

On the Impact of the National Breath of Life Archival Institute for Indigenous Languages: Developing an Assessment Model for Archive-Based Revitalization

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The National Breath of Life Archival Institute for Indigenous Languages has provided training in archive-based linguistic research for revitalization since 2011 (Baldwin et al. 2018). Four two-week workshops held biennially through 2017 provided training in phonetics, phonology, morphology, and syntax; on accessing archival documentation; and on applied uses of archive-based research for language revitalization. These workshops served 117 Community Researchers from fifty-five Native North American communities. Overtime, it became important to determine the impact of the workshops on community efforts. Thus, a third-party program assessment and evaluation was carried out, supported by the National Science Foundation Documenting Endangered Languages program (NSF-DEL BCS #1561167, PI D. Baldwin). In this paper, we outline the principles upon which the assessment and evaluation were designed, delve into the quantitative and qualitative methods implemented, and provide ample discussion of the assessment findings. We engage in a discussion on the importance and value of assessment and evaluation to any program akin to National Breath of Life. We close by showing how the assessment and evaluation have given validity to the development of new tools and workshops that address the needs of advanced phases of archive-based research for revitalization, and have also provided a foundation for the design of a Native American philology model. This was especially important considering that the workshops had remained mostly unchanged since they were first developed in the mid-1990s.

1. Introduction The twenty-first century has been marked by a proliferation of efforts around the world intended to sustain the use of a diversity of languages. Pérez Báez et al. (2019) show that out of 137 efforts documented with a date of inception in the Global Survey of Revitalization Efforts, forty-nine efforts (35%) began between the years 2000 and 2009, with another forty-one (30%) beginning after 2010. These efforts are generally the result of a commitment by individuals to maintain the

language(s) of their communities in use when faced with pressures to shift to other languages in order to fulfill basic individual and community needs (cf. Campbell & Rehg 2018; Hinton et al. 2018). Language revitalization efforts may take many forms depending on the particulars of each language and its community of users. A particular type of language revitalization effort is centered on languages after they have undergone a period of *dormancy* (i.e., after a period during which there have been no native users of the language). The languages at the heart of these efforts can be referred to as *awakening languages*. These efforts require a particular type of methodology, which we refer to here as *archive-based research for revitalization*.

After a period of dormancy, what is known about the language will depend on the individual and collective memory of the heritage community members and/or on existing documentation of the language. This documentation is often in the form of handwritten documentation that may date back decades or even centuries. Audio recordings of various qualities and formats are sometimes available for languages that were documented starting in the first half of the twentieth century. It should be noted that best practices in language documentation have developed only in the twenty-first century (cf. for instance Himmelmann 1998; McDonnell et al. 2018). As a result, the diversity of formats and quality standards in historical language documentation presents particular challenges, including the need to understand and standardize different and sometimes inconsistent systems of orthographic representation of the languages, interpret penmanship, and identify and correct errors in the analysis of the language. In other words, this is a process requiring methods from paleography, philology, and linguistics.

The National Breath of Life Archival Institute for Indigenous Languages has provided training in archive-based linguistic research for revitalization through biennial workshops since 2011 (Baldwin et al. 2018).¹ These two-week workshops included classroom time centered on structural linguistics training on phonetics, phonology, morphology, and syntax; training on accessing archival records; and applied uses of archive-based research for language revitalization. Four such workshops have been held in Washington, DC-based archives – the Smithsonian’s National Anthropological Archives (NAA) at the National Museum of Natural History (NMNH) and the archives of the National Museum of the American Indian (NMAI) in addition to the Library of Congress (LoC). These workshops have provided training to 117 Community Researchers from fifty-five Native North American language communities. National Breath of Life has been housed within the Myaamia Center at Miami University as a program since 2015 in order to provide long-term financial support, organization, and development. It is directed jointly by coauthors Daryl Baldwin, ex-

¹ In this article, we refer to the program as National Breath of Life. This allows us to be clear when referring to Breath of Life as the workshop-style methodology that has been implemented in numerous workshops around the country, and National Breath of Life, which developed out of Washington, DC, and which is the focus of this article. It should be noted, however, that not everyone makes this distinction, and as a result, National Breath of Life is often referred to as Breath of Life. This is noticeable, for instance, in qualitative quotes and even in the language used in some of our own assessment and evaluation instruments. When necessary, we abbreviate National Breath of Life as NBoL where space is especially limited as would be in tables. Some quotes, however, used the acronym BoL.

ecutive director of the Myaamia Center, and Gabriela Pérez Báez, associate professor of linguistics at the University of Oregon.

Over the course of the four National Breath of Life workshops, it became evident that archive-based revitalization has grown significantly, with in-community capacity expanding rapidly. Acquiring digital surrogates of archival materials was only one step in a larger process of building capacity around the monumental task of developing strategies that utilize archival data for language revitalization. This prompted the need to strategize about the evolution of future workshops and therefore the need to obtain objective data to inform that process. Beyond the specific training objectives of National Breath of Life, it also became important to determine the impact that the workshops were having on community efforts over time. While assessment of Community Researcher workshop satisfaction has always been a priority of the program, the development of a robust third-party program assessment and evaluation was necessary to develop a deeper understanding of the overall impact of the program and of present and future needs within the community of revitalizationists working on archive-based research. Prompted and supported by its main funder, the National Science Foundation Documenting Endangered Languages program (NSF-DEL BCS #1561167, PI D. Baldwin), National Breath of Life carried out a third-party program evaluation of its activities. Coauthor Kristen Morio of the Discovery Center for Evaluation, Research, and Professional Learning at Miami University was responsible for the development of the evaluation plan. The rationale for the evaluation was to assess whether the training objectives of the workshop were being met and to understand the impact on Community Researchers' language revitalization efforts over time.

In the section that follows, we provide a brief introduction to the field of archive-based research for revitalization. §3 outlines the principles upon which the assessment and evaluation of the process were designed. In §4, we delve into the quantitative and qualitative methods utilized in the evaluation and provide ample discussion of the assessment findings. We include the survey instruments – both pre- and post-workshop questionnaires as well as the broader-impacts questionnaire and interview protocols – as appendices. We explain how the evaluation provides insights into phases of archive-based research, which in turn shed light on the changing needs of Community Researchers as their work advances and makes evident the fact that language revitalization requires an interdisciplinary approach. Based on this, in §5 we engage in a discussion on the importance and value of assessment and evaluation to any program akin to National Breath of Life. We close by showing how the evaluation of the National Breath of Life workshops has given validity to the development of new workshops that address the needs of advanced phases of archive-based research for revitalization. This was especially important considering that the workshops had otherwise remained mostly unchanged since they were first developed in the mid-1990s. In doing so, the evaluation facilitated the growth and evolution of a model for Native American philology as will be explained in detail in the discussion in §6.

2. Archive-based research for the revitalization of highly endangered and awakening languages To provide context, it is important to highlight that revitalization efforts for awakening languages are numerous and constitute a movement in and of itself. Belew & Simpson (2018) report on fifty-seven awakening languages around the world concentrated mainly, but not exclusively, in Australia and North America. Pérez Báez et al. (2019) show that forty-seven responses (19%) in the Global Survey of Revitalization Efforts focus on the revitalization of a language after a period of dormancy. More specifically, twenty-two of the responses were for revitalization efforts for languages that at the time of the Survey did not have any first language users. Twenty-five additional efforts were made for languages that, after a period of dormancy and subsequent revitalization, now have a new population of language users or individuals beginning to learn the language. In other words, close to one out of five of the responses in the Survey report on efforts for awakening languages.

A methodology to find, gather, analyze, and apply language data from archival documentation for revitalization was proposed in Thieberger 1995. In the mid-1990s, the Advocates for Indigenous California Language Survival (AICLS), in partnership with the University of California, Berkeley, in particular, Dr. Leanne Hinton, developed the one-week biennial Language Restoration Workshop for California Indians “to assist the Community Researchers in exploring and utilizing the vast archives of California Indian languages and materials for their own efforts in language reclamation” (www.aicls.org).² Other similar workshops have taken place throughout the United States, Canada (cf. Baldwin et al. 2018), and, more recently, Australia (Marmion et al. 2019). Among such workshops are the four iterations of National Breath of Life co-organized by the Myaamia Center at Miami University and the Smithsonian’s Recovering Voices initiative in collaboration with the archives at the NMNH and the NMAI, as well as the LoC. These workshops held biennially between 2011 and 2017 broadened the scope beyond that of other regional US-based workshops to make the training available to Community Researchers across the United States and Canada as a correlate of the vast archival collections located in Washington, DC.³

The National Breath of Life workshops were designed for novice Community Researchers and are grounded on three main foci: (a) searching in archives for language documentation materials of relevance to the revitalization of a language, (b) analyzing the language data in such materials, and (c) developing effective ways to

² www.aicls.org (Accessed 2020-01-17.)

³ There are numerous other training opportunities around the world that address a variety of topics and needs in a broad set of contexts in language revitalization. See, for instance, Dwyer et al. 2018, which describes the role of four long-standing institutes in North America: the American Indian Language Development Institute (AILDI), the Northwest Indian Language Institute (NILI), the Canadian Indigenous Languages and Literacy Development Institute (CILLDI), and the Institute for Collaborative Language Research (CoLang).

apply such data for the revitalization of the language.⁴ The training was then designed following eleven objectives distributed across the three main foci:

Searching – by the end of the NBoL workshop, Community Researchers will:

1. Develop their understanding of the range of holdings at each of the participating repositories as relevant to their language revitalization research.
2. Increase their knowledge of the process of finding materials of relevance for their language revitalization research.
3. Gain confidence in their ability to access materials that directly address their language revitalization research project.

Analyzing – by the end of the NBoL workshop, Community Researchers will:

4. Increase their confidence in their ability to recognize archival data of relevance to their language revitalization research project.
5. Increase their knowledge about linguistic analysis and its role in making archival materials relevant for language revitalization research projects.

Revitalizing – by the end of the NBoL workshop, Community Researchers will:

6. Return home with archival materials of applicable relevance to their language revitalization research projects.
7. Be able to continue research efforts using the archival materials, skills, and contacts obtained through the NBoL workshop.
8. Be able to articulate the next steps for their research with confidence and specificity.
9. Be able to continue their revitalization efforts having gained a more refined vision of the next steps necessary. The Community Researcher's language revitalization research project will have progressed barring any unforeseen obstacles unrelated to NBoL objectives.
10. Report a sense of belonging in the broader community of revitalization practitioners.
11. Have compiled a list of NBoL contacts that they feel comfortable reaching out to for needed assistance or support.

To meet these objectives, the workshops provided three types of training. First, archivists from the hosting institutions provided introductions to their archives as well as training on effective practices in archival research. Subsequently, the Community Researchers had numerous hands-on sessions throughout the two weeks to search the archives, examine archival materials, and make additional requests for digitization. Second, academic linguists provided basic introductory training in pho-

⁴ A workshop for advanced Community Researchers working on the development of digital archives for large-scale data extraction and their applied uses, was piloted with two iterations in the summers of 2019 and 2021 (the 2020 workshop was postponed due to the COVID-19 pandemic). A separate evaluation and assessment process has been implemented for this advanced training workshop.

netics, phonology, morphology, syntax, and semantics. This was done by way of class lectures. In addition, Community Researchers were paired with academically trained linguists, termed *Linguistic Partners*, to receive personalized guidance in the analysis of language data contained in the archival materials. Upon arrival to the workshop, Community Researchers received high-quality digital copies of archival materials relevant to their languages, curated ahead of time based on the vitality situation of the language and the Community Researcher's research expertise, to provide them with opportunities at the outset to carry out meaningful linguistic analysis. Third, presentations on principles of language revitalization, applied linguistics, and home-based language domain reclamation, among other topics by experienced revitalization practitioners, rounded up the training.

As stated in the introduction (§1), the four National Breath of Life workshops provided training to 117 Community Researchers from fifty-five Native North American language communities. After four iterations of the workshop, two realizations became apparent. The first is that this sizable group of Community Researchers had received training, which, if effective, should contribute to the advancement of their archive-based research for revitalization. Hence, there was a need for an objective, data-informed way to evaluate the efficacy of the training. The second realization is that if the training had indeed been effective, advanced training beyond what was covered in the original workshops would eventually become necessary in order to support the growth and evolution of the archive-based revitalization field. Therefore, there was a need to document National Breath of Life alumni's evolving training needs to inform the development of future advanced training. Interpreting the progression for next steps and designing an appropriate and effective strategy for capacity building around such an effort became the new challenge for the directors. The evaluation and assessment tools were critical in shedding light on the needs, challenges, obstacles, and possibilities that lay ahead for our partner communities and National Breath of Life development if the program were to continue meeting their needs into the future.

