

*Community, Technology, Education, and Language: A case study in digital language resource development for a minorized language*

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In this paper we briefly describe the development of the Coeur d'Alene Online Language Resource Center (COLRC), a digital tool accessible online via computer or mobile device. The COLRC was developed for the Skitswhish/Coeur d'Alene community for the development of pedagogical resources for the revitalization and maintenance of the Sñchitsu'umshtsn/Coeur d'Alene language, culture, and history. The paper describes how this was a community-based grass-roots research endeavor and how it is being used today in the community. We conclude by arguing that the project can serve as a case study for collective impact approaches to large scale social endeavors such as the UN Sustainable Development Goals to ensure *the inclusion of minorized languages in current societies through linguistic planning, technology, and educational and pedagogical practices that articulate, and promote, plurilingual societies*.

Key words: *Coeur d'Alene, community-based research, collective impact, language revitalization, UN Sustainable Development Goals, minorized language*

## **1. Introduction**

In this paper we briefly discuss two approaches, *community-based research* (Rice 2010, 2011, to appear; Czaykowska-Higgins 2009; Bischoff & Jany to appear a) and *grass-roots digital development* (Bischoff & Fountain 2012), in the fields of linguistics and anthropology that have led to the development of online digital language resources for language maintenance, revitalization, and education as well as linguistic and anthropological research. We discuss the merits of the methodologies and challenges related to their implementation. We conclude that the project described below can serve as a case study demonstrating the power, and necessity, of small scale community based projects and how they might be integrated into larger global projects such as the UN Sustainable Development Goals (SDGs) through a *collective impact* model (Kania & Kramer 2011).

We begin by providing a working definition of community-based research and grass-roots. We then discuss the development and implementation of the Coeur d'Alene Online Language Resource Center, a grass-roots community based research project, and how it is being used to repatriate linguistic and cultural knowledge and artifacts in addition to reviving the critically endangered Sñchitsu'umshtsn/Coeur d'Alene language from within the community in partnership with a team of academic scholars and a software engineer. We conclude with a brief discussion of how such community-based grass roots projects could be leveraged through a collective impact approach to advance the UN SDGs and thus provide another means of ensuring *the inclusion of minorized languages in current societies through linguistic planning, technology, and educational and pedagogical practices that articulate, and promote, plurilingual societies*.

We recognize that *community-based research* (CBR) within linguistics and anthropology is an evolving concept (see Bischoff & Jany to appear a, b), but for our purposes Rice (2011) and Czaykowska-Higgins (2009) provide necessary foundational concepts for any definition of CBR within linguistics and anthropology. Rice notes “[c]ommunity-based research has at its core community involvement through all stages of the research...” (p. 189) and further notes the following: “...Similar definitions are found in other places. The Centre for Community Based Research ([http://www.communitybasedresearch.ca/Page/View/CBR\\_definition.html](http://www.communitybasedresearch.ca/Page/View/CBR_definition.html); accessed 20 July 2010) identifies three major aspects of this type of research, summarized below.

- Community situated: research begins with a topic of practical relevance to the community (as opposed to individual scholars) and is carried out in a community setting.
- Collaborative: community members and researchers equitably share control of the research agenda through active and reciprocal involvement in the research design, implementation, and dissemination.
- Action-oriented: the process and results are useful to community members in making positive social change and promoting social equity.” (p. 190)

While it is the case that the above suggest a *practice* or *methodology*, others have suggested such elements in any definition expand the notion of CBR to include *ideological elements* (see Bischoff & Jany to appear b). For the discussion that follows it is perhaps best to consider CBR a *tool* reflective of an *ideology* or *philosophy* grounded in research practices that are *community situated*, *collaborative*, *action oriented*, and *community involved*.

As noted in (Bischoff & Fountain 2013), *grass-roots development* is inherently community based, because it is community situated and community involved – but it is furthermore sensitive to the availability and extend of local resources. Grass-roots projects originate as un- or under-funded initiatives. Because such projects are not typically begun with external funding, they need not be tied to the goals and objectives of granting agencies, and can instead be focused entirely on community-generated goals. However, the lack of external resourcing also affects the type of work that is feasible to do, with grass-roots projects being highly constrained by local resources and local expertise.

