, no! It is just this thing [the physical book]! It was published.' If we already had a soft copy, it would've been easy for us to release it online!

As these efforts continue, literature societies and authors are finding that they cannot locate digital or physical copies of their own publications, as participants explained:

I can give you this whole list of publications that have not been archived. I am also afraid, after some time, we may not be able to recover these things, whatever has been already published.

Everybody comes and asks, ‘Give me that [book]!’ I say that, ‘I have only one copy!’ Sometimes they take it, and some of them [books] are never returned! So, I may have a few [books], but I’m missing so many.

Starting from August 2022, NIB is contacting literature societies and prominent writers to discuss and facilitate the digitization of early Boro writings. As literature societies continue to publish magazines and journals, they are exploring strategies to maintain digital copies of publications for posterity.

4.2.2.2 Music and Visual Artforms

Efforts are underway to preserve traditional Boro artforms like music, dance, theater, and clothing/textiles, as well as newer media, like film. Their rich art and culture are a major source of pride for Boros of all generations, as Sansuma Brahma expressed:

We feel proud of our culture, showcasing our traditional dress, songs, our dance.

Musicians, too, are gaining interest in recording their works digitally. Songs commonly performed as part of traditional customs are becoming less common as these practices change. Traditional music is also being transmitted on modern formats. For example, village elder Bibekananda Narzary shared that a selection of Boro folk songs was broadcast on a local television station:

Those songs, I had once telecast them on TV—other than that, it is orally transmitted, the folk songs.

Father Kalandai Swami described another early effort to preserve Boro music in the 1970s:

We went to all the villages, collected the music, made them play, wrote it [notation] down... We published the books, booklets, and cassettes...I took Boro singers to Chennai. We made 60 cassettes from there, brought them, and gave to the [Boro] people.

Though the cassettes and recordings from the broadcast may no longer be available, the music notation created in the 1970s remains in hard copy at Father Kalandai Swami's home for future digitization.

Similarly, there are now fewer musicians who can play traditional instruments than in previous generations, as Dhanjita Swargiary observed:

Not many people know serza and zifung [traditional instruments]... We did one program where [music teacher] taught whoever was interested. But, because of her studies, she [teacher] had to go to Guwahati. It didn't continue.

She went on to describe how these changes affect festival celebrations, as seen in the *Bwsagu* festival:⁶³

DS: Last year, I was actually a little bit surprised, a village nearby our village...I saw a little difference. When we did the same thing in our village, we take all the traditional musical instruments with us, and then we'll sing. But there, I saw them taking a sound system.

Researcher: Like a speaker? Playing music from their phone?

DS: Yes, playing some modern Bwsagu songs. That was fun, but...um...it's not the same. So, differences can be seen.

Music is being preserved by recording performances and music education programs.

While some Boro dance forms have been preserved in illustration in early written works, there are efforts to document traditional dance on video as well. Lessons in traditional Boro dance are offered in cultural programs, for example, by the Society for the Promotion of Indian Classical Music And Culture Amongst Youth (SPIC MACAY)⁶⁴ at CIT-K in March 2022.

Other artforms have already begun to disappear. Though Boros have a tradition of open-air theater, participants were unsure whether any such performances go on today. Nisha Daimary

⁶³ The *Bwsagu* festival marks the beginning of the rainy season. The celebration includes involves foraging for native plants and cooking special dishes, among other traditions.

⁶⁴ <https://spicmacay.org/>

and Hirock Boro shared their knowledge of these performances:

ND: *Now, it may not exist...Jathragaan⁶⁵ was performed in an open space. The stage is made with banana leaves. It started from night until the next day, so that the audience are not attacked by the wild animals when returning home, for the safety of the women. Mainly, the role of the females are also performed by the males. Also, the sword and shield are used in it, made of wood or iron.*

HB: *Our generation has not seen it.*

Dr. Prafulla Basumatary also recalled these performances:

In our childhood, this was very frequent, they performed in the villages. Nowadays, those are gone. And along with them, the drama script is also gone.

Participants were unsure whether any recordings or scripts of these performances remain. In

conversation with Bihung Brahma, Sudev Basumatary shared his father's experience:

SB: *My father was a script writer, a theater artist, but he lost everything! All his scripts were lost!...I have not found even a single one.*

BB: *Maybe they're damaged, misplaced, lost.*

Participants noted that films in particular were crucial to preserve, not only because of their importance as an artform, but also because they represent aspects of Boro society not seen elsewhere. Dr. Mondipa Brahma shared her perspective on the significance of Boro film, giving the example of the 1986 film *Alayaron*:⁶⁶

[Alayaron] shows the placement of women [in Boro society]...There was a family crisis, the female also had a very important role. She had her voice, she could be there, sitting together with the men, participating and giving her opinion...That scene is very encouraging, portraying the society, how it used to be.

She went on to describe how family and community connections are depicted in Boro films:

The traditional social systems, they're very, very strong. When there is a celebration or a crisis in someone's family, the whole community comes up, even in today's date. That's a huge pride we take, that the whole community will come and help you. [emphasis added]

⁶⁵ open-air theater performance

⁶⁶ *Alayaron* (1986) is available at https://www.youtube.com/watch?v=LCeA0WZK_k8&ab_channel=HiranyaNarzary as of February 2023.

Participants felt that films aid in preserving social customs by reinforcing women's roles in Boro society and celebrating the strong bonds among the Boro community.

However, despite the significance of Boro films, participants explained that early Boro films have become increasingly difficult to find—even those which were nominated for, and have won, national awards. In some cases, copies were archived in national repositories in Mumbai and Pune. Otherwise, older films were generally not preserved due to the creators' lack of technical resources and awareness, as Bihung Brahma and Sudev Basumatary explained:

BB: My father and his team made a movie in their place, in Dokhma, but they don't have the copy now. So, the movie is no more. The same culture [of filmmaking] went on and on for so many decades, but unfortunately, none of those movies have been archived. They [filmmakers] never thought, perhaps, that they have to archive! There was no concept of, like, 'We have to preserve it.' They don't care whether they have to preserve it or not!

SB: I don't know why! They were not conscious! There was no social media, there was no YouTube. So, that way, everything is lost!

BB: They didn't have an idea, perhaps, of 'what is called 'archive'?'

With digital recording technology being more accessible now, Boro filmmakers are creating new films and animation, as Bihung Brahma commented:

Boros have always had the tendency to make movies for many days, but they couldn't do that! Now, this technology is helping them.

Many are readily available on YouTube, as participants explained:

Movies, nowadays, most of the producers, they upload it to YouTube for commercial purposes.

Now that we know about the entertainment area, Boro content creators are making Boro cartoons on the mainstream platforms [YouTube].

Finally, there is interest to document the designs of Boro clothing and textiles like *aronai* (shawls) and *dokhona* (wraps worn by women). Father Kalandai Swami shared that he published a book of these designs and patterns in the 1980s:

All these aronais [shawls], all these things, we have systematically printed the books of algo [pattern], all the Boro patterns.

He noted that Boro designs have been appropriated by other groups:

Actually, many of the Assamese and others have used the Boro algo [pattern]. They've taken their pattern, they're using it, and they don't know what it is!

Participants explained that designers seek to publicize these traditional designs, along with new ones, to assert their ownership and cultural identity.

As Boros continue to spread awareness about options for digital preservation, musicians and artists are looking to record their works and preserve them on a digital platform. There is also interest to renew educational programs for music, theater, and textile works.

4.2.2.3 Traditional Practices

In addition to art and written works, the Boro community seeks to preserve traditional practices which are changing due to modernization. Participants shared their concerns about Boro culture being influenced by other Indian cultures like Assamese and Hindu, or even Western cultures:

We are forgetting our own culture and we are adopting other things! A time will come that everything will get assimilated. It will disappear, be extinct, if our culture is not documented. The same is with our language.

When I talk to people who are like 45-50 years old, they are really concerned. Like, 'Yeah, these days, things are really becoming different!'

Participants observed changes in social customs over time, including how festivals and rituals are celebrated. Though some effects of modernization are generally accepted, seeing the impact of these changes has spurred interest in documenting and preserving those traditional practices in potential danger of disappearing. Participants gave the example of wedding customs:

Central India's Hindu cultures are getting infused into our [Boro] culture sometimes...In older times, during our wedding, the bride used to wear white. It has become, as well, the bride wears red. We can see that it is changing...we have to take in changes, but if we

could also keep those original things [customs], it's not necessary that we follow it, but just keep it, preserve it, let them [future generations] know about it. Otherwise, the kids won't know! [emphasis added]

Agricultural practices are also affected by modernization and the availability of new technology. While farmers are able to farm more efficiently using new tools, there is also traditional ecological knowledge (TEK)⁶⁷ embedded in the cultivation practices used in the past, as Sushanta Narzary explained:

The Boro people do this cultivation traditionally. Our identity, actually, is from the cultivation side. That kind of action [cultivation] should be treasured, actually. But it is already vanished. No one is doing it. It's over, actually! Now, that is also replaced with the modernization... Earlier, we used to plow with cow, yak. Now, just replaced with the tractor... These [practices] all are our culture. This kind of practice should be actually preserved.

He is documenting traditional cultivation and land maintenance methods used by local farmers.

Dhanjita Swargiary explained the agricultural practices involved in the *Bwsagu* festival:

We wake up early, like 4:30 or 5:00am, and we'll go around the local area to find everything [herbs]. We didn't find all the herbs, but nearly 30. It is believed that, if we have this kungkha, that we get immunity for the whole year.

The *kungkha*, a traditional dish prepared during *Bwsagu*, is said to contain 101 herbs total, subject to regional availability. Recently, it was observed that younger generations did not know which herbs were used in the *kungkha*. She is working now to document elders' knowledge of these plants and encourage the younger generations to learn about this topic.

Finally, participants described their efforts to document weaving and construction practices. Alvis Basumatary observed that video is crucial for demonstrating these practices:

Boro girls are not learning [weaving] anymore when they stay in the towns. We have our own way of making the thread and weaving it. We need videos, documentaries, for the whole process.

⁶⁷ See Nelson & Shilling (2018) for further discussion of TEK.

As it becomes more common for Boros to leave their home village at a younger age for education or employment, traditions like weaving cannot be passed to younger generations as they were before. Similarly, Alvis Basumatary explained that, as commercially produced materials become more popular, houses are not being built in the traditional thatched style:

We used to make thatched house with bamboo...how to tie those bamboos together, it's not the normal way of simply tying.

Though it is not expected that future generations will strictly follow these traditional practices in their daily lives, there is urgency to document them as participants notice these practices falling out of use.

4.2.3 Improving Mother Tongue Education

The quality of mother tongue education was revealed to be a major concern among the Boro community. This section reviews findings related to the current status of educational material, teacher training, and community perception of Boro medium education, as well as ongoing efforts to address these issues.

4.2.3.1 Creating and Updating Educational Material

Although Boro medium schools have existed since the 1960s, they have not received adequate or consistent support from national and state governments. Participants expressed that efforts to improve Boro education have re-ignited in light of the 2020 revision to the National Education Policy (NEP) discussed in section 2.2.2.2. Firstly, participants identified the need for new and improved educational material. Prafulla Basumatary explained that the Board of Secondary Education Assam (SEBA) translated some existing material from Assamese to fill the gap when Boro medium education first began:

In the 60s, initially, books were haphazardly written and published...The authors, they copied mostly from Assamese...They [textbooks] had Assamese coloring, influence—even the Boro subject textbooks.

However, educational advocates are not satisfied with the quality and selection of these original textbooks translated by SEBA. Teachers explained that they could not easily understand the translated Boro material, and found the textbooks almost unusable:

We get these limited teaching aids...Since we do not find good explanation in Boro, we are unable to use [them]. To get a useable book, I think it will be good, for children, as well as for me [the teacher].

Prafulla Basumatary explained that the lack of quality and availability of textbooks hinders students' learning and exam scores:

We don't have textbooks for different subjects...we don't have storybooks that are suitable for children. We cannot expect that children will perform better in the classroom, or in examinations.