3. Evaluation and assessment This section describes the principles that guided the process of evaluation and assessment of the National Breath of Life program and workshops in such a way that is mindful of broader community goals, yet distinct and independent from it. The practice of using assessment and evaluation to monitor program impact has increased in many research disciplines (Johnson et al. 2009). Programs that use both assessment and evaluation effectively can ascertain program value and effectiveness. Assessment and evaluation are often terms that are used interchangeably; however, the authors have defined the terms as is done within Education. To that end, evaluation is used summatively to determine the extent to which a program is meeting its goals. Assessment, on the other hand, is used formatively in order to monitor program performance and make improvements as needed based on participant experiences. Assessment and evaluation allow the researcher to monitor successes and barriers of study implementation as well as progress toward project goals and objectives. In so doing, assessment and evaluation lend evidence to the value of programs and the intended and unintended impact of program ac-

tivities (Carter 2012). Funding agencies are more often likely to require external evaluation of research projects as validation for continued funding (Brophy 2005; Duff et al. 2010). For funding that does not require external evaluation, proposals that include these practices might be more likely to get funded than those that do not because of the evidence that they provide. As indicated in the introduction, the evaluation and assessment of the National Breath of Life activities were prompted and supported by its main funder, the National Science Foundation Documenting Endangered Languages program (NSF-DEL BCS #1561167, PI D. Baldwin), not as a requirement, but as a way to measure the value of the program. The assessment of National Breath of Life was intended to measure content knowledge gain, participant satisfaction with program activities, and local impact of language and cultural revitalization programs, whereas the evaluation was intended to judge the effectiveness of the program (i.e., progress toward proposed goals and objectives) and the intended and unintended outcomes. Although the authors recognize that this work is not an evaluation of archival usage, it is an evaluation of a “social impact” (Duff et al. 2013) of archival usage. Therefore, an understanding of evaluation in the context of archives is important in order to place the current study.

A further note of clarification is due here regarding a distinction between evaluation and assessment of National Breath of Life versus the practices at the archives that cohosted the program. Evaluating the activities of archives and their impact is a relatively new practice that is not yet widely applied. In their study of the use of evaluation in special collections and archives, Chapman & Yakel (2012) discuss the fact that data that are collected are often unused or are only used to summarize the amount of usage and not the satisfaction of the users nor the impact of archive usage. In addition, Duff et al. (2010) show that even when surveys and usage tool kits are provided to archive staff, evaluation is still seen as a daunting endeavor. Although there are many potential benefits for understanding the impact of the use of archives, reasons for the lack of evaluation usage in archival programs include a lack of time, resources, and expertise (Duff et al. 2010; Chapman & Yakel 2012). In fact, as noted by Duff et al. (2013), utilizing both qualitative and quantitative data to analyze the social impact of archival usage could open up possibilities for understanding how archives can contribute to the work of social justice activism. Understanding how archival usage impacts communities directly and indirectly can lead to improved archival practices that shift the balance of power surrounding ownership of cultural information. For instance, respondents to the Survey of Visitors to U.K. Archives stated that archives ‘provide opportunities for learning,’ ‘preserve our heritage and culture,’ ‘support administrative and business activity,’ and ‘support the rights of citizens’ (Public Services Quality Group of the Archives and Records Association UK & Ireland 2011: iv). The evaluation and assessment we conducted are not about the practices at the host archives. They are, again, about the activities carried out by National Breath of Life. However, the results presented here can serve as evidence to archivists about the impact of improving access to archival materials and provide a model for engagement with the archives by Community Researchers that elevates their agency in advancing broader community goals.

The four types of assessment and evaluation designed for National Breath of

Life and its workshop modules are listed below, along with some of the basic questions they sought to answer.

1. Workshop Assessment
 - To what extent were Community Researchers satisfied with workshop activities?
 - To what extent were the workshops effective in meeting the needs of Community Researchers?
 - What were the experiences of the Community Researchers like?
2. Impact Evaluation
 - What were the short-term impacts of National Breath of Life workshops on Community Researchers?
3. Broader Impacts Evaluation
 - What was the long-term impact of National Breath of Life workshops on alumni and the community programs they direct or influence?
 - Community-Oriented Assessment
 - What is the impact or outcome of language and cultural revitalization on a specific community?

The 2017 workshop was assessed to ensure the relevant learning objectives were met and to identify areas for improvement. National Breath of Life was evaluated more broadly as a program to determine, as stated earlier, the extent to which its goals are met. In what follows, we introduce our thinking with regard to community-oriented evaluation, as well as assessment, to set the framework within which all four evaluation and assessment elements relate to community language goals.

3.1 Evaluation and assessment in the context of community goals To begin, it should be clear that National Breath of Life does not assess or evaluate community language revitalization goals. Setting a complex and long-term goal such as revitalizing a community language from archival materials cannot be carried forward in a strategic and meaningful way without some significant planning that reflects a shared and, in many cases, evolving community vision. This must include realistic goal setting, observing community interactions around language, realizing sources of support and collaboration, continuously evaluating and reflecting at different stages along the process, and developing financial and human capacity in a way that is sustainable and can handle growth and unexpected challenges (like the COVID-19 pandemic). In a nutshell, planning, strategic development, and thoughtful honest assessment go together as a single complex process of achievement. Further, there is no way to shortcut that process when large groups of people are involved who are required to participate and support such an effort. Successful language programs achieve their goals through some form of this process that reflect realistic and attainable goals by a group of committed and supported individuals who share a vision and commitment for the future of their language and culture.

In the context of language revitalization, the evaluation of a program needs to be designed within the parameters of a community's own revitalization goals. Assessment, then, has a more practical application as it is designed to gauge the performance, progress, and/or efficacy of objectives set toward meeting the broader revitalization goals. In archive-based research for revitalization, it is important to tease apart the research activities from the larger community goal. Archive-based research activities, as a reflection of community goals, need to be understood, and their efficacy needs to be assessed. One example of a community-directed process toward the goal of archive-based language revitalization is the effort of the Miami (Myaamia) Tribe of Oklahoma. The Myaamia language ceased to be spoken during the mid-twentieth century until family-based language revitalization efforts began in the early 1990s, which led to a community-wide effort beginning in the mid-1990s. A tremendous amount of capacity building and growth has been achieved around this effort during the last thirty years in order to build a foundation of support and development to expand the effort to a broader community. Currently, the overarching goal for the Myaamia effort is to support the larger tribal community in a way that strengthens the connections of tribal members to each other and to their Myaamia knowledge system. At the heart of this effort are the concepts of *kiihkeelintamaani niyawii* 'identity' and *nipwaayoni* 'knowledge.' Language plays a significant role within this larger effort, and it is understood that language can only function and have purpose within a supportive communal and cultural context. In some cases, the larger community and cultural context requires its own revitalization activities alongside important language work.

Central to the language portion of this effort lies archive-based research and development. The tools, strategies, and knowledge required to bring archival language content into a contemporary context are complex and vast. Given this, it is understood that broad communal fluency of the language is not a realistic goal at this time. As a matter of fact, it is not clear at present what language vitality levels are realistic for the Myaamia community. Language vitality is understood as a future outcome of the larger revitalization process and not the immediate goal. Therefore, current resources are used to build the community and cultural context for future language growth and not spend these fragile resources on creating a small handful of semispeakers for the present, which is viewed as unsustainable in the absence of a larger supporting context. What is very clear with regard to this effort, is that all revitalization activities over the last three decades, including language, have positively impacted the Myaamia community. The Myaamia effort has derived much of its momentum from strength-based initiatives and activities that seek to build on communal and cultural strengths rather than focus on problems to be solved. Language and cultural revitalization is generally viewed as "good for the community," and it is due to this commonly held perception that revitalization work is highly supported by community and tribal leaders. Therefore, measurable positive outcomes are being realized, and documented, by this effort even with moderate language goals derived from the use of archival materials.

The questions that naturally arise from observing the positive outcomes by the community are being examined by a process of evaluation and assessment carried

out by the Myaamia Center's Office of Assessment and Evaluation, which includes the focused work of the Nipwaayoni Acquisition and Assessment Team (NAATeam). *Nipwaayoni* is a Myaamia word that can be translated into English as 'knowledge.' The interpretive framework for this assessment tool relies heavily on the ontological input of a Myaamia epistemological belief system, which offers a unique cultural lens, but does not ignore related research that can contribute to our overall understanding of measured outcomes. The English research questions utilized for this inquiry are listed below along with a Myaamia interpretation and English translation:

1. To what degree does language and cultural education improve academic attainment?
 - a. Myaamia interpretation: *taaniši miloniteeheeyankwi kineepwaayoneminaani, kati nipwaahkaayankwi.*
 - b. English Translation: How does reflecting on our ways of knowing cause us to be wise?
2. Does language and cultural education impact physical and mental health?
 - a. Myaamia interpretation: *taaniši miloniteeheeyankwi kineepwaayoneminaani, kati nahi-mihtohseeniwiyanankwi wiicilantiinyankwi (nahiteeheentiiyanankwi).*
 - b. English translation: How does reflecting on our ways of knowing cause us to live properly and to be at peace with each other?
3. Does language and cultural education strengthen ties to community resulting in increased community engagement?
 - a. Myaamia interpretation: *taaniši miloniteeheeyankwi kineepwaayoneminaani, kati ninkotiteeheeyankwi ninkoteelintamankwi.*
 - b. English translation: How does reflecting on our ways of knowing cause us to be of one mind and one heart?
4. How does language and cultural education shape beliefs and feelings toward national/tribal growth and its continuance?
 - a. Myaamia interpretation: *taaniši miloniteeheeyankwi kineepwaayoneminaani, kati miikweelintamankwi weencinaakosiyankwi, neehi aahkohkeelimakiki iineeki mihši-neewaahsiiwankwiki.*
 - b. English translation: How does reflecting on our ways of knowing cause us to remember where we are from and to care for those we have not yet seen?

The core of the NAATeam is made up of an interdisciplinary group of individuals who are trained in the fields of second language acquisition, psychology, and community health, while at the same time guided by cultural and language practitioners from within the Myaamia community to ensure cultural and community relevance of their work. The primary purpose of the NAATeam's efforts is to observe, interpret, and document the impact of language and cultural revitalization among

tribal citizens, especially the youth, who enter one of several learning streams. The NAATeam is charged with developing assessment instruments that deepen an understanding of the community impact of language and cultural education to better inform tribal citizens, community programmers, and tribal leaders on why this work is important and how the effort can be strengthened over time. A secondary purpose of the NAATeam is to share their assessment instrument and its findings across academic disciplines in hopes of stimulating development for community-based assessment models potentially useful to other communities. The development of the NAATeam is an example of the significant role assessment and evaluation can play in the ongoing developmental challenges that this community faces. The NAATeam demonstrates a need for community-based assessment to better inform all stakeholders about why language and cultural revitalization is important for the general well-being of tribal nations (Whalen et al. 2016; Shea et al. 2019).

The growing efforts of archive-based revitalization have struggled under the crushing weight of a persistent *dying languages* rhetoric. This is unfortunate because what is missed are the many opportunities observed through the powerful and healing work of community-based revitalization. The context of a village center life that served as the historical basis for language vitality 300 years ago may never be again, but that doesn't mean that languages cannot fill an important and sustainable place in the contemporary lives of tribal nations who seek to strengthen their communities through this work. The many positive impacts of language revitalization are not well documented, but good assessment and evaluation will begin to fill that research gap and add clarity regarding the important role languages play in the overall well-being of Indigenous communities in the present. The Myaamia effort is beginning to demonstrate that even novice-level language use in a community is producing significant positive outcomes.

3.2 Evaluation and assessment of the National Breath of Life program and workshops National Breath of Life, by its very design, exists mainly to support archive-based revitalization efforts through archive training and providing resources for language archive development. Therefore, National Breath of Life in its design, evaluation, and assessment must be mindful of community goals and objectives, such as those described in §3.1 for the Miami Tribe of Oklahoma, in order to be effective. However, the assessment design for National Breath of Life does not focus on individual community language goals. Rather, it focuses only on the archival needs that a particular community may have in relation to their own language goals. With that said, National Breath of Life cannot succeed in its mission to support community efforts if communities are unable to reach their own language goals, so setting community goals for language revitalization and achieving those goals over time are important to the success of National Breath of Life. This is why we created the broader-impacts assessment tool for National Breath of Life. This gives us some insight into the ongoing development of community-based programs, the obstacles they encounter, and their accomplishments, without specifically knowing what the community program goals might be.