Before moving on we should address one more problematic term: *community*. Community at its core is a concept that describes social organization, but that connotes a wide range of meanings. For our purposes social groups identified as communities minimally represent groups based on *geography*, *identity*, and *interest or solidarity* (Aggarwal n.d.). In the project described below the three converge in that the participants represent a specific geographic area, have multiple identities grounded within characteristics or attributes associate with different groups of people (e.g. Tribe, university, socio-economic status, etc.), and share the stated interest of maintaining, documenting, and preserving a language for educational and cultural purposes.

## 2. The Coeur d’Alene Online Language Resource Center

Snchitsu’umshtsn, or Coeur d’Alene (crd/coeu1236), is a language spoken by the Skitswish, also known as the Coeur d’Alene, of the Pacific Northwest of the United States. The historic lands of the Skitswish people encompasses parts of modern US states Washington, Idaho, and Montana. Presently the tribal community is located on a reservation in Northern Idaho. Tribal membership is 2,190. Like many indigenous peoples in the US, the Skitswish experienced significant language and cultural loss due to contact and Americanization. Today the community has an official Tribal Language Program founded in 1994 and tasked with revitalization, maintenance, and Snchitsu’umshtsn language education.

Throughout the early 20<sup>th</sup> century the Skitswish language and culture were documented and studied by a handful of academic scholars, a number of community scholars, and a few that straddled both worlds. The result was a collection of linguistic and anthropological resources that included dictionaries, an ethnographic sketch of pre-contact days, grammars, primers, recordings, and some forty-eight myths, tales, and histories, along with other resources.<sup>1</sup> In the early 21<sup>st</sup> century much of this work was inaccessible to the community itself (as well as many academic scholars), either through lack of knowledge of the resources existence, lack of physical access, or lack of certain kinds of cultural knowledge (i.e. lack of necessary knowledge to make sense of esoteric academic treatises). With this in mind, in early 2008 an academic (co-author Bischoff) and then Coeur d’Alene Tribal Language Program director and staff discussed how best to remedy this situation. Bischoff had the necessary knowledge and skill set to track down cultural and linguistic Skitswish materials, how to make sense of such works, and

<sup>1</sup> For a bibliography of Skitswish/Coeur d’Alene see <http://lasrv01.ipfw.edu/COLRC/bibliography/>.

<sup>2</sup> According to one report, of the 566 recognized tribes less than 10% have broadband penetration (Gayles 2014).

how to transform such works into resources meaningful to contemporary scholars. The director of the Tribal Language Programs and his staff knew what the needs of the community were, how the material could be used to support the goals of the Language Program, and how best to make the material accessible and meaningful to the Skitswish community at large and the Language Program for their specific pedagogical and cultural aims.

Together Bischoff and the team at the Tribal Language Programs arrived at the conclusion that the best thing to do would be to develop a set of digital resources rendering the material accessible, understandable, meaningful, and useful for the broader community and the Language Programs team: This was only made possible by the communities unique (unique among indigenous communities in the US), access to the internet due to Tribal initiated programs (Raymond Brinkman PC).<sup>2</sup> To this end it was decided that Bischoff would be responsible for developing a series of webpages making the material accessible to the Tribe and Language Programs office. The Language Programs office would be responsible for determining usability of the resources (e.g. determining what type of webpage would work best for the community, what spelling conventions to use, etc.), formatting of resources (e.g. determining what type of search mechanisms would be necessary, if display formats were useful and intuitive to community members, etc.), and accessibility (e.g. establishing access restrictions, connectivity, etc.). Together they would address issues that arose with the Tribal Language Programs having ultimate authority and ownership over the resources developed. In 2009 Bischoff, an undergraduate student, and the Tribal Language Programs through the then director developed what was referred to as the Coeur d'Alene Archive and Online Language Resources (CAOLR).<sup>3</sup> It was a proof concept and test site for what could be done to repatriate more than 1,200 unpublished pages of handwritten and typed fieldnotes recorded in the 1920s by linguistic anthropologist Gladys Reichard and community members Dorothy Nicodemus, Julia Antelope Nicodemus, Lawrence Nicodemus, and Tom Miyal (Figure 1). In addition the CAOLR contained a searchable dictionary in Sñchitsu'umshtsn and English (Figure 2); English translations of forty-eight Skitswish narratives (derived from the 1,200 unpublished Sñchitsu'umshtsn/English fieldnotes and typed manuscripts); an ethnography of pre-contact culture collected by James Tiet and published by Franz Boas; along with a number of other linguistic and cultural resources heretofore unavailable to most and difficult to access but for a few determined researchers. The websites were tested by the Language Programs staff and modified as necessary.