Material is crucially lacking in the early literacy area, with very few resources that are appropriate for young learners. A kindergarten teacher shared her challenges:

I need attractive items which can bring their [students'] attention...Even if it is digital, audio, videos, play items [toys].

Without material designed for younger audiences, teachers struggle to engage students in lessons of any subject.

Subash Rabha noted the need for material outside of the classroom as well:

Apart from the textbooks, they [children] should be given age-friendly books, lots of storybooks, whereby they can develop their creative thinking, critical thinking.

This issue persists into the early grades, as Prafulla Basumatary explained:

It may be difficult for them [children] to understand...The textbooks aren't aligned to their cognitive development.

Dr. Jyotiprakash Tamuli explained that, in an effort to fill the gap in educational material, publishers seem to be producing more advanced resources:

These days, you find [that] text is mostly composed of very complex language, because the writers, somehow, want to give them [students] the best. And, in the process, it becomes very difficult for the teacher to teach, and for the learner to understand.

However, participants noted that learners cannot build up to the level of complex texts without first building basic literacy skills with simpler texts. Jyotiprakash Tamuli advocated for more basic materials, noting:

A child of 5 or 6 is able to understand language of only a certain kind of simplicity.

Alongside cognitively-appropriate material, participants highlighted the need for culturally-appropriate material. A key benefit of mother tongue education is that students can be immersed in the culture in addition to the language. For example, Dhanjita Swargiary described how her early education in a Boro medium school connected her to *Bathou*, a traditional Boro belief system:

That school, they really made a connection between the culture and how things work in Bathou. I am thankful she [teacher] built that mentality that made us [students] think, 'Tuesday is the day where we can connect with the gods.' It still continues.

Though Boro culture is often incorporated into curricula via music, dance, and religion, participants felt that there were additional opportunities to include Boro culture in lessons of all subjects with more culturally-relevant educational material. This would require textbook creators to engage with Boro culture and the environments of local schools, as Subash Rabha explained:

It is not always easy to make learner-level-aligned materials from sitting in the office. Materials have to have knowledge of the ground reality. You have to come down to the schools, be part of the community.

Modeled after Assamese, existing textbook content is often unfamiliar for Boro students. Prafulla Basumatary noted that including culturally-relevant content may encourage students to relate to educational material. He gave the following example:

The lesson is in the textbook about the national park, Kaziranga.⁶⁸ But, until they are in the college, no child has seen Kaziranga. They haven't seen a rhino, haven't seen forests!

Subash Rabha described a strategy for creating culturally-based educational material:

[Materials] are purely based on the cultural things. We prepare a cultural calendar with all the activities that take place in the year, like a festival or community event...the cultural calendar gives the themes for lessons.

Using a cultural calendar situates lessons in the broader cultural context by referencing festivals and agricultural cycles that are familiar to students.

Participants recounted struggles to find information about Boro cultural topics, even in higher studies:

I tried looking up certain things about my own religion, folktales, culture, stories. But, unfortunately, there were few, very little detail.

Further, the few Boro educational materials in circulation are becoming increasingly difficult to find. Subash Rabha shared that this shortage is even more pronounced in rural areas:

Our students, basically, in the rural areas, are deprived of those kind of resources [books].

Publishers do not regularly print new copies, nor do they update the content in Boro textbooks as in their Assamese counterparts, as Prafulla Basumatary explained:

The [Boro] textbooks are not available because the publishers are not printing.

For the Assamese medium schools, the textbooks are being improved because the NCERT, National Council of Educational Research and Training, they have been upgrading, through research, their textbooks.

As of 2020, the Bodoland Territorial Council (BTC) was granted jurisdiction over educational matters, including the creation of textbooks, given that they adhere to educational standards set by national and state boards. Prafulla Basumatary explained:

⁶⁸ <https://www.kaziranga-national-park.com/>

Now, it's the duty to the Bodoland government, this local authority, to implement the guidelines, so they can formulate and make policies for quality education.

Still, participants noted that significant work is needed to assess and implement improvements.

Where previously, all textbooks were created by SEBA, Prafulla Basumatary explained that the Boro community is now motivated to take charge of improving textbooks as they become more engaged in education:

But, now, with exposure and more insight due to the globalization, some scholars have thought, 'We can bring out better books!'

Boro researchers are turning attention to textbook development through research. As of yet, Boro medium education has not been researched on a large scale. Prafulla Basumatary stressed the importance of collaboration in this research:

For quality education, we need to involve foreign scholars, foreign stakeholders, and do research. Unless we do proper research, we won't be able to bring quality education to our children.

Boro educational advocates are organizing research with local schools through NIB's quality education research project, as well as organizations like SIL International. In summer 2022, NIB began a research project to improve mother tongue education in three Boro medium schools throughout Assam. Starting with a baseline survey to establish students' reading abilities in grades 1-3, the project is scheduled to continue until summer 2023, with regular teacher training workshops and community events throughout the year. The baseline survey will then be repeated at the end of the project to assess the effects of training on students' reading levels. To fill the gaps identified in educational material, Boro educators and researchers aim to create new resources that incorporate Boro culture, particularly for early learners.

4.2.3.2 Improving Teacher Training

In addition to educational material, teacher training is similarly lacking in Boro medium

schools. These two components are highly inter-connected; without a solid foundation in teaching methods, teachers rely solely on course material to conduct lessons. Consequently, teachers do not feel confident to conduct lessons when educational material is unavailable, as Prafulla Basumatary explained:

Without the textbooks, the teachers are reluctant to go to the classroom and teach... Teachers are not so punctual... Students are just waiting for teachers. The course [curriculum] is not covered, and there are gaps in their understanding—both the teachers' and the students'. [emphasis added]

Further, former teacher Santola Basumatary observed that teachers struggle to engage with students:

[Teachers] should have capacity to learn the students, to observe their activities, learn their capacity and how they can learn well—with what method? They should try various methods. There are teachers [who are] not at all worried about their students. They think 'Teacher teaches, the pupil learns!' And, this way, the students are left out—how can they learn? [emphasis added]

Teachers cannot easily adapt lessons according to students' level to accommodate classes where some students lag behind and others are more advanced, as Subash Rabha explained:

Teachers are mostly textbook-dependent; the adaptation is not there. They [teachers] do what is in the textbook exactly. That's why children are not learning. The teachers have to create materials in the alignment of their [students'] levels, and that doesn't take place in the classroom.

Jyotiprakash Tamuli proposed the following explanation:

Rote learning naturally evolves as a defense mechanism.

Participants felt that these challenges were particularly amplified in the English subject. Though English is typically offered as a subject in Boro medium schools, Santola Basumatary explained that teachers do not necessarily have sufficient proficiency, training, or materials to conduct English lessons:

We should take special care for English subject in our vernacular schools. Almost all the

schools of remote villages, there is no good faculty in English...It is the weakness of Boro teachers.

This is true even of teachers specializing in English, as one English teacher explained:

I'm speaking with children... I have no conversation, sometimes I'm speaking broken English. I have a heavy accent.

In some cases, English lessons are taught in other languages, like Boro or Assamese. One school administrator recalled his own school experience:

I had never heard it [English] because, our teachers who taught us English, they used to translate from English to Assamese. We had not ever heard English.

Another English teacher described her approach to teaching English grammar lessons using the Boro language:

First, they [students] have to learn, 'what is grammar?' And they have to learn first concept of definition of grammar. Then, 'what is the letter?' Then, 'what is the word?' Then comes sentence. 'How many kinds of sentences?' After that, comes tense. 'How many kinds of tense?' Without tense, no student can write any sentence! Without sentence, no student can write. So, step by step, I will try to teach them.

Participants explained that, when teachers do not feel confident speaking English, students are instructed to read English material independently, or teachers translate English material into Assamese or Boro. They observed that comprehension checks typically indicated that students did not understand written material:

We usually make them read...Sometimes, along with reading, if time permits, I also ask the meaning, but maximum [majority] of them [students] cannot reply usually. Even if they understand, they do not have the capacity to reply.

Teachers noted the importance of early literacy and employing various methods to engage students, specifically focusing on production:

We [teachers] are not perfect in English. Mainly, the problem starts from lower class... Now, mainly, focus should be on the lower class to perfect the language, the foundation. Some attractive things need to be displayed, like digital aids, and some storytelling technique. [emphasis added]

Our English teachers should try to converse in English in their class. To teach them [students] how to speak English, converse in English, try to make [students] to speak English.

This trend extended beyond English to all subjects; for example, in science;

If only theory is studied, it feels boring. Students want to experience, see a little. If we, basically, take practical [activities] along with theory, then we see them [students] paying more attention... Creativity is developed, then theory is paid more attention.

To improve on traditional teaching methods, NIB is providing training workshops in the mother tongue based multi-lingual education (MTB-MLE) framework (Trudell & Young, 2016). MTB-MLE is a culturally-based educational framework emphasizing learner-centered pedagogy. This approach was designed for multi-lingual communities as a way to bridge the gap between regional and dominant languages in education—learners “begin their formal basic education in their mother tongue and finish it in the dominant language” (Trudell & Young, 2016, p. 15). Subash Rabha explained that, in the MTB-MLE framework, “teachers just work as a facilitator.” Initial teacher training sessions included instruction on the MTB-MLE framework and teaching demonstrations conducted by Prafulla Basumatary and Subash Rahba. Subash Rabha explained the contrast between learner-centered and teacher-centered classrooms:

In the entire state [of Assam], across the country [India], this traditional method is still prevalent. The change is coming, gradually...but, the training has to be there.

He went on to note that, because teachers have been using traditional methods for several years—or even decades—it is necessary to introduce the new framework properly to ensure that teachers follow through:

MTB-MLE is quite new, so to properly implement the method, the teachers have to be well-trained first, and they have to be convinced that this method is something that will help the children learn.

He continued to explain how, in addition to teaching methods, NIB training workshops provide a conceptual background, encouraging teachers to reflect on their roles as educators:

This concept seeding has to be done properly, to make them grounded with the concept of this mother tongue literacy and pedagogical perspectives. On that basis of that, they [teachers] can go for self-exploring, self-learning.

By drawing teachers' attention to broader pedagogical concepts, the NIB research team hopes to foster teachers' curiosity in pedagogy. Subash Rabha emphasized that such training must be implemented gradually through sustained collaboration with teachers and administrators:

We [NIB] will be there to support them. It takes time to see a change, so we'll have to be consistent in our effort.

Though this approach is unfamiliar to teachers, Subash Rabha reflected on the positive response from initial training workshops conducted in August 2022:

[Teachers] are very simple and very humble, and they are in need of the right guidance and input. If we [NIB] are able to guide them, we'll be able to help them properly mold the schools.

Workshop participants were receptive to the August 2022 training, and encouraged by the enthusiastic student engagement during teaching demonstrations, expressing interest in using digital resources and exploring student-centered teaching methods.

4.2.3.3 Increasing Community Involvement

At the same time, Boro educators and researchers are strengthening ties between parents, guardians, teachers, and administrators in the school community in hopes to engage parents and guardians in the education process and encourage learning outside of the classroom. Education advocates are working to increase parents' and guardians' confidence in Boro medium education. As discussed in section 2.2, English medium education is mainly offered by private schools with more resources, while Boro medium education is conducted in government schools and some private institutions. Historically, Boro medium schools have shown low pass rates for matriculation examinations due to lack of infrastructure and support. Although private Boro

medium schools generally show higher pass rates, these are diminished when combined with other schools averaging 5-15%, as Santola Basumatary lamented:

There are government institutions, they get huge amount of salary, but they are not so serious about their students. Here, at our [private] school, the percentage [of exam pass rates] is very good! But, the government [schools'], so low. I'm very sorry, I feel very ashamed.

In the public's perception, low pass rates have been attributed to Boro as the medium of instruction, rather than the overall quality of the school and access to resources. He continued:

We must be able to make the guardians confident that children can be educated in the vernacular [Boro] medium. Boro medium schools must gain confidence that, 'Yes! We can teach! We can make students good, successful!'