National Breath of Life is not designed to define success for any given community. Language programs come with a wide range of determinations. There are few models being developed that attempt to define and evaluate some notion of success of language efforts, and what is available often has little relevance or application for awakening language communities working from archival materials (Barrett-Walker et al. 2020). This creates a gap in our understanding of what is meaningful and possible for how we frame achievement or success at the community level. If success is publicly and academically framed by quantifying large numbers of proficient or advanced speakers as a means of determining language viability, then most communities are left to figure out on their own how to achieve these measures, if they can at all. However, if success is internally defined by what communities desire within the context of their own needs and capabilities, then more realistic goals can be set that don't necessarily reflect large-scale achievable outcomes. For this reason, National Breath of Life prefers to work with communities who have defined their own goals around the use of language archives for a community purpose.

4. Methods As stated in the introduction (§1), the evaluation of National Breath of Life workshops and their broader impacts was carried out by Miami University's independent Discovery Center for Evaluation, Research, and Professional Learning⁵ (henceforth referred to as the Evaluation Team, which is distinct from the Project Team composed of the workshop organizers) under the direction of coauthor Morio. Initial steps in the planning involved two main components. The first was understanding the needs of the project by learning about National Breath of Life and, more importantly, about the needs of Community Researchers and their communities. This first step was critical in assisting the Project Team in developing a logic model built upon goals and Specific, Measurable, Attainable, Relevant, Time-bound (SMART) objectives that were in line with the objectives of National Breath of Life and of the Community Researchers. Meetings and work sessions occurred for several months in order to develop a clear path to understanding the potential impact of the project. The process for creating and refining pre- and post-questionnaire items continued during the first year of the grant. In the sections that follow (§4.1–4.5), we delve into the participants' profile, the pre- and post-workshop questionnaires, and the evaluation and assessment criteria.

4.1 Participants The workshop assessment was carried out on the 2017 workshop, which was the fourth iteration of the National Breath of Life workshops. Twenty-four Community Researchers completed the pre-workshop questionnaire, and twenty-one completed the post-workshop questionnaire. Data from the preliminary questionnaire indicated that a majority of the Community Researchers were from California, followed by Oklahoma, Kansas, Ohio, Idaho, and a variety of other states (data not displayed). Many in the cohort had prior experience in archive-based research for revitalization. Twenty-three percent of Community Researchers

⁵ <http://www.miamioh.edu/discoverycenter> (Accessed 2022-11-07.)

reported that they had attended a Breath of Life⁶ workshop in the past, and 80% of those Community Researchers specifically attended the program at University of California, Berkeley. In addition, 50% of Community Researchers reported being involved in language revitalization for six or more years.

The evaluation of National Breath of Life as a program was carried out with all the cohorts from the 2011, 2013, and 2015 workshops in addition to the 2017 one. With all cohorts combined, the National Breath of Life alumni pool includes 117 Community Researchers. Three alumni attended two different workshops, bringing the total of unique alumni to 114. Thus, in the sections that follow, we may mention the 117 number when referring to the total number of registered participants in the aggregate. We will use the 114 number when referring to unique alumni and as this number becomes relevant for statistical analysis. A Breath of Life Broader Impacts Questionnaire was administered in summer 2018. Thirty-eight Community Researchers from the first three workshops and seventeen alumni from the 2017 workshop completed the questionnaire (Table 1). Further, fifteen Community Researchers reported that they attended *Breath of Life Berkeley* previously, and two reported that they attended *Breath of Life Oklahoma* previously.

Table 1. Attendance of Community Researchers in Breath of Life Institute workshops (Breath of Life Broader Impacts Questionnaire, 2018)

Year	n	%
2011	5	14
2013	12	32
2015	12	32
2017	17	46

Note: One Community Researcher did not answer this question. Community Researchers were able to choose more than one year.

⁶ The reference here is broadly to any Breath of Life-type workshop, whether the national-scope workshops in Washington, DC, which are the object of this paper, or any other. Do note, however, that with the exception of this question, the survey instruments used Breath of Life to refer to the DC-based workshops. We have kept the wording from the questionnaires to stay consistent with the survey instruments, even though it might appear inconsistent in this paper. In some instances, the acronyms BoL and NBoL are used for spacing reasons.

Five of the measures included in the Broader Impacts Questionnaire were also included in the pre- and post-questionnaires. Table 2 displays the number of Community Researchers who completed each questionnaire. Nine Community Researchers completed all three questionnaires and were matched based on their unique IDs.

Table 2. Number of participant responses (National Breath of Life Pre-, Post-, and Broader Impacts Questionnaires, 2017–2018)

Pre	Post	Broader Impacts	Matched
24	21	38	9

4.2 Survey instruments In winter 2017, the Evaluation Team began activities associated with the development of the program assessment instrument. First steps involved in the process necessitated understanding the needs of the project and assisting the Project Team in developing a logic model (Table 3) built upon goals and SMART objectives to be measured.

Table 3. National Breath of Life Program logic model, winter 2017

Inputs	Project Objectives (Activities)	Evaluation Objectives	Measurable Outcomes	Evaluation Activities
Travel expenses	Recruit a maximum of 30 “Community Researchers” from Indigenous communities for NBoL Cohort 4	Increase the population of the community of endangered language researchers	By July 2017, a total of 117 Community Researchers will have been trained through the NBoL program.	Collect and report frequencies for registration data from NBoL Cohorts 1–4

External evaluation	Create a valid and reliable tool to measure impacts of the NBoL programming	Collect impact data on Cohort 4 Community Researchers as well as a sample of Cohorts 1–3 Community Researchers	By December 2017, triangulate quantitative and qualitative data to report questionnaire performance metrics	Develop a comprehensive NBoL Program Impact Questionnaire. Coordinate expert review of items for internal validity. Administer and collect and analyze data to determine reliability.
	Measure the impact the NBoL program has on stakeholders to discover the unintended outcomes	Provide a more robust understanding of the NBoL program’s impacts on all stakeholders	Evaluation report summarizing results of evaluation activities and recommendations for future evaluation plans that can be utilized to assess impact of language revitalization programs	Develop interview protocol and convene protocol-based interviews of a purposeful sample of all project stakeholders (PIs, program staff, graduate students, linguistic mentors, archivists)

Archive experts at Smithsonian, NAA, NMAI, and LoC	Provide necessary training for Community Researchers to search, locate, and access archival materials in the NAA, NMAI, and LoC	Increase Indigenous community member knowledge of the use of archives in order to extract cultural and linguistic data	A statistically significant difference in the level of archival usage knowledge will be found post-program as measured by the Breath of Life Program Impact Questionnaire.	Administer pre-questionnaire to Cohort 4 Community Researchers in May 2017. Administer post-questionnaire to all evaluation Community Researchers in July 2017.
Linguistic Partners	Provide the necessary training in linguistics for Community Researchers to develop the skills to analyze and extract cultural and linguistic data from archival materials.	Increase Indigenous community member confidence in the use of linguistics to analyze cultural archival data that is meaningful and relevant to the individual's revitalization and reclamation endeavors	A statistically significant difference in level of confidence using linguistics will be found post-program as measured by the Breath of Life Program Impact Questionnaire.	Administer pre-questionnaire to Cohort 4 Community Researchers in May 2017. Administer post-questionnaire to all evaluation Community Researchers in July 2017.
NBoL Curriculum	Establish among Community Researchers a beginner-level of linguistic skills			

Smithsonian NAA, NMAI, and LoC	Expose Community Researchers to logistical challenges in working with archival materials and provide opportunities to effectively use available tools and digital technologies	Increase Indigenous community member confidence in the use of available tools and digital technologies to work with archival materials	A statistically significant difference in level of confidence using linguistics will be found post-program as measured by the Breath of Life Program Impact Questionnaire.	Administer pre-questionnaire to Cohort 4 Community Researchers in May 2017. Administer post-questionnaire to all evaluation Community Researchers in July 2017.
Linguistic Partners				
Myaamia Center Leadership	Provide a positive and supportive environment for Community Researchers to network with other language revitalization and reclamation practitioners from other communities	Establish a sense of support and community within the larger group of endangered language researchers	More than 50% of the NBoL community will report a sense of support and will utilize established connections as a result of the NBoL summer program.	Administer post-questionnaire to all evaluation Community Researchers in July 2017

Note: LoC = Library of Congress; NAA = National Anthropological Archives; NBoL = National Breath of Life; NMAI = National Museum of the American Indian; PI = principal investigator.

Meetings and work sessions occurred for several months in order to develop a clear path to understanding the potential impact of the project. Following the completion of the logic model, research questions were developed through a continued process of collaborative work between the Project Team and Evaluation Team. Research questions were aligned with the established objectives (cf. §3.1) as follows:

Searching

Objectives 1 and 2: To what degree can Community Researchers search the online catalogues of the NAA, NMAI, and LoC to find materials of interest?

Objective 3: To what degree can Community Researchers obtain copies of the materials found on the online catalogues of the NAA, NMAI, and LoC?

Analyzing

Objective 4: To what degree are Community Researchers able to evaluate the relevance of archival materials?

Objective 5: To what extent does the Community Researcher understand the relevance of expert linguistic analysis for the interpretation of the content of archival materials?

Revitalizing

Objectives 6 and 7: To what degree can Community Researchers apply the analysis of archival data toward revitalization goals?

Objectives 8 and 9: Does the Community Researcher gain a more refined vision of the next steps necessary to continue their revitalization efforts?

Objectives 10 and 11: To what degree does the Community Researcher develop a sense of belonging within the larger group of language revitalization practitioners and derive support for their language revitalization research project?

4.3 Pre- and post-workshop questionnaires The pre-workshop questionnaire consisted of three subscales measuring Community Researchers' (a) experience using archives, (b) experience with linguistics, and (c) amount of previous language revitalization activities. The "Experience Using Archives" subscale consisted of twenty-one items measured on a scale from *Strongly Disagree* (1) to *Strongly Agree* (5), which measured the Community Researchers' experience searching, accessing, and obtaining items from national archives. The "Experience with Linguistic Research" subscale consisted of fifteen items measured on a scale from *Strongly Disagree* (1) to *Strongly Agree* (5) and measured Community Researchers' (a) confidence in recognizing and interpreting archival materials of interest, (b) familiarity with linguistics, and (c) experience with linguistics in the academic context. The third subscale measured the amount of data Community Researchers had collected for language revitalization efforts in the past. The post-workshop questionnaire was identical to the pre-questionnaire in order to follow an outcomes-based pre- and post-evaluation design and to measure changes that occurred as a result of participating in the workshop. The post-workshop questionnaire included additional items that measured (a) confidence to continue revitalization efforts, (b) plans to continue communication with National Breath of Life Community Researchers and team members, and (c) satis-

faction with the two-week workshop experience. Together, these two questionnaires measured the impact of the workshop content as well as Community Researcher satisfaction with the workshop overall. Reliability coefficients were calculated for each of the questionnaire measures from pre- and post-workshop questionnaire data. The Cronbach's alpha values for all measures on both questionnaires were moderate to high (.69 to .96), indicating moderate to high reliability (Table 4).

4.4 Broader-impacts evaluation The evaluation of broader impacts involved three elements: (a) the Breath of Life Post-Institute Impact Questionnaire (Broader Impacts Questionnaire), (b) a supplementary Linguistic Partner Interview Protocol, and (c) a subsequent Broader Impacts Interview Protocol. As mentioned above (§4.1), with these instruments, we collected data from all National Breath of Life alumni from 2011 to 2017.

The Broader Impacts Questionnaire was intended to gain insights into what role, if any, the National Breath of Life experience played into the Community Researchers' current revitalization work. The questionnaire consisted of six sections as follows:

1. The "Experience Using Archives" section consisted of twenty-one items measured on a Likert-type rating scale from *Strongly Disagree* (1) to *Strongly Agree* (5) and measured Community Researchers' (a) understanding and familiarity with documenting archival materials, (b) experience with searching and accessing items of relevance, and (c) confidence for obtaining archived materials.
2. The "Experience with Linguistic Research" section consisted of fifteen items measured on a scale from *Strongly Disagree* (1) to *Strongly Agree* (5) and measured Community Researchers' (a) confidence recognizing and interpreting archival materials of interest, (b) familiarity with linguistics, and (c) experience with linguistics in the academic context.
3. The "Linguistics Training and Education" section consisted of three items asking Community Researchers if they (a) currently work with a linguist, (b) have any training in linguistics outside of National Breath of Life, and/or (c) have completed or are currently pursuing an academic degree that supports their revitalization efforts since National Breath of Life. There are follow-up questions that target their experiences versus their interests to each of the three items depending on the Community Researcher's response.
4. The "Community Relationships and Networking" section consisted of four items on a Likert-type scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (5) and measured Community Researchers' communication with National Breath of Life Community Researchers and team members. It included an additional open-response item asking how networking has informed their language revitalization efforts.
5. The "Impact of National Breath of Life Participation" section consisted of ten items asking Community Researchers (a) when and why they par-

anticipated in National Breath of Life, (b) what their goals were and if they accomplished them, (c) if they learned any new knowledge/skills from National Breath of Life and if they have been able to apply and share what they learned, and (d) what activities they have carried out or are currently carrying out and how much National Breath of Life motivated their involvement in these activities.