Once the usability of the CAOLR was established for the Tribal Language Programs office, Bischoff and the then director of Language Programs put together a team of experts to develop a digital resource built on the success of the CAOLR that would adhere to what were at the time a set of emerging best practices for the long term preservation of digital resources in an archive like fashion (see for example Bird & Simons 2003a, b; Chang 2010 and reference therein). The team consisted of Audra Vincent a tribal member and trained linguist and now the current director of Tribal Language Programs; Dr. Ivy Doak, the leading Sñchitsu'umshtsn scholar; John Ivens a former NASA software engineer; Dr. Amy Fountain a linguist with extensive web development background; and Bischoff a trained linguist. The goals of the new team were the following:

- Ensure that the site and the material it contained was developed in a way that was trustworthy, durable, discoverable, appropriately expandable and sustainable;
- Regularize the site so that it was in line with best practices for modern web development generally, and online language archiving specifically;
- Secure the viability of the site through the near future, and make sure it could be repatriated entirely to the Coeur d'Alene community when the community believed repatriation to be feasible and appropriate; and

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<sup>2</sup> According to one report, of the 566 recognized tribes less than 10% have broadband penetration (Gayles 2014).

<sup>3</sup> The CAOLR can be accessed at the following web address [http://lasrv01.ipfw.edu/crd\\_archive/start1.html](http://lasrv01.ipfw.edu/crd_archive/start1.html).

- Complete this work in a manner that was as consistent as possible with the ‘grass roots’ model of development pioneered by Bischoff and student Yasin Fort (see Bischoff and Fountain 2013 for discussion of this model, and its consequences).

The new team, working with a number of undergraduate and graduate students, developed what by 2013 was the first stages of the Coeur d’Alene Online Language Resource Center (COLRC).<sup>4</sup> A new series of websites which included all the resources of the CAOLR and an expanding number of language and cultural resources including a number of audio recordings, which were developed and maintained with the best practices of web development and online language archiving:

- In all resources in the COLRC, complete and recognizable metadata records are provided in a standard format. We elected to follow the conventions of the Dublin Core Metadata Initiatives (DCMI)17;
- All resources are stored in such a way that data is separated from presentation – data other than image files are stored and maintained in xml, the site’s navigation and presentation are managed via css;
- The site utilizes html 5 standards for presentation, all non-textual resources (audio files, images) are stored in standard and durable formats (pdf, png, jpg, mp3 and wav); and
- The search functionality is expanded to allow simultaneous searching in any of the three supported orthographies across all searchable resources, and renders more resources on the site easily discoverable by users in the Coeur d’Alene and scholarly communities.

While the technical development goals of the COLRC were substantial, the most significant steps taken in its development related to the collaborative development of a Mission Statement that addresses the long term sustainability, management, and guidelines for future development of the resource. The Mission Statement was developed with the leadership of the Coeur d’Alene Tribe and its Language Programs Office. Both grass-roots and externally funded projects face many of the same challenges concerning long-term sustainability, ongoing maintenance, and relationships among the stake-holders. External funding is nearly always short-term, but the resources generated in either type of project should be designed sustainably. Grappling with these issues is challenging, and this process is further complicated by what Czaykowska-Higgins et. al. (to appear) refer to as *countable outputs* and *intangible outcomes*. But the process is important, and has many implications for the architecture of the project (Bischoff et. al., to appear).