Fr. Kalandai Swami described his efforts to support Boro medium education in the 1970s:

I opened a Boro medium school in Bijni because, in Boro medium, they were passing [matriculation exams] at 10%, 5%. Therefore, I wanted to bring them up, on par with the other mediums [English, Assamese]. They [Boro medium schools] had to come up.

By sustaining high quality Boro medium schools, participants hope to assure parents and guardians that Boro medium education can provide a solid foundation, just like an English or Assamese medium school. A school administrator explained:

It is [parents'] feeling that, if their children will be educated in English medium, then their future prospect is very good.

Santola Basumatary also noted that some parents continue to favor English medium schools, despite the high cost:

Guardians now are expending so many lakhs, big amounts of money, to send their children to English medium schools. The schools of vernacular [Boro] medium must gain confidence of guardians. Otherwise, they will be running after some false ideas, that the English medium makes their student very smart, educated, learned. Actually, good students can learn in any medium!

Indeed, the importance of English was noted by administrators, researchers, and guardians alike. They did not deny that English proficiency bolsters students' employability; rather, they asserted

that students can build English proficiency through English classes offered in Boro medium schools. However, this is not yet the case. Jyotiprakash Tamuli described the current circumstance:

Many of them [Boro students] are not proficient either in English, nor in Assamese. It's been a frustration situation.

Boro medium schools are addressing parents' concerns by improving the quality of English lessons through teacher training discussed in the previous section. Further, Boro education advocates are challenging the notion that Boro medium education is inferior to English or Assamese medium by spreading awareness of positive outcomes of students from Boro medium schools, as Santola Basumatary explained:

My [former] students are now working as military, police, engineers. One of them is a secretary of Bodoland... others are national players [athletes].

Guardians feel these occupations are not attainable for students from Boro medium education because English proficiency is required.

Through continued community outreach, education advocates seek to inform parents and guardians of the opportunities available for Boro medium students. Participants anticipated that the community's perception of Boro medium schools will become more positive as educational materials and teaching methods improve:

If we can make a few more good schools, parents will be convinced, and the curve will turn around!

That convincing has to be done through proper advocacy, through proper, successful case studies.

If we plan, this [reputation] can be helped to evolve in the right direction.

They emphasized that the process will be gradual, building over years of concerted effort on improving Boro medium education.

4.2.4 Summary

This section reviewed ongoing efforts to promote the Boro language and culture. As aspects of Boro culture are shifting and becoming less common, the Boro community is raising awareness by instilling positive attitudes about the language and culture, particularly among the younger generations, and building digital resources to be shared with both local and global audiences. To document their traditions, Boros are creating digital recordings of histories, artforms, and traditions in villages where they are still practiced, and digitizing analog materials like films and books. There is a concentrated effort from NIB to contact elders and writers to discuss options for digitizing their materials. To strengthen mother tongue education, Boros are improving both educational material and teacher training. NIB's ongoing research project emphasizes rebuilding the Boro community's faith in Boro medium schools by highlighting positive developments in Boro education.

4.3 Collection Contents and Inclusion Criteria

This section reviews the items in the collection and the creators' reasons for including them to address the second research question: What genres of information resources did the creators choose to include in the Boro Language Resource, and why? Data is presented both from the review of existing materials in the pilot study and interviews with the BLR creators. The genres of material in the collection are presented in section 4.3.1; the creators' motivations for including these items are discussed in section 4.3.2. Section 4.3.3 provides a brief summary.

4.3.1 Collection Contents

At the time of writing, the Boro Language Resource (BLR) contains 154 items (134 audio recordings, 20 texts). The review of the BLR in the pilot study determined the genre of each item. A total of twelve genre categories were identified: *traditional narrative*, *personal*

narrative, socio-historical narrative, conversation, discussion, poetry, formal speech, description, performance, translation, magazine excerpt, and elicitation. Items were coded for as many genre categories as were applicable. Table 4.2 shows descriptive statistics for genre categories represented by each item.

Table 4.2: Number of genre categories per item

	Min	Max	Avge	Med	Std Dev
Number of genre categories	1	4	1.9	2	0.8

Each item included at least one genre category. Items were most commonly coded for two genre categories, though 11 items were coded for up to four genre categories. For example, ‘Conversation about the background along with the song of the first Boro folk song in AIR, Guwahati’⁶⁹ belongs to the *discussion, personal narrative, socio-cultural narrative, and performance* genre categories. Table 4.3 shows the distribution and percentage of the twelve genre categories in the collection, arranged from most to least common. *Personal narrative* is the most prominent genre in the collection, followed by *socio-historical narrative*. Least common genres include *performance, poetry, and translation*.

Table 4.3: Distribution of genre categories in BLR material

Genre	n	%
Personal narrative	58	37.7
Socio-historical narrative	55	35.7
Description	35	22.1
Elicitation	32	20.8
Conversation	30	19.5
Discussion	22	14.3
Magazine excerpt	20	13.0
Formal speech	18	11.7

(table continues)

⁶⁹ <https://digital.library.unt.edu/ark:/67531/metadc1752467/>

Genre	n	%
Traditional narrative	10	6.5
Performance	5	3.3
Poetry	4	2.6
Translation	2	1.3

4.3.2 Inclusion Criteria

For each item in the collection, the creators explained their reasons for including it (here called *inclusion criteria*). These reasons were also discussed in interviews as part of the main study. This section includes the analysis of the creators' inclusion criteria described in section 3.2.2.2 and findings from interviews with creators.

A total of seven inclusion criteria categories were identified: *rarity*, *tradition*, *regional variation*, *pedagogy and teacher training*, *language learning*, *historical and cultural significance*, and *linguistics research*. Table 4.4 shows descriptive statistics for inclusion criteria categories represented in each item.

Table 4.4: Number of inclusion criteria categories per item

	Min	Max	Avge	Med	Std Dev
Number of inclusion criteria categories	1	5	2.1	2	0.8

Each item was coded for at least one inclusion criteria category. Items were most commonly coded for two inclusion criteria categories; one item was coded for five inclusion criteria categories: *rarity*, *traditions*, *language learning*, *historical and cultural significance*, and *linguistics research*. Table 4.5 shows the distribution and percentage of the seven inclusion criteria categories, arranged from most to least prevalent. Approximately half of the items were included for their *historical and cultural significance* and for use in *pedagogy and teacher training*. *Linguistics research* was the least prominent category, represented at 6.5%.

Table 4.5: Distribution of inclusion criteria categories in BLR material

Inclusion Criteria	n	%
Historical and cultural significance	81	52.6
Pedagogy and teacher training	80	51.9
Language learning	60	39.0
Tradition	44	28.6
Rarity	33	21.4
Regional variation	23	14.9
Linguistics research	10	6.5

It is important to note that these categories reflect the reasons given by the creators of the BLR at the time of archiving, rather than all possible applications of a particular item. For example, most, if not all, items could be used for linguistics research in some form; however, this specific purpose was indicated in the inclusion criteria of only 10 items. The purpose of this component of the analysis was to understand the creators' motivations and thought processes when designing the collection. These findings reflect the creators' emphasis on pedagogy, teacher training, and language learning, which prompted the main study's focus on Boro medium education.

The remainder of this section discusses the creators' motivations and decision-making processes for selecting the items in the collection. Findings from both the review of inclusion criteria and interviews with creators are included. These are presented in two general categories: education and research (section 4.3.2.1) and preservation (section 4.3.2.2).

4.3.2.1 Education and Research

The creators expressed that archival material was intended as a resource for educators and researchers of the Boro language, culture, and history. These include the *pedagogy and teacher training*, *language learning*, *historical and cultural significance*, *regional variation*, and *linguistics research* categories of inclusion criteria identified in the pilot study.

To contextualize his motivation for compiling archival material, Prafulla Basumatary described his background as a teacher and headmaster at the Ramswaroop Agarwalla Memorial School, an English medium school in the Udalguri district of Assam. This experience fostered his interest in research outside the classroom:

After I had spent about 15 years in that school, I realized I should be doing something more.

He joined the Linguistics department at Gauhati University in 2002 to pursue his Masters degree, eventually earning his PhD in Linguistics in 2015. Now, as a researcher and language and education advocate, he explained his goal to apply what he has learned to underserved Boro medium schools:

I'm learning more about education to contribute to the Boro medium education...I want to use my experience and knowledge in Boro medium education because Boro medium education really needs services and help in terms of teachers training, material production, and curriculum revision.

Building on his experience through research, he observed the needs of teachers and administrators. He noted the critical lack of resources for Boro teachers and learners, and expressed his hope that material from the archive could partially fill this gap:

I'm sure that the Boro Language Resource that we're together putting up will be a good resource, for not only children, but even teachers and parents as well.

In fact, teachers are explicitly identified as the intended audience for some items in the inclusion criteria, for example:

...This recording also gives instruction and feedback to the teachers, who will be the main viewers of this item in the archive.

The creators proposed specific ways an item could be used in the future as educational material. For example, the inclusion criteria for a personal narrative suggested that teachers may use it as a prompt for language learners to create their own personal narratives:

Useful for teachers wanting to guide students in giving personal narratives. Good instructional material for non Boro speakers, particularly adults and professionals (government employees). A prompt for students to write or speak about their personal feelings.

Based on the content of each item, the inclusion criteria point out specific features relevant for language learners, such as politeness, or speech acts like giving thanks. In some cases, the creators indicated the learner level the item is best suited for, like in the following example of a formal speech:

This recording is a good example of the use of natural formal speech ... This will be useful as part of a pedagogical packet geared towards adult moderate to advanced Boro language learners in order to learn politeness features and express gratitude...
[emphasis added]

In both interviews and inclusion criteria, the creators proposed ways for items of various genres to be used for language learners, emphasizing the importance of natural speech. Prafulla Basumatary remarked:

If one listens to those recordings, they will get a chance to learn how the language is used in day-to-day life.

Items like elicited conversations and brief introductions demonstrate typical exchanges in Boro. For example, inclusion criteria proposed that recordings of conversations in the market could be used in “a lesson on question/answer, or vocabulary for shopping and running errands.”

Beyond language learning, the creators noted that the collection may benefit teachers and learners exploring a range of subjects like history, religion, art, and environmental and social issues from a Boro perspective. They suggest that historical narratives about past Boro rulers, or personal narratives of influential figures like Padma Sambhaba, a social and religious reformer,⁷⁰ for example, could form the basis for history and social science lessons in the absence of Boro

⁷⁰ <https://digital.library.unt.edu/ark:/67531/metadc1752508/>

content in the current curriculum.

In addition to educational material, inclusion criteria revealed that the creators included content to support teacher training. Some items include demonstrations of teaching techniques to help teachers improve their skills, like an audio recording modeling “specific methods for teaching math to younger grades.”⁷¹ Other items, like speeches given at teacher training events and community events, were included to encourage teachers to reflect on pedagogical and social concepts more broadly. For example, the essay “Gothoa nokhorni alari bathi [Child as the light of a family]”⁷² was included to encourage educational stakeholders “to prioritize children’s developmental needs in terms of both education and external activities.” The inclusion criteria for an activist’s speech about the future of Boro education⁷³ suggested that it may influence teachers to “stop destructive patterns of behavior [and] apathy towards their future.” Creators indicated that this content may help teachers “educate students about the state of their community and motivate them to get involved.” Given the history of challenges in Boro medium education, the creators hoped these materials would generate discussion about these difficult topics to inspire teachers and youths to take on active roles in moving Boro education forward.

Alongside education, creators expressed hope that researchers would consult the BLR to inform future historical, linguistic, and social science studies. Hirock Boro envisioned the material supporting future researchers:

It [archival material] should be re-used by lots of new researchers. It will be more efficient I think.

For linguistics research, they noted that textual materials feature older orthographic conventions

⁷¹ <https://digital.library.unt.edu/ark:/67531/metadc1752542/>

⁷² <https://digital.library.unt.edu/ark:/67531/metadc1724163/>

⁷³ <https://digital.library.unt.edu/ark:/67531/metadc1727540/>

and “the flexibility in spelling for writing Boro before standardization.” These samples demonstrate the development of Boro orthography over time. Inclusion criteria indicated that recordings of regional dialects may be used to describe variation in Boro, and noted details relevant for linguistic research, like in the following examples:

...This is a young speaker and he uses a lot of English code-switching, which will be of interest to linguists. He is also from a region that does not speak Standard Boro, so this recording will be of interest to sociolinguists studying language variation and regional dialects...