6. The “Impact in the Community” section consisted of six items asking Community Researchers about (a) their vision for their work, (b) what has helped them, (c) if they have encountered any challenges, (d) what they might need to move forward, and (e) what they would like a potential funding agency to know about their experiences.

Reliability coefficients were calculated for each of the questionnaire measures from the pre-, post-, and broader-impacts questionnaire matched data. The Cronbach’s alpha values in the pre-questionnaire ranged from .90 to .98 (Table 4). The Cronbach’s alpha values in the post-questionnaire ranged from .81 to .98. The Cronbach’s alpha values in the Broader Impacts Questionnaire ranged from .79 to .92. With an acceptance threshold of .70 (Nunnally 1978), the Cronbach’s alpha values on all three questionnaires ranged from acceptable to excellent.

Table 4. National Breath of Life instrument reliability by scale (National Breath of Life Pre-, Post-, and Broader Impacts Questionnaires, 2017–2018)

	# of items	Pre		Post		Broader Impacts	
		n	Cronbach’s Alpha	n	Cronbach’s Alpha	n	Cronbach’s Alpha
Documenting archival materials	5	9	0.98	9	0.98	8	0.82
Searching and accessing items	9	9	0.96	9	0.86	9	0.89
Confidence obtaining archived materials	7	9	0.97	9	0.90	9	0.92
Confidence in recognizing items	4	9	0.94	9	0.85	9	0.84
Familiarity with linguistics	3	9	0.90	9	0.81	9	0.79

The additional Linguistic Partner Interview Protocol was developed to measure Linguistic Partners' perspectives on their research team's preparation, goals, successes, challenges, and communication. Linguistic Partners were invited to participate in a phone interview. Out of sixteen Linguistic Partners invited, nine interviews were held. Linguistic Partners were asked about their Community Researchers' goals, level of linguistic knowledge and comfort, collaboration efforts, and the unique experiences of each group. Linguistic Partners were often reluctant to speak for their Community Researcher team members but provided information about the experiences they had together in terms of obstacles, successes, and personal connections. In addition, items were added to collect personal experiences and impacts for each Linguistic Partner.

The Broader Impacts Questionnaire was administered to all National Breath of Life Community Researchers from the four workshops via Qualtrics online survey software. Community Researchers for the Broader Impacts interviews were recruited initially through an item on the National Breath of Life Broader Impacts Questionnaire. Of the twenty-six Community Researchers who provided their contact information, a stratified sample of nine Community Researchers representing each of the four biennial workshops were invited to participate in a phone interview. Four interviews were held, and after several follow-up attempts to interview the remaining five Community Researchers, the Evaluation Team decided to send an online interview questionnaire via Qualtrics to all of the Community Researchers who provided their contact information. Seven Community Researchers completed the online interview questionnaire.

4.5 Data analysis Data from the pre- and post-workshop questionnaires were downloaded, cleaned, and analyzed to measure scale reliability. Data were then analyzed using matched samples of participants who completed both the pre- and the post-questionnaires. Participant responses were matched using a unique identifier. Several paired samples *t*-tests were conducted on the matched sample to examine whether there were any changes after attending the workshop. Qualitative data were downloaded and analyzed using thematic analysis with the assistance of NVivo qualitative analysis Software.

Data from the Broader Impacts Questionnaire were analyzed to assess the impact of the Institute three, five, and seven years after participation, specifically with regard to (a) continued research efforts, (b) continued education in linguistic studies, (c) sharing and collaboration activities, and (d) community needs to continue revitalization efforts. Further, data collected through the Breath of Life Broader Impacts Questionnaire were compared to findings from the pre- and post-questionnaires in order to evaluate the broader impacts of the Institute on Community Researchers' language revitalization efforts. Data were analyzed using a matched sample of Community Researchers who completed all three questionnaires. Due to the small sample size of matched Community Researchers ($n = 9$), several nonparametric tests (Friedman tests) were conducted on the matched sample to examine whether there were any changes over time.

Data from the Broader Impacts Interview Protocol and the Linguistic Partners Interview Protocol were transcribed and analyzed using NVivo qualitative analysis software. Thematic analysis was utilized to assess themes associated with the long-term impact of the workshops on language revitalization efforts at the community level.

5. Evaluation and assessment results This section reports on the results of all assessment and evaluation activities carried out on National Breath of Life and on the impact that the program itself might have had on the evolution of the Community Researchers' archive-based research for revitalization. First, the results of the pre- and post-workshop questionnaires for 2017 are presented in §5.1, complemented in §5.2 with perspectives provided by the Linguistic Partners. Third, a quantitative analysis of the Broader Impacts Questionnaire results is presented in §5.3, followed by a qualitative analysis in §5.4. Qualitative data are presented throughout this section in the form of quotes from interviews and questionnaires. In all cases, quotes are preceded by an explanatory synthesis to provide adequate context. This synthesis includes the data sample size. Quotes from interviews are presented along with a unique identifier, but not the quotes from questionnaires due to the anonymization process.

5.1 Pre- and post-workshop questionnaire results As stated in §2, eleven objectives guided the National Breath of Life workshops. These followed three main foci: (a) searching in archives for language documentation materials of relevance to the revitalization of a language, (b) analyzing the language data in such materials, and (c) developing effective ways to apply such data for the revitalization of the language. This section addresses the results related to foci (a) and (b). The third area of focus is discussed in §5.3.5 and is complemented in §5.5 with the contents of a detailed qualitative analysis of the Broader Impacts Questionnaire results.

With regard to the first area of focus, Table 5 shows that the staff at the participating archives (NAA, NMAI, and LoC) provided adequate instruction and support to meet objectives related to searching in archives for language documentation materials of relevance to the revitalization of a language. A majority of Community Researchers responded that the National Breath of Life staff was sufficient in their communication with them and adequately prepared them for the experience and that orientations to the archives (NAA, NMAI, and LoC) prepared them for working in the various archives and collections. In addition, all Community Researchers responded that they found useful materials on their (or their team's) language in any one of the repositories (NAA, NMAI, and LoC).

Table 5. Community Researchers' responses regarding the workshop (Breath of Life Post-Questionnaires, July 2017)

	n	"Yes"	%
Staff was sufficient in communication and adequately prepared Community Researchers for the experience	19	18	95
Orientations to the various archives prepared Community Researchers for working in the various archives and collections	17	15	88
Finding useful materials on Community Researchers' language in any one of the repositories	17	17	100

Further, participants reported a significant increase in their understanding and familiarity with documenting archival materials, in their experiences with searching for and accessing items of relevance, and in their confidence for obtaining archived materials (Table 6). Participants also reported a significant increase in their confidence for recognizing items of relevance. However, a significant difference was not found in the amount of data collected for revitalization efforts.

Table 6. National Breath of Life's impact on participant confidence in archival research skills, paired samples t-tests (National Breath of Life Pre- and Post-Questionnaires, 2016–2017)

Measures	n	Pre		Post		Diff.	df	p
		M	SD	M	SD			
Documenting archival materials	19	12.47	5.54	20.84	2.32	8.37	18	<.001***
Searching for and accessing items of relevance to revitalization research	19	19.42	7.27	37.84	4.76	18.42	18	<.001***
Confidence for obtaining archived materials	19	19.79	7.64	28.32	4.26	8.53	18	.001***

Confidence in recognizing items of relevance for language revitalization research	19	12.74	4.66	16.58	2.67	3.84	18	.004**
Amount of data collected for revitalization efforts	18	10.33	2.59	11.22	2.07	.89	17	.27

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

Related to the second area of focus, the analysis of language data in archival materials, participants reported significant improvement in their understanding of what linguists do, in their confidence in their ability to describe the work of linguists, and in their awareness of the role that linguistics could play in their research following the Breath of Life program (Table 7). Additionally, in the pre-questionnaire, participants responded to the item “I am interested in furthering my knowledge of linguistics” with a mean of 4.58 (SD = .84) and the item “I am interested in pursuing a linguistics degree” with a mean of 3.26 (SD = 1.41). In the post-questionnaire, participants responded to the item “I am interested in being formally trained in linguistic studies” with a mean of 3.89 (SD = .94). Considering the Likert-type rating scale from *Strongly Disagree* (1) to *Strongly Agree* (5), these data indicate participants reported a greater interest in gaining more knowledge of linguistics in general. However, they reported less interest in pursuing formal study or training, both before and after the program.

Table 7. National Breath of Life’s impact on participant familiarity with linguistics, paired samples t-tests (National Breath of Life Pre- and Post-Questionnaires, 2016–2017) (n = 19)

Measures	<i>n</i>	Pre		Post		Diff.	<i>df</i>	<i>p</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
I have an understanding of what linguists do	19	3.89	0.99	4.47	0.51	0.58	18	.045*
I feel confident in my ability to describe the work of linguists	19	3.53	1.07	4.26	0.56	0.74	18	.009**
I am aware of the role that linguistics could play in my research	19	4.00	0.88	4.63	0.50	0.63	18	.02*

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

5.2 Linguistic Partner perspectives Linguistic Partners were invited to participate in phone interviews in April 2018. Out of sixteen Linguistic Partners invited, nine interviews were held between April 18 and May 7, 2018. The Linguistic Partners’ interview data revealed a variety of levels of confidence among Community Researchers as they were introduced to topics in linguistics at the start of their National Breath of Life experience. On one hand, the Linguistic Partners were all academically trained linguists with varying degrees of experience. Some were senior academics with decades of experience in research and teaching. Others were doctoral linguistics students. On the other hand, some Community Researchers had already had formal academic training, while others had no prior knowledge of linguistics. The perspectives provided by the Linguistic Partners shed light on some of the challenges that linguistic analysis presents to Community Researchers who are initiating their archive-based research. In doing so, they provide important information for academic linguistics to learn how to present linguistic analysis instruction in a manner that is accessible to Community Researchers and relevant to their objectives and goals.

Linguistics offers a whole new language that you need to learn, the technical language of linguistics, which is cumbersome for a person wanting to speak their native language. It’s frustrating. (LP2, Linguistic Partners Interview, Spring 2018)

Some people are more suited toward digesting and benefitting from the linguistic knowledge than others. Some people are frustrated by it because they just want to speak their language. (LP7, Linguistic Partners Interview, Spring 2018)

There are so many writing systems. You know, it's awful. And I think that is the main barrier when we are looking at written materials and everybody has a different system. And thinking like, "I thought I knew my language, and I know this word, or I know that word." But apparently I don't, because it looks totally different on this piece of paper. (LP8, Linguistic Partners Interview, Spring 2018)

Linguistic Partners shared details about significant achievements with the Community Research teams in dealing with the sometimes-intimidating nature of the language materials.

We kind of took stock and took note of the different systems, writing systems that were being used and said "Oh, this is the modern version of that." And you know, tried to convert as much as possible, where we could into the modern writing so that it was a little bit more accessible. And in doing that, I mean, it was kind of hit or miss. You know, sometimes you're just guessing. But, yeah, that really helped increase the confidence. (LP8, Linguistic Partners Interview, Spring 2018)

She made some headway! I think they got a lot more comfortable. I think a lot of the comfortableness level is because there is somebody there to answer questions. Then, by the end, if nothing else, they're no longer afraid to look at it, right? (LP2, Linguistic Partners Interview, Spring 2018)

Our researcher, she was very quick to just figure things out and learn, and she was very excited about it, so she spent a lot of time on her own just soaking all that stuff in. So I thought it ended up being a really good collaboration. (LP5, Linguistic Partners Interview, Spring 2018)

In addition to successes in linguistic analysis, Linguistic Partners reported that they were still in communication with their research teams and, in some instances, were able to discuss different ways in which their teams had disseminated their Breath of Life findings:

They're trying to maintain, and not forget what they learned. (LP1, Linguistic Partners Interview, Spring 2018)

We have done a little follow-up. I made a trip to [place] we had an opportunity to present to the community and share the materials that we were collecting. (LP3, Linguistic Partners Interview, Spring 2018)

Yeah, so he's really involved in language teaching there so he teaches classes... I think certainly that he was sharing that information through that venue, yeah, so with his collaborators and with other people that are interested in language work in the community. (LP6, Linguistic Partners Interview, Spring 2018)

Mostly, the Linguistic Partners were interested in sharing the personal connections and significant emotional moments that they and their Community Researchers experienced. In doing so, the Linguistic Partners conveyed that the relevance of linguistic analysis goes beyond that of an academic endeavor that is heavily theoretical. This information is crucial for contemporary academic linguistics programs as they take on the responsibility of becoming inclusive of students interested in linguistics for language revitalization and not only for theoretical advancement. For the purposes of assessment, these quotes confirm that the workshop environment allows for this relevance to be expressed and to be part of the training process.