Today the COLRC is used daily by the Tribal Language Programs’ office in the development of various cultural and linguistic resources for the Tribe along with other uses. It is also employed by academic scholars in pursuit of a variety of research questions. The team continues to work maintaining and developing the COLRC while also making additions to the COLRC. For example, recently a number of heretofore unknown resources recording important linguistic and cultural information in written and audio form were discovered by the team in an archive at the University of Washington. In addition, the team is working to translate, analyze, and develop meaningful representations (e.g. orthographic, format, etc.) of the forty-eight narratives at the COLRC. Challenges confronting the team continue to be developing a standardized spelling; rendering materials available in the official Tribal orthography while also making the material available in the orthography used by academic scholars; arriving at meaningful translations for material; repatriating newly discovered materials to the Tribe via the COLRC; ensuring the longevity of the COLRC; among numerous other challenges.

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<sup>4</sup> The COLRC can be accessed at the following web address <http://lasrv01.ipfw.edu/COLRC/reichard.php>

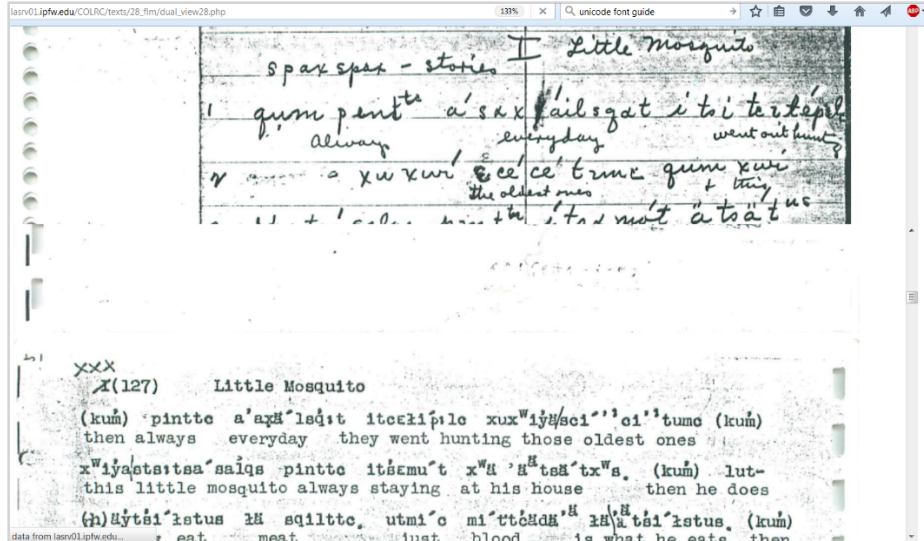


Figure 1 COLRC Browser view of handwritten and typed fieldnotes for viewing simultaneously

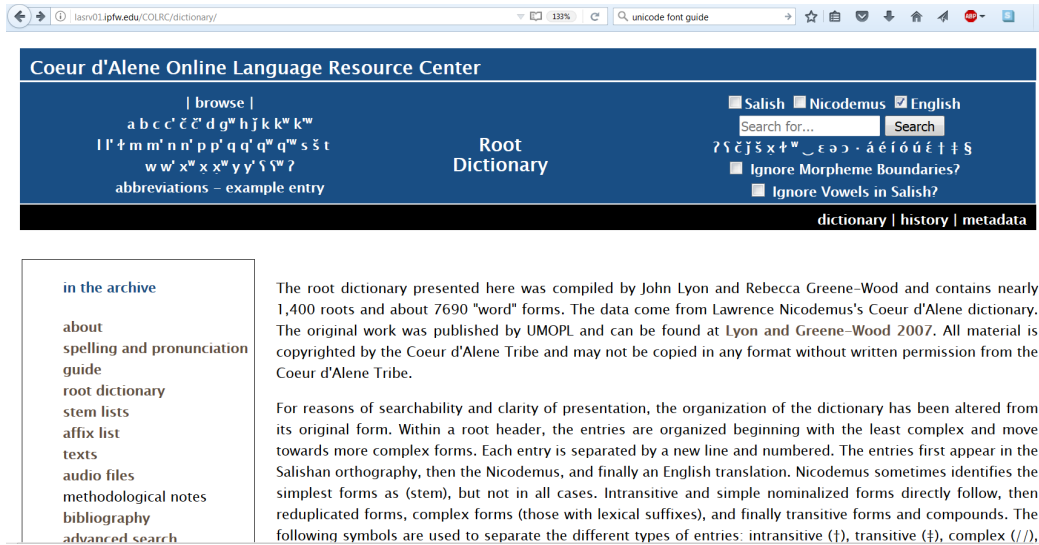


Figure 2 Browser view of searchable dictionary

## 28. (30) Little Mosquito

Part 1 – in Couer d'Alene



Part 2 – in Couer d'Alene



Hand-written Field Notes and Typed Manuscript: **both**  
 Hand-written Field Notes: **image files or PDF | metadata**  
 Typed Manuscript: **image files or PDF | metadata**  
 Published English Translation: **image files or PDF**