This is another Boro dialect spoken in Golaghat district (Assam).

Creators also identified ways that oral histories⁷⁴ may support historical and cultural research, for example, on “past Boro rulers and their kingdoms and how they derived their surnames.” Inclusion criteria for records of women’s organizations⁷⁵ points to future research highlighting the “women’s history and empowerment” in Boro society. Next, motivations for archiving related to preservation are discussed.

4.3.2.2 Preservation

Unsurprisingly, interviews with creators and inclusion criteria indicated that material was archived in order to preserve community memories and traditions. These include the *rarity*, *historical and cultural significance*, and *tradition* categories of inclusion criteria identified in the pilot study.

Creators cited recent developments like the loss of elders and trends towards modernization as motivations to archive material documenting traditions which may soon be lost. There is fear that, if elders’ knowledge is not sufficiently transmitted, traditional practices

⁷⁴ <https://digital.library.unt.edu/ark:/67531/metadc1752509/>

⁷⁵ <https://digital.library.unt.edu/ark:/67531/metadc1724155/>

related to crafts, agriculture, and religion will not persist into future generations. This issue, commonly called the *inter-generational gap*, was identified as a major concern by the creators, as Bihung Brahma noted:

As a community, Boro people are very much passionate about language, culture and community development, and they have become very conscious... We have to understand the value what we have got from them [elders].

Participants expressed that preserving elders' knowledge is critical for the continuation and development of Boro language and culture.

In some cases, traditions are being influenced by modern technologies and commercialization. Weaving, for example, is a prominent cultural fixture of Boro society that is changing due to modern developments. Traditionally, Boros have reared silk worms and created fabrics using traditional looms. Increased demand has prompted a shift to commercialized production using modern techniques and materials. Documentations of silk worm rearing⁷⁶ and weaving practices⁷⁷ were archived to preserve this knowledge as it becomes more rare, as inclusion criteria stated:

This recording is beneficial for the preservation of traditional approach to making silk and rearing silkworms. This was a large contribution to many families' incomes and is no longer as common due to limited resources and a change in materials.

...Now this weaving is outsourced from outside of the state and people worry that the designs have been stolen and the Boro economy will suffer.

Creators also viewed archiving this content as a way to assert ownership of Boro traditions, such as textile designs, which may be misappropriated by other groups.

Aside from weaving, modernization is affecting subsistence practices related to agriculture and food due to increased migration to urban areas. Documentation of everyday life

⁷⁶ <https://digital.library.unt.edu/ark:/67531/metadc1752475/>

⁷⁷ <https://digital.library.unt.edu/ark:/67531/metadc1752463/>

was archived to preserve knowledge about traditional tools,⁷⁸ as mentioned in the following inclusion criteria examples:

Traditional methods like this are now used more in rural areas. There is diminishing usage so this recording is beneficial for preservation, classroom instruction, and re-creation.

Traditional tools are fading from the community.

Similarly, descriptions of cooking practices⁷⁹ were archived to preserve the traditional knowledge embedded in the cooking process:

This recording is beneficial for the preservation of traditional (physical and mental) approaches to cooking rice. These methods are not used widely by younger generations.

This recording provides historical insight on a dish that is no longer prepared in this way.

While rice remains a staple in the Boro diet, the creators chose to archive these descriptions due to observations of traditional cooking methods being replaced by modern techniques and utensils. Other traditional recipes have already shifted, as in the second example. The creators noted that such documentation could be used to re-create these practices in the future.

Other traditions are becoming less common due to social and religious reformation, such as traditional rituals and associated music. Inclusion criteria for a description of the *Bathou* belief system⁸⁰ explained:

Preservation of traditional worship practices and philosophies. These practices have been reformed and are no longer widely practiced.

Creators also archived music that traditionally accompanied these practices,⁸¹ observing their

⁷⁸ <https://digital.library.unt.edu/ark:/67531/metadc1752460/>

⁷⁹ <https://digital.library.unt.edu/ark:/67531/metadc1752472/>

⁸⁰ <https://digital.library.unt.edu/ark:/67531/metadc1752476/>

⁸¹ <https://digital.library.unt.edu/ark:/67531/metadc1752484/>

relative rarity in recent years in inclusion criteria:

These folksongs used to be sung during worship. Very few people still know them after the religious reformation.

Cultural documentation also includes traditions central to Boro society which may not be in immediate danger of being lost. A descriptive account of the *Bwsagu* festival,⁸² for example, was included to “preserve the history of a prominent cultural event.” In this case, creators emphasized the festival’s history and significance, rather than its rarity.

Hirock Boro expressed the importance of documenting the impacts of modernization for future generations to understand Boro history and to appreciate elders’ memories:

About changes in our culture and our society, that’s a very sensitive [topic]. But, at the same time, people should know about these things. The new generation should know. ...They [elders] are talking in order to bring the richness of the language and the community back. [emphasis added]

Though the topic of cultural shift is delicate and, consequently, may be avoided, he noted the critical value these narratives hold. Items of particular historical and cultural significance were included to ensure their presence in the cultural record, even if they are not always openly discussed. For example, a historical narrative about conflict⁸³ was included for “preservation in the public memory.”

4.3.3 Summary

This section described the genres of material included in the BLR and presented findings from both the pilot and main studies regarding the creators’ motivations for archiving these items. Genre categories include *traditional narrative, personal narrative, socio-historical narrative, conversation, discussion, poetry, formal speech, description, performance, translation,*

⁸² <https://digital.library.unt.edu/ark:/67531/metadc1727563/>

⁸³ <https://digital.library.unt.edu/ark:/67531/metadc1752487/>

magazine excerpt, and *elicitation*. The creators chose material they felt would be beneficial for education and research about Boro language, culture, and history. Inclusion criteria categories include *rarity*, *tradition*, *regional variation*, *pedagogy and teacher training*, *language learning*, *historical and cultural significance*, and *linguistics research*.

Approximately half of the items were intended to be used in the classroom and/or to generate conversations among stakeholders in Boro education (students, guardians, teachers, administrators, activists). The other motivation for archiving materials was to preserve traditional knowledge and practices, particularly those being influenced by modernization. The creators chose to include cultural documentation to ensure that these traditions and elders' accounts of change over time could be appreciated by future generations of Boros.

4.4 Applications of Archival Material

The final research question sought to connect archival material to the ongoing efforts to promote the Boro language and culture. Findings are primarily drawn from interviews and focus groups, and supplemented by the inclusion criteria in the review of existing materials.

Applications of archival material are presented here, organized according to the goals identified in section 4.2: raising awareness, preserving traditions, and improving mother tongue education. These are detailed in sections 4.4.1, 4.4.2, and 4.4.3, respectively. Interviews and focus groups revealed an additional application of archival material—initiating future research and cultural activities—discussed in section 4.4.4. Section 4.5 provides a brief summary.

4.4.1 Raising Awareness of Boro Language and Culture

As discussed in section 4.2.1, the Boros aim to make their culture known locally and globally, not only to increase their digital presence, but also to improve cultural attitudes, particularly among the youth. Creating the BLR is one of many ways the Boros are raising

awareness—digital resources are in development concurrently on multiple platforms including social media, YouTube, and the Bodo Dimasa Heritage Digital Archive. This section describes participants’ perspectives on the role the archive plays in raising awareness of Boro language and culture.

Observing the extensive digital resources available in neighboring languages like Assamese, the Boros are publicizing Boro culture online to put Boro on par with other Indian languages. Increased representation in the digital sphere is hoped to foster pride in Boro culture for Boro youths, and to highlight examples of Boro success. This is especially meaningful given their history of isolation and discrimination, as Bihung Brahma expressed:

Many [Boro] scholars are coming up in all different fields: economics, agriculture, research, sports, music, filmmakers. We never had such things earlier. If you talk about sound quality, picture quality, the editors, designers, choreographers, it has all changed suddenly in the last 10-15 years—it’s a huge transformation!

With Boros succeeding in various endeavors, they are using multiple platforms to share this transformation in hopes to instill pride in the Boro community’s accomplishments. Bihung Brahma went on:

As far as digital archive is concerned, it’s very new to us. Now, this is the age of social media—YouTube, Facebook. But still, we need some kind of systematic archive.

He noted the benefit of social media’s accessibility and wide reach, but also the need for a dedicated archive as a lasting and comprehensive record of the Boro language, history, and culture. Participants saw the archiving process as an opportunity to publicize and celebrate their contributions to art and culture in a way that was not possible in previous decades, and transmit them to a global audience. Chaitali Brahma expressed:

We are trying to motivate the young minds through this learning, for people come to know about it [Boro culture], and send our culture to the outside world.

Participants predicted that finding Boro content in a digital setting would encourage

renewed interest in the language and culture, and inspire people to learn more:

I feel like, if things like that [cultural information] were available, it would get other people to learn more about it, and maybe go for extensive reading, and want to learn more. Like, 'Oh, things like this exist? What can I do about it? Let's find out more!'

Prafulla Basumatary noted the archive's potential as an outlet to promote Boro artists who may otherwise struggle to publish their works:

I can see a lot of benefits out of this archive, even for the writers, poets. If they want to archive their creations, they can do so. It is a good platform.

Participants felt that seeing Boro content on an online platform may spur the creation of new materials, as Prafulla Basumatary observed:

I'm sure this type of activity [digital archiving] will encourage the publishers, the writers, the poets. When they will get to see their writing [online], then they may be inspired to create further materials to be archived online. I think there is hope!

Future plans aim to expand the representation of Boro art in the archive, for example, with recordings of music and dance performances and digital copies of notable Boro films.

4.4.1.1 Increasing Engagement in Academia

In addition to culture, Boro researchers want to make their contributions to academia more widely known, as Prafulla Basumatary noted:

Boro scholars, they're working on their own language and culture, and if, through collaboration, we can make those resources available online, people of the world would come to know.

Sharing archival material was seen as a way to gain recognition for the development of the Boro community, and to encourage further academic work. He went on to describe the benefit for future researchers:

We can ignite, motivate young researchers to use the resources available in the archive as a reference for research activities. It'll be really helpful for the students.

Where previously, very few reference materials could be found in Boro, participants envisioned

the archive as a starting point for students and researchers.

Further, publicly available material allows for research reproducibility, and enables researchers to build on past work, rather than starting from scratch. Hirock Boro noted:

It [archival material] should be re-used by lots of new researchers. It will be more efficient I think.

Because archival resources can easily be cited in scholarly communication, the original creators of the material can be recognized for their contributions to the growing collection. Hirock Boro noted that, with primary materials more accessible through the archive, Boro researchers can engage with the global research community:

Quite a few people, researchers from Japan, are also working on the Boro language. So, our data that we will be keeping in the archive, we can say that even other researchers from other places, other nations, can come and have a look at our data. [emphasis added]

Participants described the archive as a starting point for future exploration, research, collaboration, and artistic creation, and a platform for publicizing the Boro community's developments in the arts and academia, both locally and globally. The archive is one of multiple tactics to increase Boros' digital presence, which, in turn, is hoped to engage Boro youths, artists, and researchers.

4.4.2 Preserving Community Memories, Arts, and Traditions

Creating archival material was directly connected to the Boros' goal of preserving records of their language and culture, like histories and literature (both oral and written), artforms, and traditional practices reviewed in section 4.2.2. Participants viewed archiving as a way to ensure the future of the Boro language, as Nijira Muchahary explained:

This archive will be wealth for the next generation, so that, for coming generations, our many words are well recognized.

She went on to note the benefit of archival resources for Boros living outside Bodoland:

We can see it anywhere in the world, while at home, or away from home, from our own mobile, or in laptop, or anywhere through the internet.