It was later on, when they had started really figuring out what he had said, and then it became important on another level and emotional on another level. On a level that was both the information that he was meaning to give... but also what it told about the man's life who had given this material from very far away from home... And then there was the emotional level of the young woman realizing that she was given this information. It wasn't that she had found it, but that she was given this information, and her responsibility with it. (LP2, Linguistic Partners Interview, Spring 2018)

She was very excited about all that actually existed. (LP5, Linguistic Partners Interview, Spring 2018)

Recognizing people who were [names provided and miscellaneous locations] who were relatives or who were, you know, friends' relatives. "Oh, I know where that is." You know? And just... and feeling really excited about those immediate personal connections. (LP8, Linguistic Partners Interview, Spring 2018)

In order to describe the impact of participating in the workshop, interview data were analyzed for statements that addressed the impact of the experience on the *Linguistic Partners themselves*, both at a personal and at a professional level. They expressed feeling inspired and motivated through working with others on language revitalization and also took note of activities and processes that were important to their continued efforts as linguists and to their greater acknowledgment of the social value of the discipline.

He and I worked with the same speaker. I'm a linguist so I bring sort of different analytic skills but also sort of a deficit of cultural knowledge. So I think we kind of complement each other in terms of the kind of work we do with her. (LP6, Linguistic Partners Interview, Spring 2018)

I was already kind of aware of this, but it kind of drilled into me the importance of documentation. Not just word lists and maybe, you know, Biblical kind of common types of translations, but of getting good documentation of things like conversations... And so, as a linguist doing research on a language which is very endangered currently, I remember that, and I always want to make more complete documentation. (LP8, Linguistic Partners Interview, Spring 2018)

Being able to work with them as they uncover these very personal documents – personally and culturally significant documents – was really interesting and it was – it was something that I feel like I was very fortunate and lucky, you know, to be able to be a part of. (LP1, Linguistic Partners Interview, Spring 2018)

Linguistic Partners provided a valuable perspective on the impact of National Breath of Life for Community Researchers. Successes and obstacles described by Linguistic Partners revealed the complicated nature of learning linguistic analysis and the slow but stepwise nature of successfully navigating the process. Linguistic Partner data indicated the importance of developing a strong partnership with linguists if a researcher wants to progress in their own understanding without devoting the time and resources to extensive linguistics training. In addition, participating in a program like National Breath of Life has a different but quite valuable impact on linguists as they are reminded of the personal connections to language and culture that are important in their work.

5.3 Broader Impacts Questionnaire – quantitative analysis National Breath of Life organizers have long been aware that positive and productive work during a workshop changes when participants return home and the excitement of the workshop wears off. Several of the National Breath of Life organizers have been revitalization practitioners for a long time, and this first-hand experience has made them aware of the many obstacles that can inhibit progress in revitalization. The broader-impacts assessment was to help us determine what obstacles and challenges our community partners were experiencing. We felt strongly that if National Breath of Life were to continue developing and strengthening our training opportunities, we needed to better understand what our partners needed to respond to the many challenges in community-based revitalization.

Data frequencies were calculated based on the National Breath of Life directory provided to the Evaluation Team by the Project Team. In total, National Breath of Life provided training to 117 Community Researchers representing fifty-five language groups over a six-year period, as shown in Table 8. The results were clustered

into five topics: (a) technical capacity building, (b) linguistic analysis awareness and skills, (c) community relationships and networking, (d) impact of National Breath of Life participation, and (e) strategies in archive-based research for revitalization. In what follows, each subsection is dedicated to each of these topics.

Table 8. Number of new Community Researchers and number of new language groups by Institute year

Year	No. of New Community Researchers	No. of New Language Groups
2011	27	20
2013	38	16
2015	27	10
2017	22	10
Total	114	56

Note: New Community Researcher is defined as a Community Researcher who has not attended National Breath of Life previously. New Language Group is defined as a language group that had not previously been researched and counted for only one Community Researcher if there were more than one.

5.3.1 Technical capacity building With regard to the development of skills both in terms of searching for relevant archival materials and engaging in the analysis of the linguistic data within, out of thirty-eight Community Researchers, thirty-seven (97%) reported that they learned new knowledge and/or skills from National Breath of Life (Table 9). Of these, thirty-five provided a response to an item asking whether they had applied what they learned from their National Breath of Life experience(s) and whether they had shared their knowledge/skills since National Breath of Life. Of the thirty-five Community Researchers, thirty-three (94%) reported that they were able to apply what they learned, and the same number reported that they shared their knowledge and/or skills with others since National Breath of Life.

Table 9. New knowledge or skills (Breath of Life Broader Impacts Questionnaire, 2018)

Did you learn any new knowledge or skills?	<i>n</i>	%
Yes	37	97
No	1	3
Total	38	100

When asked to be more specific about the knowledge and skills acquired during National Breath of Life, most of the respondents referenced knowledge and skills related to using archives to locate materials ($n = 17$) or linguistic analysis skills ($n = 17$). Seven other respondents indicated that the knowledge and skills they gained were in relation to networking with other language revitalization researchers or groups. Four indicated that they gained knowledge of the resources available to them, not specifically on how to use the archives to retrieve or view these resources. Respondents also were asked to give examples of how they had been able to apply their new knowledge and skills since their National Breath of Life experiences. Most examples described ways in which respondents continued to use their language analysis skills ($n = 14$). For example:

The basic linguistic principles I learned during my BoL have allowed me to delve into and understand my language in ways I was unable to before attending the Washington D.C. BoL.

I'm able to say a prayer in my language and certain phrases. I understand how certain endings mean its location. I'm able to share our language with the broader community which helps them understand more about our deep roots.

Seven respondents indicated that they had been back to various archives where they applied the archival research knowledge and skills obtained through National Breath of Life. One respondent described a new understanding of that work, stating: "Being able to dig through the documentation [...] [allows us to understand] that that slow work is part of the process." Respondents also indicated that they were using their National Breath of Life knowledge and skills by developing resources ($n = 6$) and networking or sharing with others ($n = 6$). These two applications of National Breath of Life knowledge and skills were described well by two different respondents:

For example, when trying to restore songs in the community we were able to find songs from a neighboring and indigenous group with similar language that had been transcribed in a field journal in the 1870s. We were able to fashion "new" songs based on that style of these old ones. We were able to "find" words we had lost, for example, all of the names for bugs, in other field notes, copy them, then bring them home and add them to our dictionary database. And on and on [...]

My role as language advocate in my community as well as sharing with non-native people that our communities are thriving and that there are hundreds of communities who are bringing their language back, what I do matters, the work I do matters, I play an important role and National Breath of Life has helped me develop my identity and get closer to my indigenous culture.

5.3.2 Linguistic analysis awareness and skills With regard to the need to analyze linguistic data more specifically, of the thirty-eight Community Researchers, 76% reported that they currently work (collaborate, consult, or partner) with a linguist. Forty-seven percent reported having trained in linguistics outside of National Breath of Life, and 29% reported that they have completed or are currently pursuing a degree in linguistics (Figure 1).

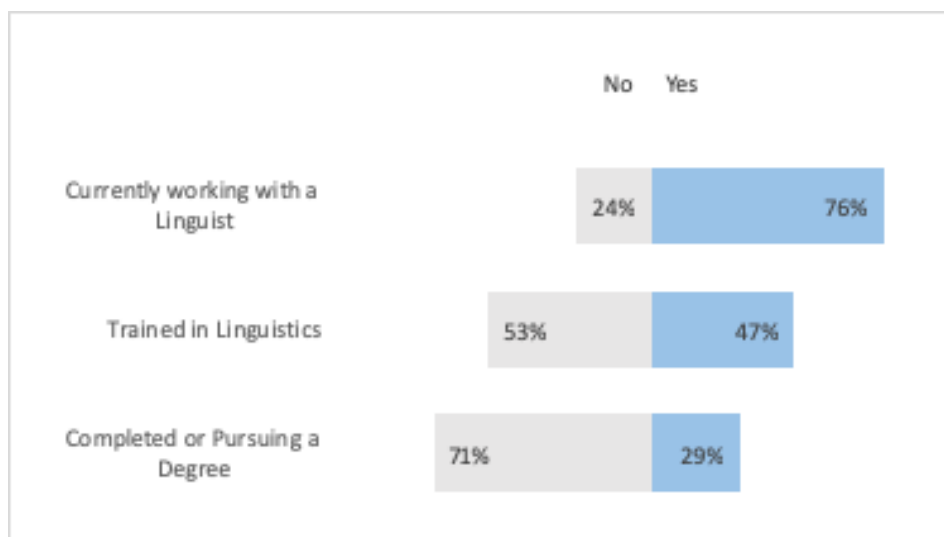


Figure 1. Percentage of Community Researchers who are currently working with a linguist, who were trained in linguistics, and/or who completed or were pursuing a degree

Of the twenty-nine Community Researchers currently working with a linguist, 86% said they started working with a linguist before attending National Breath of Life (Table 10). All of the nine Community Researchers not currently working with a linguist said they would be interested in working with one to further their language revitalization efforts. Of the thirty-eight Community Researchers, twenty (56%) reported that they did not have any training in linguistics outside of National Breath of Life, and 70% of these twenty Community Researchers reported that they are interested in becoming trained. Of the eleven Community Researchers who said they had completed or were currently pursuing an academic degree, 82% said that National Breath of Life motivated them to pursue a degree. Of the twenty-seven Community Researchers who reported that they had not completed a degree, 52% said they were interested in pursuing a degree (data not displayed).

Table 10. When Community Researchers started working with a linguist (Breath of Life Broader Impacts Questionnaire, 2018)

When did you start working with a linguist?	<i>n</i>	%
Before attending BoL	25	86
After attending BoL	7	24
During BoL and have continued that partnership	8	28

Note: Community Researchers were able to choose more than one option, resulting in a percentage greater than 100%. BoL = Breath of Life.

Open-response data provided a more descriptive view of Community Researcher training and education. When asked to provide details regarding training in linguistics, Community Researchers indicated that they were participating in linguistics training through direct work with a professional linguist ($n = 7$) or formal linguistics education coursework ($n = 9$), and three provided descriptions of self-taught/informal means through which they were bolstering their linguistics skills. One respondent was specific about the potential influence of the National Breath of Life workshop, stating that linguistics training through “some college courses” started after participation in the program. In addition, respondents were asked to specify what type of degree they were pursuing or had completed since participation in National Breath of Life. Five respondents indicated an education degree, while three respondents indicated either pursuing or completing a degree in linguistics. Respondents also indicated having pursued or completed a degree in second language acquisition ($n = 1$), cultural studies ($n = 1$), library and archives ($n = 1$), a master’s in Indigenous language revitalization ($n = 1$), library information sciences ($n = 1$), and language revitalization, linguistics, and media ($n = 1$). Although not currently pursuing a degree, other respondents indicated interest in pursuing a degree in linguistics ($n = 11$), anthropology ($n = 6$), cultural studies ($n = 9$), second language acquisition ($n = 5$), language revitalization ($n = 1$), Native law and policy ($n = 1$), and natural resources ($n = 1$).

When asked what other types of training were of interest, respondents indicated an interest in opportunities to further their linguistics skills ($n = 10$); learn how to make and maintain language databases ($n = 14$) or language content for language use ($n = 3$); participate in short, focused workshops “like BoL” ($n = 1$); and learn how to write grants ($n = 1$). Two respondents were specific about having the training “come to them” so that they were not separated “from [their] language community.” And six respondents expressed an interest in networking with other tribes/nations/language revitalizationists. In the next section we turn to the topic of network.

5.3.3 Community relationships and networking On the topic of developing effective ways to apply such data for the revitalization of the language, networking has emerged as an important outcome of National Breath of Life participation. Networking facilitates the exchange of ideas for the development of strategies in ar-

chive-based research for revitalization and provides a system of support. A majority of Community Researchers reported that they have kept in contact with at least one Community Researcher and with a Linguistic Partner from National Breath of Life. A majority of Community Researchers also reported that they are confident they have multiple contacts from National Breath of Life that they can reach out to and that working among other researchers increased their motivation for their revitalization research (Table 11).

Table 11. National Breath of Life relationships (Breath of Life Broader Impacts Questionnaire, 2018) (n = 38)

Item	Strongly Disagree/ Disagree		Neither		Strongly Agree/ Agree	
I have kept in contact with at least one Community Researcher that I met during the BoL Institute	6 (16%)		4 (11%)		28 (74%)	
I have kept in contact with a Linguistic Partner from the BoL Institute	4 (11%)		1 (3%)		33 (87%)	
I feel confident that I have multiple contacts from the BoL experience that I can reach out to as I continue my revitalization efforts	5 (13%)		0 (0%)		33 (87%)	
Working amongst other researchers increased my motivation for my revitalization research	1 (3%)		2 (5%)		35 (92%)	

Note: Responses higher than 70% are in bold. BoL = Breath of Life.