Figure 3 Browser view of audio recordings

However, the COLRC is making an impact on the community's language program and we know from research that communities that value and promote the language of the community have students that are more successful acquiring the dominant languages imposed from outside, perform better in all academic subjects, and tend to complete, where accessible, secondary education (McCarthy & Snell 2011 and references therein), as well as have a greater wellbeing physically, emotionally, and psychologically (Whalen et al. 2016 and reference therein).

### 3. Conclusions

In 2015 countries adopted the 17 Sustainable Development Goals of the UN.<sup>5</sup> Critics were quick to note many of the problems with attaining the goals. At the 2016 Language and the UN SDGs symposium held at the UN in New York, many were quick to point out how issues of language, minority or otherwise, were significantly lacking in discussion regarding the 17 goals and their implementation. In the press release from the symposium organizers noted the following:<sup>6</sup>

The centrality of education to the successful implementation of all SDGs is emphasized in Goal 4 (Ensure inclusive and quality education for all), yet neither the Goal nor its targets may be said to address the role of language in providing inclusive education. Specifically, if the languages pupils speak and understand well are not used as languages of instruction, they are not being given access to the curriculum, nor to quality teaching and learning opportunities. *Linguistically-aware educational policies*, for example high-quality mother-tongue-based, multilingual education, must be adopted if Goal 4 is to be successfully implemented and assessed. Only then can equitable education form the foundation for the implementation of all the other SDGs.

We believe that recognizing the knowledge and expertise communities and community members possesses regarding their own needs and how to meet those needs regarding technology, language and education can help to ensure *inclusive education* and *linguistically-aware education policies* that take advantage of the *solutions that information technologies can offer to multilingual societies for enhancing educational contexts and facilitating information access*. As exemplified through grass-roots endeavors to develop digital resources such as the COLRC project described. Further, we believe if organizations such as the UN and UNESCO adopt a *collective impact* approach to such issues the goals of both organizations

<sup>5</sup> <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

<sup>6</sup> The complete press release is available at the following link:  
<https://sites.google.com/site/languageandtheun/events/2016-symposium-press-release>

could be met. Specifically in the case of the SDGs and the objectives of the office of the UNESCO Chair on Language Technologies, under a collective impact model, or a model that allows for collective impact as part of a suite of approaches, the knowledge, needs, voices, and skills of those communities targeted can be the driving force in attaining the broader goals of such organizations in community defined and articulated ways. Thus ensuring the very general and quite broad goals of international elites are met via community specific ways while also meeting community specific, and community identified, needs. Kania and Kramer (2011:39) define collective impact as follows:

Collective Impact Initiatives are long-term commitments by a group of important actors from different sectors to a common agenda for solving a specific social problem. Their actions are supported by a shared measurement system, mutually reinforcing activities, and ongoing communication, and are staffed by an independent backbone organization.

Turner et al. (2011) argue that there are six common activities to support and facilitate collective impact that backbone organizations pursue: guide vision and strategy; support aligned activities; establish shared measurement practices; build public will; and mobilize funding. These are all activities the UN and UNESCO are quite adept and experienced at performing. Combining these activities within a collective impact model that allows for grass-roots and community-based research approaches would allow for the kind of work described above within larger UN and UNESCO goals and efforts such as the SDGs.

What the *Language and the Sustainable Development Goals* symposium held at the UN in New York in spring 2016 reminds us is that when well intentioned elites do not share the common experiences of those they wish to aid those very same elites lack the common sense (gained through common experience) necessary to develop and implement their grand designs. Bringing partners directly from communities most impacted through grass-roots community-based research and a collective impact model of initiatives could allow for the common sense necessary to reach noble goals such as *quality education* for all.

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