Participants expressed that ensuring elders' life stories and work are properly preserved is one way to honor their memories and contributions. Alvis Basumatary shared the example of preserving the life work of Fr. Kalandai Swami:

We want to bring out all his [Fr. Kalandai Swami's] contributions, work that he has done for the Boros, so that it is documented and people get to know what he has done, and we can recall him by whatever contribution he has done.

Creating this comprehensive record of his works not only preserves the material, but also commemorates Fr. Kalandai Swami's significant dedication to the Boro community. Archiving the accounts of elders protects their memories from being forgotten, or unknown by future generations.

As aspects of Boro culture change due to modernization, certain practices are falling out of use. For example, traditional methods of construction and cultivation are becoming less common in favor of mechanical techniques, as discussed in section 4.2.3.3. Farmers may opt for modern methods to maximize their yield out of financial necessity. Even so, participants felt that traditional practices should be known by future generations, as Dhanjita Swargiary expressed:

We don't know what will happen if we don't preserve it [Boro culture, language]! Some of the items we use in our households, they're replaced by some modern technologies. If we don't take a step to document it, preserve it, keep it in a safe place like an archive, our next generation might not know what that thing is!

Participants regarded archival material as a resource for future generations to learn about their culture, as Chaitali Brahma suggested:

People are not using all those things [traditional tools] now, but the tradition stays back, no? A small child, how they are going to learn? Through the digital world!

Specifically, participants noted the importance of video documentation for such demonstrations, like Dhanjita Swargiary proposed:

We could show a video where it's used, how it [traditional tool] is used.

Similarly for social customs, participants expressed that sharing knowledge of traditions will preserve the Boro identity, even in cases where the original customs are no longer followed by future generations:

Just for the sake of preserving our identity and our culture, the way it [ritual] was done before the outside influence. This is exactly how it was done...It's not necessary that you [future generations] follow it, but just keep it there. [emphasis added]

Participants described archiving as a way to connect to Boro culture from afar, honor the memories of elders, and preserve the knowledge embedded in traditional practices—even in the wake of modernization.

4.4.3 Improving Mother Tongue Education

The third goal identified in section 4.2 was improving mother tongue education. Interviews and focus groups revealed ways that participants planned to use archival material to support mother tongue education. These include providing the basis for education material and supplementing teacher training, discussed in the following sections.

4.4.3.1 Creating and Updating Educational Material

As discussed in section 4.2.3, Boro educational materials are lacking in Boro medium schools, and teachers are reluctant to teach without proper materials due to a lack of experience and training. In some cases, teachers will not attend classes without textbooks, causing significant delays in completing the mandatory curriculum. Prafulla Basumatary proposed that teachers could utilize archival material as a backup when textbooks are unavailable:

This archive will be an alternative, an option. They [teachers] can just choose from there. Teach them a poem, teach them rhymes, make children listen to the stories, folk tales. That way, teachers will be able to conduct the classroom in an efficient manner.

He suggested that creating lessons around primary materials like poems and stories could be a

way for teachers to continue instruction regardless of the delays from printers.

It is crucial to note, however, that items in the archive cannot directly replace the textbooks and course material designed in accordance with state curricula. Rather, archival resources can form a foundation for developing new educational material, as Jyotiprakash Tamuli described:

Language material is a very reliable and steady constant around which other activities can nucleate and gel.

While the archive provides access to primary data, the arrangement and compilation of educational resources is left to future users. For example, Jyotiprakash Tamuli went on to propose that archival material may be used to create multimedia resources like mobile games exploring word formation:

Once the analyzed material is part of the archive, we can develop this further by showing, paradigmatically, how certain words form patterns, in the way they take prefixes, suffixes.

In another example, Prafulla Basumatary suggested that textbook creators may use resources from the archive in their educational materials:

Teachers, those stakeholders, if they want to generate children's materials, those materials will be available in the archive. They can consult, read, they can take ideas. Like, there are several poems, essays. The writers can choose from those, contact the author who wrote it, about using that poem in their publication.

He noted that featuring Boro content would result in more culturally-based material, in addition to providing more representation for Boro writers.

Participants also cited the benefit of the archive's search function for discovering material. Jyotiprakash Tamuli and Prafulla Basumatary proposed that primary material be accompanied with specialized metadata for educators, such as age or class levels:

[The archive] can allow for searchability. We need to be able to index texts according to

the class of students, the level... That would enable pedagogical materials also to be created.

[Materials] *need to be mapped according to the standard of the class.*

Searching by class level, educators and textbook creators could more easily identify material for age-appropriate resources. Jyotiprakash Tamuli envisioned the archive as a central repository with the potential to serve multiple user groups:

To the extent to which it [the archive, creators] can envisage those uses... the user, the textbook material producer, the teacher in the classroom, or even the learner, is able to access the material. So, there's a lot of possibilities, but, different groups of people need to be involved.

He advised the creators to be in communication with education stakeholders as the BLR develops to ensure it is aligned with their needs.

4.4.3.2 Teacher Training

Participants described ways that archival material would support teacher training, while also noting relevant barriers to accessibility. For example, many schools lack the necessary facilities for displaying digital resources in the classroom (e.g., computers, electricity, internet connection). Still, Subash Rabha explained that some teachers are able to easily access archival material on their personal devices:

Teachers are mostly young, so they are digitally literate. They can access internet resources.

However, other teachers may struggle to use new technologies. Prafulla Basumatary added that the ongoing NIB teacher training workshops are familiarizing teachers with accessing and using archival materials:

They [Boro teachers] are new to the digital world, and also the teachers are not trained how to use these resources, but I believe in the near future, we'll be able to train the teachers how to use these archival materials.

While using material from the archive is one way for teachers to gain exposure to technology, this would not be realistic as the primary mechanism for teacher training. Rather, Subash Rabha proposed that resources from the archive would supplement in-person teacher training events:

We [NIB] cannot do training all the time, that's impossible! But, some online resources can be helpful resources for the teachers, for self-learning.

This approach encourages teachers to expand their technical skills by exploring online material to reinforce the hands-on training given by NIB.

Finally, participants expressed that archival material could be used to combat negative language attitudes that impact the classroom. Though educators have traditionally discouraged students from using multiple languages in class, Jyotiprakash Tamuli suggested using naturalistic *code-switching*⁸⁴ samples to demonstrate the norms of multi-lingual communication for teachers:

That kind of data [code-switching] is normally avoided as impure. Now, if we can think of collecting data of that type, with the purpose of using it to illustrate for the teachers, that can enable and empower their teaching/learning process.

He explained that targeted training using natural code-switching examples may allow teachers to understand their students' behavior more clearly, ultimately fostering a more positive learning environment.

In summary, participants indicated that the archive can support mother tongue education by providing a repository of primary resources for updating educational material. For teacher training, participants felt that engagement with the archive could benefit teachers by increasing their familiarity with technology and multilingualism.

⁸⁴ *Code-switching* refers to “the process of shifting from one linguistic code (a language or dialect) to another, depending on the social context or conversational setting” (Encyclopedia Britannica, 2022).

4.4.4 Initiating Collaborations and Language-Related Activities

Beyond the language revitalization activities described in section 4.2, participants expressed that the archiving process has created new opportunities for collaboration and promoting Boro language and culture. Bihung Brahma emphasized:

I don't want the collaboration to just end with archive!

Mr. Surat Narzary shared that Boro researchers are seeking guidance to support their academic pursuits:

We want your [CoRSAL team's] help for systematic, scientific study.

In addition to archiving, the CoRSAL team is partnering with Boro researchers to hold language documentation training workshops and analyze Boro grammar.

Participants regarded the archiving process as a way to bring together various stakeholders to reach broader research and development goals, like Jyotiprakash Tamuli described:

If it [the archive] evolves in a way that it is able to increasingly support some of these activities like teacher training, awareness raising—these [activities] have to be done at the ground level. For that, some material has to be prepared, and there has to be a group of people which anticipates the needs...and prepares the materials. Basically, it will be a kind of an ongoing, dynamic interaction between the archive, evolving to support the various activities that emerge as a result of the efforts of the people as they progress along the road. [emphasis added]

Rather than a static repository, participants envisioned the archive as a resource that would develop to meet the Boro community's changing needs over time. The archiving process has also spurred Boro education advocates to seek collaboration with experts to implement changes in Boro education. Prafulla Basumatary described the recent increase in momentum towards this end:

The community members—teachers, leaders, intellectuals—they are, all the time, thinking and discussing about quality education. But, the know-how is very important to

bring about the change. At what level intervention is necessary? What are the different stakeholders? We need to find collaboration. This is now gradually, organically happening.

Participants observed that the process of archiving has brought together the younger generations' technical skills and elders' wealth of knowledge to create lasting digital resources.

Bihung Brahma explained to elders:

If he [Fr. Kalandai Swami] wishes to archive some work he has done, UNT can help him, and NIB can help him... We have now the equipment—scanners, cameras. The research assistants, they're trained.

[NIB] has already formed a good team, a young team. They will be digitizing your [Fr. Kalandai Swami's] materials, if you permit it.

Of course, digitization is beneficial for preservation; beyond that, participants saw these partnerships as one way of bridging the inter-generational gap. The process of documenting elders' oral histories is another activity which strengthens the connection between generations.

Hirock Boro described his experience recording an elder's oral history:

Being a Boro speaker, it was fascinating for me to know about the [Boro] history from a very real perspective. She [elder] was imagining what her childhood was like, and expressing herself, and she was laughing! So, it was a very good experience.

He expressed gratitude that he could learn from elders firsthand, while also enabling future generations to connect to Boro history through the archive.

In the process of compiling and creating material for archiving, participants were inspired to involve more people in the documentation process. For example, while discussing the documentation of traditional ecological knowledge (TEK), Dhanjita Swargiary formed a plan to incorporate this activity into the events of the *Bwsagu* festival:

We will ask everybody to list their veggies that they're familiar with, and then we sort of compile a list. Yes, yes, actually it's nice! I'll propose this, to try that with whoever will be collecting herbs. I will propose this idea to my elderly people there, and we can find every household—whatever herbs they have collected—they could bring one piece and write in the name.

Additionally, she proposed ways to generate interest in traditions, particularly among younger generations. For example, she described organizing a competition to encourage young Boros in her village to participate:

We can do one thing, like, every village, each household, we can have a competition where, whoever can find the more [most] herbs, they will be the winner! So, in that way, even a small child will be interested to participate!...Competition is something that always excites someone, so they can prove themselves. But, it is a positive point that, they'll learn some of the things [customs], because, suppose to say that I do not know what these herbs are. So, if I say that there is a competition, I'll have that in mind that 'Oh, I have to beat someone!'...It will be very helpful, the knowledge that I gain from that. I will be able to know some more herbs than before. [emphasis added]

Participants found that documenting traditional ecological knowledge and festival events for posterity sparked new ideas for promoting the Boro language and culture.

4.4.5 Summary

This section described the applications of archival material to support the Boro community's goals to promote their language and culture. Overall, participants viewed the archive as a repository of materials that will be used in the arts, academics, Boro medium education, and teacher training. Beyond that, they visualized the archive as a continually-evolving resource with the potential to bring people from different backgrounds together towards their common goals. They observed that developing the archive has increased Boro's digital presence and created opportunities for researchers to share and discover information. Finally, during the archiving process, participants initiated new activities to support their goals, like raising awareness of Boro culture, strengthening connections between older and younger generations, and preserving elders' knowledge into the future.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

5.1 Discussion

The purpose of this research was to understand how language communities can support their language revitalization goals through the archiving process. To explore this topic, this case study was conducted on one archival collection: the Boro Language Resource (BLR) collection in the Computational Resource for South Asian Languages (CoRSAL) archive. Chapters 1 and 2 introduce the research by describing the history and unique needs of the Boro community, along with key developments regarding Indian language and education policies, language documentation and archiving, and the larger archiving community. Two theoretical frameworks are discussed: the community paradigm of archiving (CPA) and community-based language research (CBLR). Chapter 3 details the methods used to carry out the research, and Chapter 4 outlines the findings for each research question.