Open-response items provided more descriptive details regarding how Community Researchers have utilized networking to inform their language revitalization efforts. More than half of the responses ($n = 23$) indicated that Community Researchers find that having a network provided emotional and motivational support. One respondent provided a cultural perspective to this data:

Networking is vital to our language endeavors, establishing partnerships is a tribal value and has been utilized for hundreds of years, it is one of our best tools towards sustainability.

In addition to this support, ten Community Researchers noted that having a network provided resources for information that would move their work forward. Also, eight of the responses indicated specific technical/skill-building support that was provided by networking with other language revitalization groups. For example:

I've been able to ask others how they started their preservation of artifacts and ask how to begin to create a phonemic alphabet. Our language is not

written, and not permitted to write, but adult learners can write phonetically for their own use. Seeking out other methods of making language materials available to our community.

Respondents were asked to provide more details regarding with whom they had shared their new knowledge and skills. Most indicated that they had shared what they learned at National Breath of Life with their language groups ($n = 12$) or with their tribal community in general ($n = 11$). Respondents also shared with friends and family ($n = 6$) or at large conferences ($n = 2$). Four respondents indicated sharing the information with the public at large; three of these respondents did so through online means (e.g., YouTube, website). Responses were coded with as many types of sharing activities as were listed in the response. The following two Community Researchers described how important sharing what they learned was to National Breath of Life Community Researchers:

I have shared my knowledge with my Tribal Community in showing them documents of our ancestors. Also it is something I speak about to people I encounter in everyday life and share the importance and educating them about language in general in a global perspective of how the many documented languages there are in the world. The importance to each community of identity and value it holds for them as a person. How blessed I was to have the opportunity to be involved in the National Breath of Life and research our (language name) language and Tribal Documents for revitalize our language.

My family, my boyfriend, my non-native friends, my native friends, my tribal community, elders, youth, they all see me now as the language keeper and they support me and look up to me and encourage me. I have helped people with the pronunciation of the language or helped them find what they are looking for in our dictionary, I have gone out to DC and they see that and they see that I represent them when I go out in the world and they see that I am taking our [tribe] culture as a young woman and I am sharing our culture with the world, I am like a messenger and I bring back stories from other tribes as well, as I am not preparing to leave our community, they see the sacrifice I am making in order to become a linguist and they are happy for me and for our community.

5.3.4 Impact of National Breath of Life participation Community Researchers were asked a number of multiple-choice and open-response questions to inform the assessment of National Breath of Life participation impact. Community Researchers were asked what originally motivated their decision to participate in National Breath of Life. The majority of responses ($n = 25$) indicated that skill and language development were the main reasons for wanting to participate in National Breath of Life. Most of these respondents referred to this in general ways, such as “to save our language” or “the desire to learn our language.” Other respondents, however, were

more specific: “the potential of learning more about linguistics.” Respondents also were asked if they could recall what their goals were for their National Breath of Life experience. Again, respondents were not very specific about their goals for their National Breath of Life experiences. Most responses indicated one of two (or both) general goals of building skills (especially in linguistics, $n = 23$) or digging through the archives and seeing what materials exist ($n = 20$). In addition, many respondents indicated that their goal was to “meet with other researchers” ($n = 10$). Three respondents provided more specificity about their goals including:

To find some of our lost songs and stories.

I wanted to find the earliest roots possible for our tribe, including the land-base before our removal and the names of our ancestors.

We had heard there was a wax cylinder recording with the language on it but were not sure if we would be able to hear it.

In order to assess how goals may have evolved over multiple National Breath of Life experiences, the Broader Impacts Questionnaire included items that asked those who had participated more than once if their goals had changed. Eight Community Researchers reported that they attended National Breath of Life more than once. Of the eight, three reported that they continued to pursue the same goal the second time they attended, two reported that their goals changed because they accomplished their previous goals, and three reported that their goals changed for other reasons. Of these three, one said, “[...] my goal with regard to language revitalization methods changed, as they are always adjusting due to input from mentors, networking with others, etc.” Another indicated that they were at National Breath of Life 2017 in order to present and offer support, while the third indicated they were there to “focus on creating a research project in order to apply for graduate school.” Of the thirty-eight Community Researchers, twenty-five (66%) reported that they accomplished their goals during their most recent National Breath of Life experience, while five (13%) reported that they accomplished their goals after National Breath of Life (Table 12).

Table 12. Goals accomplished (Breath of Life Broader Impacts Questionnaire, 2018)

Did you accomplish your goals at BoL?	<i>n</i>	%
Yes, during BoL	25	66
Yes, after BoL	5	13
No	8	21
Total	38	100

Note: BoL = Breath of Life.

Those who did not accomplish their goals were provided an opportunity to explain why they hadn't done so. Four respondents indicated, in general, that there was a lot of work to do in order to accomplish their goals. Although these statements could be associated with not having enough time, only two respondents indicated that time was a factor by stating, they "didn't have enough time to look at all the materials available" and "it was a short time frame in order to create and execute a research project." One respondent indicated that "indecision amongst other community members" was the reason goals had not been accomplished.

5.3.5 Strategies in archive-based research for revitalization Community Researchers were asked which activities they had carried out or were currently carrying out from their language revitalization efforts. A majority of Community Researchers were involved in collaborating with others involved in language revitalization (84%), followed by producing written works (74%) (Table 13).

Table 13. Activity involvement (Breath of Life Broader Impacts Questionnaire, 2018)

Activity	<i>n</i>	%
Collaborating with others involved in language revitalization	32	84
Producing written works (e.g., manuscripts, stories, dictionaries)	28	74
Participating in archival research outside of the BoL Institute	24	63
Pursuing more linguistic training	23	61
Creating a database, finder list, or spreadsheet of archival materials	21	55
Hosting workshops/classes/discussion groups	17	45
Obtaining funding for revitalization activities	16	42
Other activities not listed	15	39

Note: Community Researchers were able to choose more than one activity. BoL = Breath of Life.

Community Researchers were asked to rate the extent to which participating in National Breath of Life motivated their involvement in the activities on a rating scale from 1 (*Low*) to 5 (*High*). For all of the activities, Community Researchers reported that their involvement was at least moderately motivated by their participation in National Breath of Life (Table 14).

Table 14. Activity involvement motivated by National Breath of Life (Breath of Life Broader Impacts Questionnaire, 2018)

Activity	<i>n</i>	Low/ Medium-Low	Medium	Medium- High/High
Developing curriculum materials for language and cultural education programs	33	12%	15%	73%
Creating a database, finder list, or spreadsheet of archival materials	31	10%	6%	84%
Pursuing more linguistic training	36	8%	19%	72%
Collaborating with others involved in language revitalization	37	11%	5%	84%
Participating in archival research outside of the BoL Institute	37	11%	3%	86%
Obtaining funding for revitalization activities	32	16%	16%	69%
Producing written works (e.g., manuscripts, stories, dictionaries)	37	14%	16%	70%
Hosting workshops/classes/discussion groups	30	7%	33%	60%
Other activities not listed	15	0%	7%	93%

Note: Percentages higher than 60% are in bold. BoL = Breath of Life.

Table 15 shows that 59% of Community Researchers reported that their revitalization work continues to evolve and grow, while 38% reported that there have been challenges that have hampered progress on their language revitalization work.

Table 15. Revitalization work progress (National Breath of Life Broader Impacts Questionnaire, 2018)

Have there been any challenges that have hampered or altogether prevented your language revitalization work?	<i>n</i>	%
My revitalization work continues to evolve and grow	22	59
Challenges have hampered progress on my LR work	14	38
Challenges have altogether prevented my ability to accomplish my LR work	1	3
Total	37	100

Note: One Community Researcher did not answer this question. LR = language revitalization.

5.4 Longitudinal broader-impacts evaluation Table 16 shows how National Breath of Life influenced Community Researchers by displaying their responses before the Institute as well as one month and a year after attending the Institute. Due to the small sample size, the Evaluation Team conducted several Friedman tests with the matched data. Results indicated that there were significant differences by time for all five measures. More specifically, Wilcoxon tests were used to examine post-hoc comparisons with a Bonferroni adjusted *p*-value cutoff for significance. These indicated that Community Researcher confidence for obtaining archived materials significantly increased from prior to National Breath of Life to one year later. Also, Community Researcher experience with searching for and accessing items of relevance were significantly increased from prior to National Breath of Life to a month and a year later. Further, Community Researcher understanding and familiarity with documenting archival materials and confidence in recognizing items of relevance were significantly increased from prior to National Breath of Life to a month later. Finally, while there was a significant difference in Community Researcher familiarity with linguistics, the Wilcoxon tests indicated no significant differences found between time points, possibly due to lack of statistical power. There were no significant differences in Community Researcher responses between a month and a year after the Institute on any of the measures, indicating no statistically significant loss of confidence or knowledge of archival and linguistic usage and processes a year after training.

Table 16. Results of Friedman tests on National Breath of Life’s impact on Community Researchers (Breath of Life Pre-, Post-, and Broader Impacts Questionnaires, 2017–2018)

	<i>n</i>	Pre		Post		Broader Impacts		<i>c2</i>	<i>df</i>	<i>p</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Documenting archival materials	9	2.04	1.18	4.02	0.50	3.67	0.71	11.68	2	.003**
Searching and accessing items	9	2.17	1.12	4.15	0.59	4.37	0.51	8.71	2	.013*
Confidence obtaining archived materials	9	2.46	1.14	4.00	0.67	4.10	0.55	8.06	2	.018*
Confidence in recognizing items	9	2.64	1.26	4.22	0.69	4.03	0.71	13.87	2	.001***
Familiarity with the role of linguists	9	3.56	1.11	4.59	0.43	4.52	0.41	7.91	2	.019*

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

5.5 Broader Impacts Questionnaire – qualitative analysis The data from the Broader Impacts Questionnaire were analyzed using the *Research Cycle* as defined by Edinburgh Napier University (n.d.). The Research Cycle was created by Information Services at Edinburgh Napier University to guide students through the process of research while using the library. This Research Cycle-themed analysis was maintained for broader-impacts interview data and has been used to describe goals and continued language revitalization work. Three additional themes were analyzed in the broader-impacts interview data: 1) successes and activities that help continue language revitalization efforts; 2) obstacles and Community Researcher needs for continuing language revitalization efforts; and 3) personal and emotional impacts of language revitalization work.

5.5.1 Community Researcher goals and continued work By slightly modifying the categories of the Research Cycle to better fit the goals of the National Breath of Life Archival Institute, 2017 post-questionnaire open-response items were coded and categorized into five main themes: Plan/Collaborate, Locate/Discover, Learn/Analyze, Create, and Share/Impact. These themes were then used to analyze Community Researcher responses as reported in the Broader Impacts Questionnaire to assess

progress. Graphic A in Figure 2 displays the proportion of respondents at points Plan, Locate, Learn, Create, or Share on the Research Cycle before National Breath of Life. Graphic B displays points on the cycle that best reflect their future plans for achieving their research goals, as measured immediately following their National Breath of Life participation. Graphic C displays points on the cycle that best reflect current activities being conducted in communities by Community Researchers who attended one of the four National Breath of Life Institutes as measured one to six years following their National Breath of Life participation.

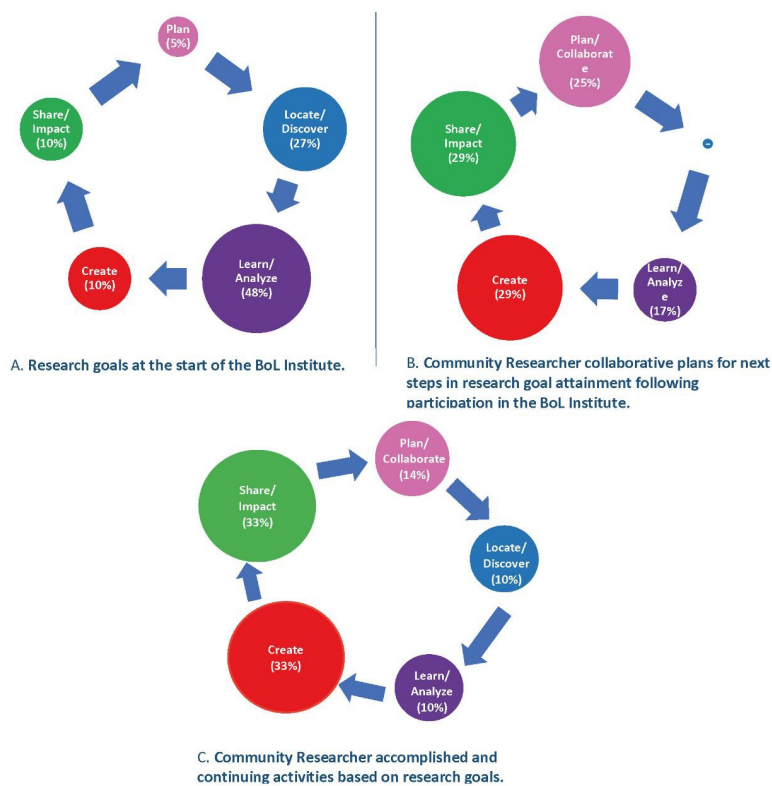


Figure 2. Research Cycles of National Breath of Life Community Researchers

Prior to National Breath of Life, research goals for most respondents were related to the Locate and Learn points on the Research Cycle (Figure 2, Graphic A):

Learn how to research and learn my language.