In this final chapter, key findings are summarized and then discussed further in the contexts of Boro history and the relevant theoretical frameworks (5.1). The following sections discuss the significance of the present research (5.2), identify immediate practical implications, as well as broader directions for future research (5.3), and review limitations of the study (5.4). Section 5.5 concludes the dissertation.

5.1.1 Research Questions and Findings

This section summarizes the findings of the research presented in Chapter 4. The following research questions guided this case study:

1. What are the current language revitalization activities happening in the Boro community?

2. What genres of information resources did the creators choose to include in the Boro Language Resource, and why?
3. How will these information resources be used in language revitalization activities in the Boro community?

Key findings of each research question are discussed in the following sections.

5.1.1.1 Boro Language Revitalization Activities

The first research question established the activities undertaken by the Boro community to promote their language and culture. Findings revealed a wide range of ongoing activities in the academic, social, artistic, and educational spheres to raise awareness, document Boro traditions, and increase educational opportunities for Boros. Bihung Brahma explained that these initiatives are sustained through collaborations between local organizations, universities, and schools:

All Boro Students Union are working, but this is not everything. Similarly, Bodo Sahitya Sabha [is] working for the language and literature, but this is not everything! So, we need many people, many minds, and many kinds of activities which contribute to the community. [emphasis added]

Participants described their goals to raise awareness of Boro culture within the Boro community, throughout Assam, and even globally. Specifically, they are aiming to encourage Boro youths to take pride in their language and culture. Boros are creating digital resources to document the Boro language and traditions like oral literature and histories, art, music, and social customs. Through community outreach, analog materials like books, manuscripts, and audiovisual recordings made on older media are being identified for digitization. Finally, participants highlighted the importance of Boro medium education (schooling provided in the Boro language) for the continued vitality of Boro. To support Boro medium education, local researchers and education advocates are conducting teacher training workshops, updating educational material, and holding open forums for parents, teachers, and administrators to discuss their concerns.

5.1.1.2 Collection Contents and Inclusion Criteria

The second research question dealt with the material comprising the collection, and the creators' motivations for selecting these materials. The collection contains material in twelve genre categories: *traditional narrative, personal narrative, socio-historical narrative, conversation, discussion, poetry, formal speech, description, performance, translation, magazine excerpt, and elicitation*. The creators described their motivations to archive materials representing Boro traditions, and those they believed could be relevant for education and research about the Boro language, culture, and history. Inclusion criteria categories include *rarity, tradition, regional variation, pedagogy and teacher training, language learning, historical and cultural significance, and linguistics research*.

Given the Boros' current focus on education, it is unsurprising that approximately half of the items were included to support education. However, in addition to material intended for use directly in the classroom, the creators added several speeches and essays on higher-level pedagogical concepts to engage Boro education advocates. Creators expressed their hopes that, with exposure to these ideas, future generations will be inspired to pursue careers in education, policy, or research. The variety of educational materials included aims to address both the short term goal of sustaining the existing education system, as well as the larger goal of affecting lasting, systemic improvements to Boro medium education.

Aside from education, the collection content represents art, oral histories, and traditional social customs like festivals, rituals, and religious beliefs. This includes practices still present in daily life for many Boros, as well as those becoming increasingly rare due to modernization. As they continue to develop the collection, the creators explained that they will prioritize documentation of lesser-known aspects of Boro culture and regional varieties of the Boro

language. In addition to preserving records of Boro traditions, this documentation can inform future research on the Boro language and cultural changes over time.

5.1.1.3 Applications of Archival Material

The final research question sought to identify applications of archival material to the language revitalization activities outlined in the first research question: raising awareness, preserving the Boro language and culture, and improving mother tongue education. Participants predicted that the collection would raise awareness, for example, by sparking curiosity among Boros and foreigners alike:

I feel like, if things like that [cultural information] were available, it would get other people to learn more about it, and maybe go for extensive reading, and want to learn more. Like, 'Oh, things like this exist? What can I do about it? Let's find out more!'
[emphasis added]

Participants expressed that information resources on the Boro culture, language, and history would be utilized, especially by academics. The BLR provides access to relevant information, as well as a platform for scholars to disseminate their own work for others to build on.

The second revitalization activity identified—preservation—is directly accomplished through the archiving process. That is not to say that the BLR constitutes a comprehensive documentation of the Boro language, culture, and history; of course, it is not realistic to expect that the 154 items in the BLR represent the entirety of Boro culture, nor the full spectrum of structural possibilities in the language. Still, the collection constitutes a significant contribution to the existing documentation of Boro language and culture. The creators noted that additional perspectives, varieties, and genres are needed for a more representative collection.

Participants discussed the overarching goal of preservation from varying perspectives. They felt urgency to document the cultural practices and linguistic traditions most dramatically impacted by modernization and the loss of elders (e.g., silkworm rearing, weaving, oral

histories). At the same time, participants acknowledged that archiving alone could not prevent a tradition from changing over time, or falling out of use:

Just for the sake of preserving our identity and our culture, the way it [ritual] was done before the outside influence. This is exactly how it was done...It's not necessary that you [future generations] follow it, but just keep it there [in the archive]. [emphasis added]

Participants also emphasized the importance of preserving traditional practices in their daily lives whenever possible. Overall, participants agreed that preserving cultural documentation is beneficial for tracking changes over time, or re-creating traditional practices in the future.

Participants suggested several applications of archival material in mother tongue education, both concrete and abstract. They proposed ways that specific items could be used in lessons and classroom activities; for example, that an audio recording of a short dialogue may be used in a classroom listening activity, or the corresponding transcription as an example in a textbook. Beyond the classroom, participants noted that primary data could even be used to create educational mobile games. Items like teaching demonstrations and lectures would be incorporated into teacher training programs. Less concretely, the creators indicated that the speeches and essays on pedagogy in the collection would provide exposure to broader educational concepts, in the hopes to inspire Boros to critically examine and improve the current education system.

Lastly—and most significantly—participants observed that the archiving process itself presented new opportunities to promote the Boro language and culture. While creating resources for the collection, participants raised awareness within the Boro community about the value of documenting and preserving oral histories, artforms, and literature, and their ongoing efforts to do so. Through extensive community outreach, the creators and their collaborators have engaged youths, elders, artists, and writers in the archiving process and discussions about what materials

should be archived. Participants shared that fostering these connections was especially crucial now, given the contexts of the COVID-19 pandemic, modernization, and the widening inter-generational gap(s).

Opportunities for collaboration and outreach arose while participants were creating new documentation materials, compiling and assessing existing materials, or even preparing materials for ingest in the archive. See, for example, Dhanjita Swargiary's plan to document Traditional Ecological Knowledge (TEK) about local plants during the *Bwsagu* festival discussed in section 4.4.4. Her plan aims to increase participation in the festival activities and generate interest in documentation—specifically, among youths—by providing exposure to technology. Involving the whole village would include a wide range of perspectives in the resulting documentation, celebrate elders' knowledge, and raise awareness of the need to document these practices.

Dhanjita's plan is one example of participants' efforts to involve community members of all ages and backgrounds in cultural activities, the documentation process, and, eventually, the archival record. Participants anticipated that continued outreach and collaboration would guide the collection's development over time. Dr. Jyotiprakash Tamuli, for example, envisioned the collection continually “evolving to support the various activities that emerge as a result of the efforts of the people.” In the future, the collection's content and focus would adapt in response to community needs.

By actively including their community in the creation of the BLR, participants centered the documentation and archiving processes around social connections and community goals. This approach has, in turn, created a positive feedback loop wherein multiple goals (e.g., raising awareness among youths, preserving traditions, honoring elders) can be achieved simultaneously

throughout the archiving process. This finding illustrates that, beyond the archival material, the archiving process itself has advanced the Boros' revitalization goals.

5.1.2 Controlling the Narrative: Collaboration, Inclusion, Agency

During the Boro language movement and Bodoland movement, the Boro community advocated for their language to be recognized, for increased autonomy, and for the rights and resources to develop materials in Boro (e.g., textbooks, literature, artforms). Boro leaders aim to increase the representation of the Boro language and culture in Assam and throughout India, having identified education as a main area of emphasis. Though Boro medium education was initiated in Assam during the 1960s, these schools received minimal support from state and national governments. Boro medium schools have historically lacked sufficient teachers, resources, and educational materials to effectively deliver high quality education in Boro, as participants described in section 4.2.3.

Even after their language was officially recognized by state and national governments, the Boro community faced various challenges resulting from their history of oppression, discussed in section 4.2. Due to these decades of conflict, it was not safe for Boros to openly express their identity by speaking the language, wearing traditional dress, or participating in other Boro cultural traditions. As a result, many Boros became disconnected or distanced from their identity. During this time, there was no centralized effort to compile or document Boro literature, arts, traditions, or histories. The Boros found themselves severely lacking in language material, despite their rich tradition of oral literature and extensive community of writers. In recent years, Boro leaders are renewing their efforts to promote their language and culture by raising awareness, documenting arts and traditions, and improving Boro medium education.

These developments are happening concurrently in multiple forms, such as community events, cultural programs, and research on Boro topics, as discussed in section 4.4.

This case study focused on the development of the BLR collection in CoRSAL as one of many ways that the Boros are promoting their language and culture. Participants expressed that the process of creating the BLR brought them closer to the goals they had identified—to bring Boro onto the global stage; to ensure community memories and traditions would be preserved for future generations; and, to take Boro medium education into their own hands. In this way, the Boro community's experiences reflect several principles of the two theoretical frameworks discussed throughout this work—the community paradigm of archiving (CPA) and community-based language research (CBLR).

Firstly, the creation of the BLR aligns with the CBLR framework's call for language documentation and archiving to center language community interests. The content of the collection was determined entirely by Boro researchers based on their knowledge of the current needs in the community. The creators began by archiving cultural documentation and material they felt was relevant for education, as this was among the most pressing needs. They included the personal narratives, essays, and speeches of influential Boro leaders with the intent to engage the community in promoting Boro culture—particularly, Boro youths. Moving forward, the creators are consulting with Boro elders, artists, and writers to identify content to be included in the future.

The collaborative archiving process also reflects the principles of the community paradigm of archives (CPA) framework discussed in section 2.3.3. The CPA framework highlights the importance of communities' agency in the archiving process, describing an archive's role as a facilitator for communities. The BLR creators spearheaded the collection's

development by initiating community discussions and compiling materials. The CoRSAL team supported the creators by providing training in data management and metadata creation, as well as access to infrastructure (e.g., cloud storage space, the UNT Digital Library interface). Through this collaboration, the creators were able to steer the archiving process forward according to their timeline and needs, while consulting the CoRSAL team as needed.

Further, the CPA framework aims for archives to serve broad audiences and represent the contributions of multiple voices. This framework encourages collaboration—both within the community involved in archiving, and between archives and communities. In addition to the fruitful partnership between the CoRSAL team and Boro scholars, the BLR creators have engaged members of the Boro community from a wide range of ages, backgrounds, disciplines, and regions in an effort to ensure the collection speaks to their various needs. Participants even noted that the archiving process revealed novel ways to promote their language and culture. Historically, the Boros have fought for representation—Mr. Surat Narzary lamented that, after decades of oppression, the history of the Boros was “eradicating from [their] memory, from the records, too.” However, the archiving process is offering an opportunity for the Boros to create new records and represent themselves in their own words.

Finally, the creation of the BLR embodies the CPA framework principle which posits archiving as a form of activism. Specifically in the area of education, creating digital resources has allowed the Boro community to exercise agency over their education in ways not possible in the past. Previously, Boro education advocates petitioned for increased representation of the Boro language and culture in educational material via bureaucratic channels. The Boro community is now focusing their efforts on creating their own educational materials which

conform to the state education standards. Prafulla Basumatary described this turning point in Boro education:

But, now, with exposure and more insight due to the globalization, some scholars have thought, 'We can bring out better books!' [emphasis added]

Rather than relying on government organizations to meet their needs, the Boro community is taking on the task of improving their education system themselves. Likewise, in the absence of support and resources for teacher training from the state or national governments, Boro researchers are working with Boro medium schools to develop teacher training programs locally, using archival material to supplement hands-on training.

5.2 Significance

This dissertation represents the first in-depth look at how community-based archiving impacts language revitalization efforts and the application of archival materials. The case of the Boros exemplifies the 'revitalization-driven' documentation and archiving process that Nathan and Fang (2013) call for. By detailing the Boros' archiving process, this research stands to inform and inspire future community-based archiving initiatives. As the language documentation and archiving communities employ increasingly collaborative workflows, and language communities become further empowered to create resources in their languages, this case study will serve as a model for effective, respectful partnerships between language communities and language archives. Additionally, this research brings a unique perspective to the community paradigm of archiving framework.

Finally, this case study highlights the role the archiving process can play in advancing a language community's revitalization goals. For the Boros, ongoing revitalization efforts include spreading awareness, preserving Boro culture, and strengthening Boro education. It is crucial to understand that creating an archival collection cannot, in itself, achieve these goals. Rather, the

archiving process attracted renewed interest and attention to these initiatives within the Boro community, creating the sort of ripple effect of possibilities described by Chelliah (2021, p. 90-91). The archive is one of the many tools being used to reach these goals, alongside community-based outreach and research.

5.3 Practical Implications and Directions for Future Research

This section reviews the practical implications of the case study and proposes directions for future research in this area. Practical implications regarding collection development and community outreach are discussed in the following sections.

5.3.1 Collection Development

The present case study was focused on the first set of materials in the BLR. However, the creators plan to add more material to the collection over time. The next set of material is expected to be added in 2023, including speeches and interviews with influential Boro leaders, cultural documentation, video and audio recordings representing additional varieties of Boro, and textbooks created by Boro educators. Future additions to the collection will include multi-lingual content to support early literacy based on primary archival material; for example, a children's book in both Boro and English which readers can follow along with an audio recording. As described in section 5.1, the creators plan to expand the collection based on discussions with stakeholders in the Boro community such as elders, artists, writers, educators, and researchers.

5.3.2 Community Outreach

As the BLR continues to grow, it is necessary to hold outreach events to educate the Boro community about the collection. To ensure the collection can be maximally useful for education,

outreach will prioritize Boro teachers and students. Teacher training events planned for summer 2023 will include demonstrations of incorporating audiovisual resources into lessons.

In addition to training, future plans aim to increase the accessibility of the collection, specifically for teachers. The BLR creators and the CoRSAL team plan to develop a simplified site for Boro teachers, separate from the CoRSAL archive interface, including sample lesson plans using archival material. A lesson plan may include 3-4 activities based on an item from the collection to practice different skills; for example, students may listen to a short narrative from the archive, have a conversation about the narrative with a partner, then write an alternate ending to the narrative. These lesson plans would provide the explicit guidance teachers need to improve their confidence in conducting classroom activities. Further, designing a dedicated resource for teachers may decrease the potential barriers to accessing archival material, such as the lack of familiarity with digital library interfaces. This approach allows for the inclusion of specialized information to help teachers find resources (e.g., grade levels, subject areas, skills) beyond what is included in the BLR metadata.

This case study revealed that creating printed material is another way of making the contents of the BLR more accessible for use in local schools. Although Boro teachers and students are interested to include digital resources in the classroom, many schools do not consistently have access to internet connectivity, electricity, or the appropriate devices. Distributing printed versions of textual material and lesson plans will allow teachers to incorporate these resources regardless of their access to technology.

5.3.3 Directions for Future Research

To expand on the present study, future research could explore the experiences of additional language communities creating archival collections. For example, it may be useful to

compare the Boros' archiving process with that of other language communities, such as those with smaller populations, those dispersed over large geographical areas (e.g., diaspora communities), those using signed languages, or those without established writing systems. Understanding the impact of these factors could inform language archives' approaches to supporting various language communities throughout the archiving process.

In regards to education in India, the revised National Education Policy commits to supporting mother tongue education in all Indian languages (Ministry of Human Resource Development, 2020, p. 8). If this policy is indeed implemented, literacy and educational materials will need to be developed for hundreds of languages in a relatively short time, as well as teacher training programs which address the specific needs of mother tongue educators. Future research may explore strategies for developing mother tongue education programs and their outcomes. More generally, further research is needed on the development of pedagogical materials based on primary language data. Spence (2018) discusses the challenges of adapting primary archival data for use in the classroom; however, these are the only extant resources for many languages. Collaborative research conducted by language communities, applied linguists, local educators, and administrators could propose practical approaches to overcoming those challenges.

5.4 Limitations

As a case study, the findings of the present research cannot be expected to apply universally to every language community, nor to every archival collection. Similarly designed research with additional language communities in different circumstances would undoubtedly reveal novel insights beyond those mentioned here.

The methodological issues discussed in section 3.4 also constitute limitations. These include known shortcomings of the data collection and analysis methods used in the study. Further, the recruitment of participants was limited by the availability of potential participants and restrictions on travel due to the COVID-19 pandemic. Finally, this case study was focused on the Boro community in the Bodoland Territorial Region in Assam; data was primarily collected in Kokrajhar and Chirang districts. However, perspectives of Boros living elsewhere in Assam, in other Indian states (e.g., West Bengal, Arunachal Pradesh), and outside of India in Bhutan and Nepal were not included in this case study.

5.5 Conclusions

Linguists have explicitly identified the discipline's obligation to ensure that our work supports language revitalization efforts. Similarly, information professionals are meant to ensure that information is accessible to all (American Library Association, 2019). As an interdisciplinary endeavor, those involved in language archiving should strive to uphold both of these responsibilities to the communities we serve. This case study has demonstrated how the archiving process and resulting access to information resources can mobilize a language community towards their goals.

Specifically in the Indian context, we can expect the need for access to language materials to increase exponentially in light of the revised National Education Policy's promise of government support for mother tongue education. Hopefully, the coming years will see more and more language communities taking on documentation, archiving, and education projects of their own—particularly in the Northeast region. This research is intended to provide language communities with guidance through these daunting initiatives, and encouragement as they continue advocating for their languages.

APPENDIX A

SEMI-STRUCTURED INTERVIEW AND FOCUS GROUP GUIDE (ENGLISH)

Creators

1. Tell me about your experience with the Boro language.
2. How long have you been involved with those activities?
3. Have you archived language material in the past? (at any archive, not just CoRSAL)
4. Tell me about that experience. What material did you archive (e.g., word lists, stories, conversations, textual material, videos?)
5. Describe your thought process when gathering material for the Boro Language Resource.
6. Tell me about this item--how could this be used in a classroom?
7. Can you tell me about a time that you've used the collection since archiving?

Teachers, NIB members

1. Tell me about your experience with the Boro language.
2. How long have you been teaching/ involved with this program?
3. What is your role in the organization?
4. Describe a typical day in your classroom/ a typical event at your organization.
5. Do students/ participants use mobile phones or computers in the classroom?
6. Can you tell me about a time that you've used resources from the internet in the classroom/ at your events?

Definitions and Terminology

Term	Definition	Examples
Language documentation	Activities related to recording language use. Could include audio, video, photographs, or textual material.	Recording your brother telling a story Gathering books and manuscripts in your language
Language archiving	Activities related to storing cultural and linguistic material in a repository.	Depositing audio and video in ELAR, or PARADISEC Scanning photographs, books, and other textual material
Archival collection	A set of items within a language archive.	Mizo Language Resource : a set of audio files in the Mizo language from the 1970s-80s Turung, a variety of Singpho (India) : a set of audio files in the Turung language from 2002-2006
Language revitalization	Activities related to promoting an endangered language.	Teaching the language in school Holding cultural events related to literature, food, music, art, etc.

APPENDIX B

SEMI-STRUCTURED INTERVIEW AND FOCUS GROUP GUIDE (BORO)

(सोर्जिग्राफोरनि जुनै)

1. Tell me about your experience with the Boro language. (अननानै बर' रावनि सायाव नोंथानि मोनदांथिनि (रोंगौथि) बागै एसे बुंदो।)
2. How long have you been involved with those activities? (नोंथाडा बेसे गाबावनिफ्राय बेफोरबादि खामानिजों सिथाबना दं?)
3. Have you archived language material in the past? (at any archive, not just CoRSAL) (CoRSAL नि अनगायैबो आगोलाव नोंथाडा बबावबा रावनि बिदिन्थिफोर दोनथुमखांबाय नामा?)
4. Tell me about that experience. What material did you archive (e.g., word lists, stories, conversations, textual material, videos?) (नोंथाडा रावनि मा मा बिदिन्थि महरफोर दोनथुमखो? अननानै नोंथानि मोनदांथिफोरखौ बुंदो।)
5. Describe your thought process when gathering material for the Boro Language Resource. (बर' राव बाख्रिनि थाखाय रावनि बिदिन्थि बुधुमनाय समाव नोंथानि सानदांथिफोरनि बागै एसे गुवारै बुंदो।)
6. Tell me about this item--how could this be used in a classroom? (अननानै नैबे मोनसे बुधुमथिनि बागै बुंदो, आरो लोगोसे बे बोरै थाखो खथायाव बाहायजागोन बिनि बागैबो एसे बुंदो?)
7. Can you tell me about a time that you've used the collection since archiving? (दोनथुमनाय समनिफ्राय लाना नोंथाडा बे दोनथुमख'खौ माल्ला आरो बोरै बाहायखो एसे बुंदो हागोन नामा?)

(फोरोंगिरि आरो सोद्रोमाफोरनि जुनै)

1. Tell me about your experience with the Boro language. (अननानै बर' रावनि सायाव नोंथानि मोनदांथिनि (रोंगौथि) बागै एसे बुंदो।)
2. How long have you been teaching/ involved with this program? (नोंथाडा माल्लानिफ्राय बे खामानिजों लोब्बा दं?)
3. What is your role in the organization? (बे फसंथानआव नोंथानि खामानि एबा बिफावआ मा?)
4. Describe a typical day in your classroom/ a typical event at your organization. (थाखो खथायाव / बे फसंथानआव नोंथानि गोसोआव नांथावना मोनसे सान एबा जाथायनि बागै एसे गुवारै बुंदो।)
5. Do students/ participants use mobile phones or computers in the classroom? (नोंथानि थाखो खथायाव फरायसाफ्रा मबाइल एबा कम्पुटर बाहायो नामा?)
6. Can you tell me about a time that you've used resources from the internet in the classroom/ at your events? (नोंथाडा माल्लाबा थाखो खथायाव नडाबा खामानियाव दोनथुमख'नि बाख्रिखौ फरायसाफोरनो फोरोंनायाव बाहायदोंबा एसे बुंदो?)

(बुंफुरलु आरो बेखेव सोदोबफोर)

बेखेव सोदोब	बुंफुरलु	बिदिन्थि
राव दिन्थिफुंनाय	राव बाहायनायखौ रेकर्डि खालामनायजों लोब्बा गोनां हाबाफोर – जैरै अडिअ', भिडिअ', फथक, एबा लिरनाय बेसाद	(नोंनि नोंदा बुंनाय सल'खौ रेकर्डि खालामनाय) (नोंनि रावनि बिजाब आरो लिरथायफोरखौ बुथुमनाय)
राव दोनथुमथि	हारिमुवारि आरो रावनि बेसाद दोनथुमनायजों लोब्बा गोनां हाबाफोर	एबा आव अडिअ' आरो भिडिअ' दोनथुमनाय फथक, बिजाब आरो लिरनाय जिनिस् साफायनाय
दोनथुमनो थाखाय बुथुमनाय	राव दोनथुमख'नि सिङाव थानाय माखासे जथाय बेसाद	मिज' रावनि दोनथुमख: 1970-80 समनि मिज' रावनि अडिअ' बेसाद टुरुं, सिंफौनि मोनसे दालाय राव (भारत): 2002-2006 समनि टुरुं रावनि अडिअ' बेसाद
(राव फोगोमफिननाय	गोमालांनो हमनाय रावखौ हमथानाय आरो फोरेंनायजों लोब्बा गोनां हाबाफोर	रावखौ फरायसालियाव फोरेंनाय थुनलाइ, जानाय-लोंनाय, दामनाय-देनाय, रोजाबनायजों सोमोन्दोगोनां हारिमुवारि हाबाफारि खुंनाय

APPENDIX C

OPERATIONAL DEFINITIONS OF GENRE CATEGORIES

Genre Category	Operational Definition
Traditional narrative	Narration of a folk tale, legend, or myth.
Personal narrative	Narration of events in a speakers' life and personal experiences.
Socio-historical narrative	Narration of events in the past, including content on political and professional developments.
Conversation	Dialogue between two or more individuals.
Discussion	Dialogue between three or more individuals.
Poem	Creative text including verses and/or figurative language.
Formal speech	Monologue given at a formal event.
Description	Explanation of an ethnographic topic (e.g., cooking, social customs).
Performance	Iteration of a creative work, (e.g., song, skit, poem, blessing).
Translation	Material originally created in another language which has been translated into Boro.
Magazine excerpt	Passage taken from a magazine and/or journal.
Elicitation	Content collected using a written or verbal prompt (e.g., questionnaire, word list), or visual stimuli (e.g., pictures, video).