To find all the materials we have identified held in all the collections.

Our research goal was to find any new material that we did not already have or that has not been digitized.

Immediately after participating in National Breath of Life, none of the respondents included a response that could be coded as relating to the Locate point on the Research Cycle. However, after returning to their community, data indicated that Community Researchers went back to using archives to locate materials and to conduct research activities that involved adding new materials to further their language revitalization work (Figure 2, Graphic B):

I know how to use an archive... I was thinking about some botany things, a couple weeks ago, and I wanted to look up the botany behind it and see if there's any connotations. I'll search for stuff like that because I know how to use it as a resource, so why not?

Broader-impacts interview data indicated that with continued archival use and locating of new materials, the Learn/Analyze activities continued (Figure 2, Graphic C):

I'm accessing and using archives in my work with fluent Elder speakers.

[...] [W]e'll go back to research, because while we are researching, we might find one of those things that was tripping us up and, you know, go from there.

I also gained an understanding that it is important to have a certain amount of ability to do your own linguistic analysis of your own language.

Immediately following National Breath of Life, respondent data from the post-questionnaire indicated that their next steps for continuing their revitalization efforts related to the Create and Share/Impact points on the Research Cycle (Figure 2, Graphic B).

Establish a language office.

[...] [R]ecruiting younger people to be involved in general and specific ways.

We have found documented Language field notes on terms and verbs that will help to implement into our current language lesson plans for a cross

reference for teaching materials.

[...] [E]xpose language to students.

Broader-impacts interview data indicated that such steps were implemented. Most of the respondents provided detailed descriptions of activities that were coded as Create and Share/Impact points on the Research Cycle. Many respondents indicated that they were *creating* learning materials, digital databases, and video/audio recordings that would be added to the new collections (Figure 2, Graphic C):

We're not ready to do a dictionary, but we are ready to do a children's book for example. Just kind of recognizing we are making progress, because we can now have tangible outcomes for our work. (CR3, Broader Impacts Interviews, Spring 2018)

We are working on an app mostly geared to the young and hoping to create an online dictionary resource. (CR8, Broader Impacts Interviews, Spring 2018)

We are recording as much as we can (digitally), and using what was recorded in prior years. (CR10, Broader Impacts Interviews, Spring 2018)

In addition, past Community Researchers of National Breath of Life were *sharing* their work in different ways. Interview data indicated that Community Researchers were teaching in their homes and in their communities. Community Researchers also were sharing materials with others by providing copies to those interested. Instances of interview data that included "speaking" the language were also coded as the Share/Impact point. The evaluators' rationale for this decision was that by speaking the language with or around others, this language revitalization activity would impact those in the community through the realization that the language was still a part of their culture (Figure 2, Graphic C).

We can speak now... have somewhat simple conversations. (CR1, Broader Impacts Interviews, Spring 2018)

We work with the elders and also go into the head start and daycares. We have youth throughout the summer for 1 month. (CR10, Broader Impacts Interviews, Spring 2018)

[...] [W]e now have a culture center. We just, as a matter of fact, we just opened last week. We now have a repository where we can keep those materials. (CR4, Broader Impacts Interviews, Spring 2018)

We are making videos using those recordings and getting it out to our community. (CR10, Broader Impacts Interviews, Spring 2018)

5.5.2 Community Researcher achievements Broader-impacts interview questions were developed to understand what supports and hinders endangered language research. Achievements and activities that helped continue language revitalization efforts were analyzed in the broader-impacts interview data and coded at fifty instances. Subcodes were created to further develop an understanding of the theme of Community Researcher achievements. The subcodes included (a) community support and collaboration, (b) increased language use, and (c) sustainability efforts. While a few responses described increased language use ($n = 3$) and sustainability efforts ($n = 4$), a majority of responses coded as support for language revitalization were found at the community support and collaboration subcode ($n = 43$). Achievements found in terms of sustainability efforts included one Community Researcher who had purchased and started utilizing software for digital archiving and another who had been named as the cultural/language coordinator for her tribe. Two Community Researchers indicated that having more materials and knowledge improved their ability to advocate:

We were able to recently become a little more competitive to have access to land... we were able to use our knowledge of language and our knowledge of village names to try to be able to stake claim and to say, “hey, we actually do need this space and this land.” (CR3, Broader Impacts Interviews, Spring 2018)

Before we were just local Native American tribe, but now, we’ve been able to get our homeland city to change Columbus Day to Indigenous People’s Day and when we go to these events, we share our language. (CR7, Broader Impacts Interviews, Spring 2018)

Community support and collaboration data included references to grant support, local support, and support found within the larger language revitalization community. Three respondents indicated that they had successfully applied for and received funding to support their language revitalization efforts. Responses that referred to local support ($n = 14$) discussed ways in which their community efforts had grown and been supported by community leaders:

For a while it was just me and the program. For a while I had a couple of interns here and there. Now, we are up to five more people, aside from me. (CR1, Broader Impacts Interviews, Spring 2018)

The tribe is paying for our program 100%. We aren’t dependent on grant funds or anything like that. (CR1, Broader Impacts Interviews, Spring 2018)

[...] [A]ny opportunity that we have chances to share our language within the community it just makes us feel so much more grateful for people who care to come see it... it makes me feel so much more optimistic about

the work that we're doing and the world that we're in and the community around us. (CR3, Broader Impacts Interviews, Spring 2018)

Responses regarding support found within the larger language revitalization community included sixteen responses that referred to National Breath of Life. Some examples follow:

Coming to the BoL, meeting people there, I've got a few people from the past ones I keep in contact with... All the individuals have made it very clear that if I need any help or anything like that or just need to bounce ideas off of them, they are more than willing to listen. (CR1, Broader Impacts Interviews, Spring 2018)

I never would felt to be able to reach out to this person as a resource and now I feel comfortable doing so. BoL has just made my world bigger. (CR3, Broader Impacts Interviews, Spring 2018)

Breath of Life made me realize that I was not alone in my endeavor. (CR8, Broader Impacts Interviews, Spring 2018)

In addition, twelve responses referred to connecting to the larger language revitalization community outside of National Breath of Life Community Researchers and staff:

We've continued working with these folks, but have developed relationships with others... other tribal groups. (CR2, Broader Impacts Interviews, Spring 2018)

I went to New Zealand to see what they are and read books about their programs. Met people who are language people. I attend any conference I am invited. (CR9, Broader Impacts Interviews, Spring 2018)

I try to involve myself with [A]ICLS. They are pretty active, as we do not have any language gatherings in/around Nevada. (CR10, Broader Impacts Interviews, Spring 2018)

5.5.3 Community Researcher needs Community Researcher needs for continuing language revitalization efforts were analyzed in the broader-impacts interview data and coded at forty instances. Subcodes were created to further develop an understanding of this theme. The subcodes included (a) technological support and workforce; (b) time, money, resources; and (c) research obstacles. A need for additional support found in responses was related to needing more people or technological support ($n = 7$). Responses described the physical distance that is often found between researchers in a language and the lack of ability to do all of the work alone:

So, all of these things are skills that are careers in and of themselves... the more people working on it, the better. (CR1, Broader Impacts Interviews, Spring 2018)

I'm still involved with our language program trying to stay on top of it in regards to technologies and anything because... our tribe, we have tribal members across the country and we hope to find a way that we can get our language across using technology. (CR4, Broader Impacts Interviews, Spring 2018)

Skill development in field linguistics and video archiving. (CR11, Broader Impacts Interviews, Spring 2018)

Resource needs were also referenced as obstacles to efficient language revitalization work. Some responses referred to their language revitalization work as “voluntary” or “a second job” ($n = 4$), others referenced a need for more financial resources ($n = 5$), while others just wanted more time ($n = 4$). Responses that referenced “time” as an issue were mostly concerned about distance from archives and spending more time in archives:

I'm hoping to get funding to start work on a story translation project. (CR2, Broader Impacts Interviews, Spring 2018)

We don't have any land. We don't really have any money. (CR3, Broader Impacts Interviews, Spring 2018)

I think time is always a big thing. There's always just the time is an issue. It's a hard thing to do. (CR5, Broader Impacts Interviews, Spring 2018)

I didn't get to go back to some of the places I would have liked to spend time at, like the National Libraries. (CR7, Broader Impacts Interviews, Spring 2018)

There are other archives in the area, but they are 5 hours away. (CR10, Broader Impacts Interviews, Spring 2018)

Mostly, distance from the archives. (CR11, Broader Impacts Interviews, Spring 2018)

Research skill obstacles were referenced most often when discussing Community Researcher needs ($n = 21$). Responses referenced instances in which researchers got stuck doing the research and did not have the knowledge or skills to move forward. Some of the references specifically stated the need for a dedicated linguist on their team:

Our biggest problem is, when we run across something simple that we don't have any information on, it will just kind of stop us dead in our tracks. (CR1, Broader Impacts Interviews, Spring 2018)

I'm having difficulty wrapping my head around the verb system. It's not well described all the time. I think people have been struggling to make learners materials to teach that stuff. (CR2, Broader Impacts Interviews, Spring 2018)

The challenges have been spelling... how many different ways my language has been spelled or even the spelling of our tribes. (CR8, Broader Impacts Interviews, Spring 2018)

5.5.4 Community Researcher personal and emotional experiences In addition to the themes developed through questionnaire data and research team discussions, an additional theme was reported and coded often enough to report in terms of the impact of National Breath of Life. Community Researchers shared a number of personal connections and emotional experiences. Interview data revealed multiple values placed on being involved with language revitalization efforts. These values revolved around family, tribe, and self.

The communities see growth in their children, so that encourages them to learn. (CR10, Broader Impacts Interviews, Spring 2018)

I was motivated by my older brother, who was looking for someone to practice the language with, and by a desire to learn more about my culture and heritage. (CR6, Broader Impacts Interviews, Spring 2018)

It's made me have an appreciation for my dad a little bit more. He never knew his mom's side of the family, so this thing has been that... I think it makes him feel a little more connected to the world around him and to his culture, and I think the bigger family. (CR3, Broader Impacts Interviews, Spring 2018)

These materials are infinitely more valuable to us than anyone else... there's that kind of weird relationship you are navigating with the institution where it's like, this cultural information belongs to my community. (CR2, Broader Impacts Interviews, Spring 2018)

One of the (tribe) tribal elders expressing themselves, maybe about 2 or 3 o'clock in the morning... got very emotional... got very choked up, ya know? Talking about, there's hardly anyone to talk to... language is dying. (CR3, Broader Impacts Interviews, Spring 2018)

I wished to understand what my people were saying. Even as a young child,

I asked my mom to translate speeches... also, she taught us beginning language at home. (CR7, Broader Impacts Interviews, Spring 2018)

Data collected through Community Researcher interviews, Linguistic Partner interviews, and open-response items on the Broader Impacts Questionnaire indicated that National Breath of Life continues to be an important part of language revitalization efforts across the country:

Such a beneficial program for myself and so many other folks from different tribes/nations around North America. I feel BoL is one of the only initiatives I have seen that is truly making a difference in furthering the revitalization of so many endangered languages.

Breath of Life has allowed me to follow my dream of working with language and cultural revitalization. I never thought I'd ever be working to help bring back our language and ways. I love my job, and I am always searching for more material which our elders shared with visiting researchers from back in the day.

There are no words to describe the deep fount of hope the trip to Washington, D.C. found in my soul. I know my Tribe is hungry for this information. It connects us to our ancestors and is very healing! I'm sorry I cannot describe it better, I just know I am very grateful for the experience and hope it can be expanded.

This program contributes to promoting healthy families and quality lives for our people. You can't place a monetary value on it because it is priceless... Our language belongs to our people and NBoL Institute is a vehicle for Indian communities providing us with the necessary tools to enable our fires in our homes to become stronger, recover our language that was forcefully taken away. This program is a part of fixing our world. Helping us make things right in our homeland and world.