APPENDIX D

OPERATIONAL DEFINITIONS OF INCLUSION CRITERIA CATEGORIES

Inclusion Criteria Category	Operational Definition
Rarity	Content included because it is rare, or becoming less common.
Tradition	Content included because it documents Boro traditions.
Regional variation	Content included because it documents aspects of Boro language and culture which vary by region.
Pedagogy and teacher training	Content included because it related to pedagogical approaches and teaching methods.
Language learning	Content included because it may be useful for language learning because it models of a communicative action (e.g., polite speech, formal speech, elders addressing juniors, introductions), writing style (e.g., poems), or certain construction (event sequencing, questions). Includes content included because it was created as part of the Bodo Proficiency Project.
Historical and cultural significance	Content included because of its cultural, social, and/or historical significance. Includes content related to major points in Boro history, and significant figures and activists in the Boro community.
Linguistics research	Content included because it may be of interest for linguistic research because it contains examples of certain phenomenon (e.g., code-switching, use of loan words).

APPENDIX E

INFORMED CONSENT FORM



UNIVERSITY OF NORTH TEXAS®

Informed Consent for Studies with Adults

TITLE OF RESEARCH STUDY: Designing archival collections to support language revitalization

RESEARCH TEAM: Mary Burke, Department of Information Science, maryburke@my.unt.edu

Doctoral dissertation research conducted under supervision of Shobhana Chelliah, Department of Linguistics, +1 (940) 565-3851, shobhana.chelliah@unt.edu

You are being asked to participate in a research study. Taking part in this study is voluntary. The investigators will explain the study to you and will answer any questions you might have. It is your choice whether or not you take part in this study. If you agree to participate and then choose to withdraw from the study, that is your right, and your decision will not be held against you.

You are being asked to take part in a research study about how the Bodo language, and how material from language archives is used to promote Indigenous languages.

Your participation in this research study involves an interview (approximately 30 minutes) about your experiences with the Bodo language. You may also participate in a focus group (approximately 30 minutes) with other participants. More details will be provided in the next section.

You might want to participate in this study if you are involved in promoting the Bodo language and want to share your experiences. However, you might not want to participate in this study if you do not have time, or do not want to share your experiences. You may choose to participate in this research study if you are over 18 years old. To be eligible to participate in this study, you must be able to speak and read fluently in English.

The reasonable foreseeable risks or discomforts to you if you choose to take part are none beyond what you would normally experience in your regular everyday life, which you can compare to the possible benefit of advancing the fields of information science and linguistics by improving understanding of how language archives are used. You will not receive compensation for participation.

DETAILED INFORMATION ABOUT THIS RESEARCH STUDY: The following is more detailed information about this study, in addition to the information listed above.

PURPOSE OF THE STUDY: You are being asked to take part in a research study about how material from language archives is used to promote Indigenous languages. Language archives are repositories of language data (audio, video recordings, photographs, textual transcriptions, translations and analyses) intended to provide long-term preservation of and access to the languages of the world. This study seeks to understand how the material in language archives can be used in the future, specifically, how archival material can support *language revitalization*—efforts to increase the use of the language through language classes and cultural programs.

TIME COMMITMENT: Participation in this study is expected to last approximately 30 minutes for interviews, and 30 minutes for focus groups, for a total of 1 hour if a participant participates in both an interview and focus group.

STUDY PROCEDURES: This study involves interviews and focus groups about your experiences with the Bodo language and how material from language archives is used to promote Indigenous languages. Interviews and focus groups will be conducted in English or Bodo depending on your preference. English interviews and focus groups will be conducted by Mary Burke, with the assistance of a translator for Bodo interviews and focus groups. After participating in an interview, you may be asked to also participate in a focus group. Sensitive subject matter is not involved. You may skip interview and focus group questions that you do not wish to answer.

AUDIO/VIDEO/PHOTOGRAPHY:

☐ **I agree** to be [choose audio recorded/video recorded/photographed as appropriate] during the research study.

☐ **I agree** that the [choose audio recorded/video recorded/photographed as appropriate] can be used in publications or presentations.

☐ **I do not agree** that the [choose audio recorded/video recorded/photographed as appropriate] can be used in publications or presentations.

☐ **I do not agree** to be [choose audio recorded/video recorded/photographed as appropriate] during the research study.

You may not participate in the study if you do not agree to be audio recorded/video recorded/photographed. The recordings will be kept with other electronic data in a secure UNT OneDrive account for the duration of the study. With your consent, the recordings will be uploaded to CoRSAL, a language archive at the University of North Texas.

POSSIBLE BENEFITS: There are no direct personal benefits, but participation in this study may benefit the fields of information science and linguistics.

POSSIBLE RISKS/DISCOMFORTS: This research study is not expected to pose any additional risks beyond what you would normally experience in your regular everyday life. However, if you do experience any discomfort, please inform the research team. You may choose to contact the Fortis Stress Helpline: +918376804102 or the AASRA 24x7 Helpline: +91-9820466726.

Participating in research may involve a loss of privacy and the potential for a breach in confidentiality. Study data will be physically and electronically secured by the research team. As with any use of electronic means to store data, there is a risk of breach of data security.

Participating in this research study may involve increased risk of exposure to COVID-19 due to in-person interactions with the research team. The study team will follow local regulations and institutional policies, including using personal protective equipment (masks) and social distancing guidelines while those regulations and policies are in effect. If you have any questions or concerns, please discuss them with your research team.

If you experience excessive discomfort when completing the research activity, you may choose to stop participating at any time without penalty. The researchers will try to prevent any problem that could happen, but the study may involve risks to the participant, which are currently unforeseeable. UNT does not provide medical services, or financial assistance for emotional distress or injuries that might happen from participating in this research. If you need to discuss your discomfort further, please contact a mental health provider, or you may contact the researcher who will refer you to appropriate services. If your need is urgent, helpful resources include the Fortis Stress Helpline: +918376804102 or the AASRA 24x7 Helpline: +91-9820466726.

COMPENSATION: No compensation will be offered for participation in this study.

CONFIDENTIALITY: Efforts will be made by the research team to keep your personal information private, including research study records, and disclosure will be limited to people who have a need to review this information. All paper and electronic data collected from this study will be stored in a secure location on the UNT campus and/or a secure UNT server for at least three (3) years past the end of this research on a password protected computer in the PI's faculty office. Research records will be labeled with a code and the master key linking names with codes will be maintained in a separate and secure location.

☐ **I agree** for my name to be used in the dissemination of study results.

☐ **I do not agree** for my name to be used in the dissemination of study results.

Please be advised that although the researchers will take these steps to maintain confidentiality of the data, the nature of focus groups prevents the researchers from guaranteeing confidentiality. The researchers would like to remind participants to respect the privacy of your fellow participants and not repeat what is said in the focus group to others.

The results of this study may be published and/or presented naming you as a participant. The data collected about you for this study may be used for future research studies that are not described in this consent form. If that occurs, an IRB would first evaluate the use of any information that is identifiable to you, and confidentiality protection would be maintained. If you consent for their recordings to be made public, they will be archived in CoRSAL, the Computational Resource for South Asian Languages, part of the UNT Digital Collections. Interviews archived in CoRSAL will be available to anyone with internet access. For participants who prefer for their interview to be private, Mary Burke and Shobhana Chelliah, will be the only ones with access to the recordings. The data will be analyzed and the results will be reported in Mary Burke's doctoral dissertation.

While absolute confidentiality cannot be guaranteed, the research team will make every effort to protect the confidentiality of your records, as described here and to the extent permitted by law. In addition to the research team, the following entities may have access to your records, but only on a need-to-know basis: the U.S. Department of Health and Human Services, the FDA (federal regulating agencies), the reviewing IRB, and sponsors of the study.

CONTACT INFORMATION FOR QUESTIONS ABOUT THE STUDY: If you have any questions about the study you may contact Mary Burke at maryburke@my.unt.edu or Shobhana Chelliah at shobhana.chelliah@unt.edu. Any questions you have regarding your rights as a research subject, or complaints about the research may be directed to the Office of Research Integrity and Compliance at 940-565-4643, or by email at untirb@unt.edu.

CONSENT:

- Your signature below indicates that you have read, or have had read to you all of the above.
- You confirm that you have been told the possible benefits, risks, and/or discomforts of the study.
- You understand that you do not have to take part in this study and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits.
- You understand your rights as a research participant and you voluntarily consent to participate in this study; you also understand that the study personnel may choose to stop your participation at any time.
- By signing, you are not waiving any of your legal rights.

Please sign below if you are at least 18 years of age and voluntarily agree to participate in this study.

SIGNATURE OF PARTICIPANT

DATE

***If you agree to participate, please provide a signed copy of this form to the researcher team. They will provide you with a copy to keep for your records.**

For the Principal Investigator or Designee:

I certify that I have reviewed the contents of this form with the subject signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

Signature of Principal Investigator or Designee

Date

APPENDIX F

IRB APPROVAL LETTER



February 10, 2022

PI: Shobhana Chelliah

Study Title: Designing archival collections to support language revitalization

RE: Human Subjects Application # IRB-21-617

Dear Dr. Shobhana Chelliah:

In accordance with 45 CFR Part 46 Section 46.104, your study titled "Designing archival collections to support language revitalization" has been determined to qualify for an exemption from further review by the UNT Institutional Review Board (IRB).

Attached to your Cayuse application in the Study Detail section, under the Attachments tab, are the consent documents (if applicable to your study) with the stamped IRB approval. Please use the approved consent copy for your study subjects.

No changes may be made to your study's procedures or forms without prior written approval from the UNT IRB. Please contact The Office of Research Integrity and Compliance at 940-565-4643 if you wish to make any such changes. Please note, this research protocol is only approved for a period of three years. After the third anniversary of the approval, if the PI wishes to continue the project, a new protocol must be submitted for review.

We wish you success with your study.

Note: Please do not reply to this email. Please direct all questions to untirb@unt.edu

Sincerely,

APPENDIX G

OPERATIONAL DEFINITIONS OF THEMES FOR INTERVIEWS AND FOCUS GROUPS

Theme	Operational Definition
What to archive	Discussion of which items should be added to the collection, or what should not. Includes significance of certain items or types of materials (e.g., video, poetry, oral histories).
Motivations for archiving	Discussion of why people add items to the collection, and how participants envision the material being used in the future.
Technology awareness	Discussion of participants' experience with technology, such as general awareness, perception, ability to use effectively.
Expression of Boro identity	Discussion of Boro identity and culture, and ways that Boros have expressed their identity over time. Includes discussion of Bodoland movement.
Educational experiences	Discussion of current and past circumstances of education in Assam. Includes English and Assamese medium education in addition to Boro medium education.
Revitalization activities	Discussion of ongoing and planned initiatives to promote Boro language and culture. Includes applications of archival materials.
Boro language status	Discussion of perceptions of Boro language and culture, both within the Boro community and from outsiders (elsewhere in India, foreigners), and overall status of development of resources in/about the Boro language and culture. Includes discussion of regional variation.

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