6. Discussion The assessment and evaluation carried out on the National Breath of Life 2017 workshop and more broadly on the impact of the Institute's work since 2011 have elucidated on numerous aspects of its past, present, and future. These range from whether the objectives of the 2017 workshop were met, to how the results of the assessment and evaluation have informed the strategic planning for the development of the Institute. To begin, and with regard to the three foci of the workshops – searching in archives, analyzing language data, and applying the analysis in different revitalization contexts – Table 5 in §4.4 shows that the objectives in these three areas were met satisfactorily. With regard to the first two foci, 97% of participants reported having developed new skills in searching for and analyzing archival language data at the workshop they attended. It is important to note that not only were the workshop objectives met, but also 66% ($n = 25$) of the Commu-

nity Researchers were able to meet their own objectives in attending a workshop, in whatever ways the Community Researchers themselves defined them. It should be noted that the factors reported in cases where goals were not met include factors associated with a need for more time spent at the workshop, access to the archives, support from instructors and/or Linguistic Partners, and undivided attention given to the work at hand.

The broader-impacts results show that the experience of attending a National Breath of Life workshop and the attainment of objectives can have a lasting effect on a Community Researcher's ability to continue research efforts using the archival materials, skills, and contacts obtained through the workshop. First, Community Researchers reported having retained their acquired skills after the workshop; the results show no statistically significant loss of confidence or knowledge of archival research and linguistic usage and processes a year after training. In addition, the results show high rates in activity involvement motivated by experiences that the Community Researchers had at a workshop. The results also show an impact on capacity building in the language community more broadly. Ninety-four percent of the Community Researchers reported having been able to apply and share what they learned at a workshop. This is significant because the capacity of National Breath of Life workshops has been limited, with one workshop with an attendance of two dozen Community Researchers being held every two years at most. Yet, archive-based research for revitalization is time- and labor-intensive, requiring the development of research teams, language offices, and the like. The retention and transfer of skills and capacity over time extend the capacity-building results of a workshop beyond any one cohort to others in the language community who may not have received the National Breath of Life training in person.

Capacity building is understood within National Breath of Life in a number of ways. One of these is the extent to which a Community Researcher has an understanding of the role of linguistics in archive-based research for revitalization and is in a position to either take on linguistics training or develop a meaningful, long-standing partnership with a trained linguist. The results reported in §5.2 and §5.3.2 show that National Breath of Life either introduces or reinforces these aspects of a Community Researcher's preparedness. Another way in which capacity building is understood relates to the broader need to increase participation in and completion of higher-education programs among Native Americans and Alaska Natives in the United States. Between 1976 and 2016, the percentage of American Indian and Alaska Native students enrolled in college went from 0.7% to only 0.8% (U.S. Department of Education 2019). This percentage is well below the 1.7% of people in the United States who identify as American Indian or Alaska Native as per the U.S. 2010 census reports (Norris et al. 2012). The broader-impacts results show that the National Breath of Life experience has a bearing on Community Researchers' engagement in linguistics training at the academic level. The aforementioned sections show this, as does §5.3.4 with a quote from a Community Researcher whose goal at the workshop was to "focus on creating a research project in order to apply for graduate school."

Not all outcomes of National Breath of Life are measurable based on aca-

demic skills, intellectual growth, and research achievements. Feedback from Community Researchers over the years repeatedly pointed to the importance of networking and community building as some of the greatest benefits of the National Breath of Life experience. In fact, network building was cited in our results as one of the objectives of Community Researchers in attending National Breath of Life, pointing clearly to the foundational nature of networks in archive-based research for revitalization. This is because archive-based research for revitalization entails decades, if not generations, of steady, ongoing work. It is a relatively young field with many practitioners being the very initiators of the efforts in their communities. This can be a lonely position to be in with many challenges. Therefore, cohorts and networks that allow for the exchange of ideas and experiences and that support their members are essential in fostering endurance among Community Researchers. In fact, the results presented in §5.3.1 show that networks facilitate the acquisition and development of technical skills applicable to archive-based research for revitalization. The relevance of networks is described by Community Researchers themselves and reflected in the evaluation results. §5.3.3 provides additional details on the importance of networks for Community Researchers. It should be noted that the development of professional connections emerged as an important contribution of the International Conference on Language Documentation and Conservation as per its reports on assessments looking at five iterations of the conference (Berez-Kroecker et al. 2020). It has therefore become evident that the relevance of network building must be recognized as an important contribution of revitalization-focused activities, not only as a broader impact but also as a factor contributing to the intellectual merit of the activity.

The assessment and evaluation of National Breath of Life as a program show the value of articulating goals and finding measurable, objective methods to evaluate whether ongoing strategies are in fact contributing effectively to the advancement of revitalization efforts. Again, the demands of revitalization are great, and the resources are limited. Therefore, it is essential to have the certainty that any efforts and resources dedicated to revitalization are yielding their intended results. The assessment and evaluation of National Breath of Life confirmed to the organizers that the training-related objectives of the workshops were being met satisfactorily, but the results related to broader impacts provided much more interesting and valuable results. The resulting data, as shown in §5.4.3, provide clear information about Community Researchers' goals and needs – whether related to training or otherwise. They also provide a synthesis of the Research Cycle of Community Researchers at various stages of their work. Over the course of the four iterations of the National Breath of Life workshops, the organizers had observed trends in the evolution of needs of Community Researchers. Based on these observations, the organizers developed a vision for the development and growth of National Breath of Life. The Broader Impacts Questionnaire results provided a visualization of the Research Cycle as defined by Community Researchers (Figure 2, Graphic A) and elucidated on their achievements and needs. This confirmed that the vision developed by the organizers for National Breath of Life's growth and development was indeed in line with the objectives and needs of Community Researchers. Quite crucially, this process has informed the Native American Philology Model shown in Figure 3 below.

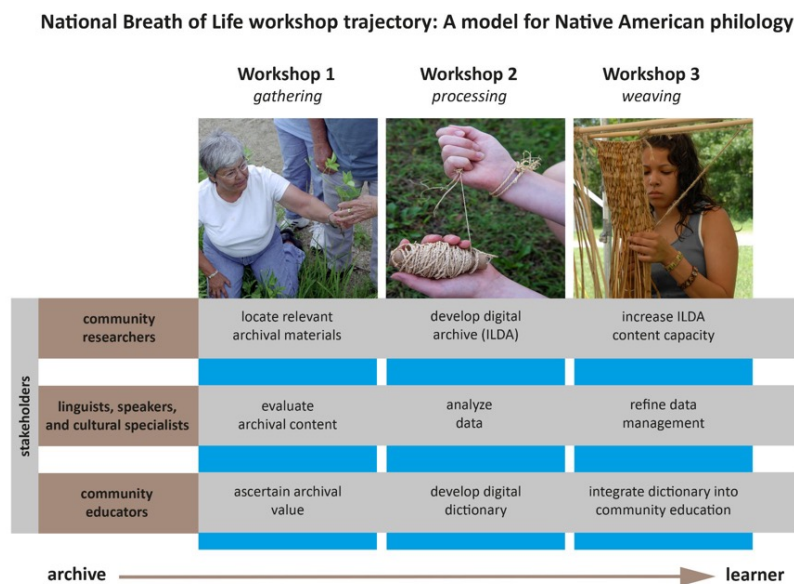


Figure 3. National Breath of Life training trajectory: A model for Native American philology

The model in Figure 3 identifies three general groups of stakeholders: Community Researchers; linguists, speakers, and cultural specialists; and community educators. These groups are identified on the basis of the various roles that might be involved in working with archival materials for language revitalization based on experience either with hands-on archive-based research for revitalization and what National Breath of Life alumni have shared with us informally through experience sharing, and also formally through the program assessment and evaluation. The focus of the National Breath of Life training is to provide support to Community Researchers through the research phases shown in Figure 2. These include locating and discovering archival materials, analyzing and learning from them, and processing them in such a way that they are shared with the broader community to positively impact broader revitalization effort(s). Thus, the model for Native American philology comprises three modules. For the specific purpose of language revitalization, these modules are designed to provide community members and stakeholders with training involving (a) *gathering*, which goes beyond the task of archival development; (b) *processing*, which facilitates linguistic analysis; and (c) *weaving*, which extends into the realm of second language acquisition, for the specific purpose of language revitalization.

The two-week training module, which had been the focus of National Breath of

Life until 2017, is now clearly seen as one element of the larger model. It continues to be the workshop that fosters skills among Community Researchers in discovering and locating relevant language documentation materials from institutional archives and in evaluating the materials through basic principles in linguistic analysis.⁷ The vision in the model is that with the archival materials in hand, other stakeholders, such as linguists, speakers, cultural specialists, and community educators, can evaluate the content and ascertain their value for revitalization. This in turn would inform community-directed decisions on what materials to process as a next step.

Thus, Module 1 is now followed by a one-week advanced module that provides state-of-the-art training on the organization and processing of archival materials into a community-curated digital language archive.⁸ The training prepares participants to use the Indigenous Languages Digital Archive (ILDA) software suite, the development of which was funded through an NEH Digital Humanities Advancement Grant Level III (HAA-261218-18).⁹ As part of this training, Community Researchers receive a licensed copy of ILDA, as well as hands-on training in developing their individual community-curated digital language archive. The first such training was held in summer 2019, with a second workshop postponed from summer 2020 to summer 2021 due to the COVID-19 pandemic. These workshops constitute the first evolution of the National Breath of Life training in a decade. During the processing and analysis, Community Researchers may interact with specialists of various types, such as linguists, speakers, and cultural specialists. Their collective work is kept organized in all its technical details within ILDA. It may, however, be too detailed or technical for applied uses, for example, by community educators. Therefore, the ILDA suite includes a dictionary app, which outputs the language data in a usable format for easy consultation by any community member, including educators as well as learners directly.

Modules 1 and 2 create a foundation of rigorously processed archival language data that are then made readily available to community education efforts. The two Module 2 workshops also underwent a third-party process of assessment and evaluation. Further, and at the time of this article, National Breath of Life is initiating an apprenticeship program that will support Community Researchers from a technical and methodological as well as financial standpoint, to engage long term in the *processing* phase of the work. All our assessment and evaluation results, combined with the experience we have gained from learning from communities over time, will inform the structure of the training that National Breath of Life plans to provide under Module 3, *weaving* the archival language data into community initiatives.

7. Conclusion The Breath of life model emerged out of California during the mid-1990s in response to a very specific need: to reconnect Native communities with their heritage language materials to support revitalization activities. That need has

⁷ <https://mc.miamioh.edu/nbol/training/module1> (Accessed 2022-11-16.)

⁸ <https://mc.miamioh.edu/nbol/training/module2> (Accessed 2022-11-16.)

⁹ <https://mc.miamioh.edu/nbol/ilda-prospective> (Accessed 2022-11-16.)

been largely met for many communities over the last couple decades. More importantly, the Breath of Life movement set in motion a course that would require all of us involved in archive-based research for revitalization to begin seeking a longer-term vision for these archival materials by building a series of progressive steps that ultimately infuse archival content into the many diverse learning streams that are being constructed by community language activists.

The formal evaluation and assessment of National Breath of Life and its 2017 workshop were prompted by the National Science Foundation Documenting Endangered Languages Program, the main funder of the first four workshops. In this paper, we have described the methods implemented by the Discovery Center for Evaluation, Research, and Professional Learning at Miami University, which was responsible for the development, implementation, and analysis of the assessment and evaluation design. We have provided extensive detail as to the results of the assessment of the 2017 National Breath of Life workshop and of the evaluation of National Breath of Life more broadly as per the survey conducted with alumni from four Community Researcher cohorts.

The assessment and evaluation results revealed numerous aspects of the workshop objectives and design as well as on the objectives of the participating Community Researchers and the trajectories that they and their work in archive-based research for revitalization might take. As a correlate of this, we have also addressed aspects of how National Breath of Life must be mindful of the goals and objectives not only of the Community Researchers but also of their language communities. We have illustrated what community-centered revitalization goals may look like with the example of the Miami Tribe of Oklahoma's efforts over three decades. This example shows how the goals of revitalization are articulated from a community vision, how these goals are related yet distinct from archive-based research objectives, and how the training model and workshops that National Breath of Life offers can support community-centered goals without interfering with them.

The main takeaway from these experiences, and therefore of this paper, is that a process of assessment and, more importantly, of evaluation provides valuable empirical evidence to ensure that the resources dedicated to language revitalization yield their intended results. Concretely, in the case of National Breath of Life, the results obtained allowed for much needed evolution and growth. First, they led to the design of the ILDA software suite and the development of training in the use of the software and in methods of archival data processing. Second, and quite crucially, they led to the articulation of the Native American philology model to grow National Breath of Life's vision in effectively supporting revitalizationists long term by including strategies involving the use of data for effective language learning. The field of language revitalization broadly, as shared in the introductory sections of this paper, is relatively young and will evolve rapidly. We hope that the findings and thinking presented here will foster more frequent and widespread implementation of assessment and evaluation for the advancement of the language revitalization movement.

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