

Title: Using Narrative Stories to Understand Traditional Ecological Knowledge in the Great Basin**Project Type:** TEK Project 1, A/C**Lead PI:** Tamara Wall, DRI, Assistant Research Professor, 2215 Raggio Parkway, Reno, NV 89523. 775-674-7059. tamara.wall@dri.edu**Project Objective:** Working with three tribal communities in the Great Basin using narrative story telling, naive interviewing, and quantitative analysis to identify cultural and hunting/gathering resource vulnerability to climate change and adaptation options to improve resilience of these resources and inform management planning.**1.0 Project Description**

One of the primary challenges facing public land managers in the Great Basin is identifying adaptation strategies to increase resiliency to climate change. The Great Basin is a region that is already struggling with profound environmental challenges from invasive annual grass species, changes to the wildfire regime, and the on-going drought conditions across much of the region. Recent efforts to understand how the Great Basin weathered past droughts and climate variability may offer insight into approaches that could work in future decades. One approach to gather this information has been efforts to work with tribal communities in the Great Basin to understand Traditional Ecological Knowledge (TEK). In addition to learning from tribal memories of past conditions and responses, understanding the areas that are significant to tribal communities, for cultural, traditional hunting and gathering, and economic reasons is also a priority for public land management agencies in the region.

Gathering this information is challenging however, and requires an acknowledgment that much of this information is highly sensitive and proprietary to the tribal communities. Translating this information into actionable management plans is an even greater challenge. Past approaches have used traditional qualitative methods such as interviewing tribal members to identify key cultural areas and species important for hunting and gathering activities. There are several potential limitations to this approach. First, tribal members may be reluctant to meet with academic researchers, or be reticent to provide detailed knowledge about sensitive areas and memories. In addition, this approach often lacks rigor in that sampling may be limited and overlook marginalized but significant narratives and perspectives within the community. Second, a researcher usually “codes” or identifies significant portions of the interview and applies their own interpretation of meaning and relevance to the study participant’s narrative. The meaning of the study participant is then viewed through the researcher’s interpretation of what is relevant and why, which is inherently subjective and influenced by the bias of the researcher. The ethics of interviewing ethnic minorities and disadvantage populations is widely reviewed (Denzin and Lincoln 2005; Limb and Dywer 2001), but still remains an ethical dilemma and concern for many social scientists. Quantitative approaches provide an easier translation into management plans (e.g., assessments of current conditions, specific species numbers, plant diversity in an area, or water quality and quantity). However, these methodological approaches, while valuable in establishing a baseline of current conditions, limit the ability of managers to include

and apply cultural context, meaning, and tribal perceptions of vulnerability in management plans and actions. In consequence, both commonly used qualitative and quantitative methodologies greatly limit the ability to use TEK to *assess the vulnerability of cultural or subsistence resources that are traditionally gathered or hunted and test or explore potential adaptation actions (TEK Projects, subsection A)*.

This proposal aims to support Objective A (above) and C, *investigate adaption options, and mechanisms for their implementation*, by proposing an novel pilot project using a method, *naïve interviewing* that uses tribal youths to gather narrative “micro stories” from elders and key tribal members using a “story prompt”. Once the micro narrative is collected (either typed into a tablet or recorded), the storyteller answers a series of carefully constructed questions that allows *them* to apply context and meaning to their stories using the SenseMaker® software. These questions can then be analyzed quantitatively using correlational statistics to identify key themes and patterns across the narrative dataset. In contrast to the commonly used approaches mentioned above, this approach allows the study participant to apply context and meaning to their own story, rather than the researcher. It also allows subjective context and meaning to be collected in a manner that is analyzable quantitatively, allowing for a more rigorous approach in identifying trends and patterns across the dataset. In using tribal youths to gather the stories, rather than university or academic researchers, the data gathered remains anonymous to those outside of the tribal community, providing a high degree of anonymity and security for both the study participants and the data collected. More importantly, it also encourages a structured conversation between the generations to raise awareness about environmental concerns and areas/species of cultural significance. This approach has been used successfully in other cultures, particularly in Africa and also in several industries to investigate accident and safety concerns. To our knowledge, it has not been used in tribal communities in the United States.

1.2 Methods

Study Area

In consultation with and the support of William Campbell, the Tribal-State Environmental Liaison, we have selected three tribal communities to approach for the pilot project: Yerington Paiute Tribe, Fallon Paiute-Shoshone Tribe, and the Pyramid Lake Paiute Tribe. We will work with the Environmental or Educational Departments of each Tribe to facilitate identifying an initial stakeholder group to work with to 1) develop the preliminary question framework and story prompts and 2) identify initial interviewers and tribal members to be interviewed. The PI’s past experience with tribal communities in the Great Basin includes facilitating and organizing the Great Basin Climate Forum Series & working with/supporting tribal members from across the region to attend. In October 2013, the PI co-hosted and instructed at the Institute of Tribal Environmental Professional’s Tribal Climate Change Adaptation Workshop at DRI in with the Great Basin LCC.

Story Prompts and Question Framework Development

This project relies on using the SenseMaker® software suite, developed by Cognitive Edge (Kurtz and Snowden 2003), and who will provide the software support, question design and analysis support, and a secure server to host the data collection. We will have several

initial meetings with the each Tribe in the study area to identify preliminary inputs to the question framework and begin to scope out the questions each tribe is interested in asking. Simultaneously, we will also begin to do outreach to tribal members and youths to participate in the project. The PI on this proposal, Dr. Wall, will also attend and facilitate several proposed workshops to begin outreach efforts and gauge interest across the region for the project¹, as well as doing outreach through the Great Basin Climate Forum Series. Once we have a preliminary question framework, we will host a one-day workshop for each of the Tribes (or combined, as appropriate) to introduce the project, iteratively work through the preliminary question framework, and begin to identify interviewers and tribal members that should be interviewed. A more detailed description of the story prompts and question framework follows below.

This method develops a set of story prompts (2-3) and questions (20-30) that allow for enough ambiguity to encourage the development of nuanced context and meaning in the dataset, rather than a set of averages taken from a traditional 7-point Likert scale using survey methodology. For example, SenseMaker® questions typically are created as dyads or triads, with no discernable “right” answer. A notional story prompt and triad-type question for this project might look like Figure 1 and 2 below.

Once data collection is complete, the responses in each of the questions are aggregated to identify visual trends as well as develop correlational analyses to see what trends or patterns appear linked. A third type of question is “sticky questions” which are often basic demographic questions and ways to aggregate or disaggregate the data. For example, there may be differences in the sample question above based on age or gender. Part of the value of this methodological approach is that people inherently try to “satisfy” or provide the right answer, which creates a bias within the dataset. SenseMaker® questions are designed to have no “right” answer, which helps reduce the satisfying bias in the dataset.

We'd like you to share a short story or experience. Please choose the question you would like to respond to from the list below

1. Think about a place that has a lot of meaning for your Tribe and a time you were there that was important to you. What happened?
2. Can you tell me a story about where you used to see plants or animals but don't any more?

Figure 1: Story Prompt

Data Collection

Once the story prompts and question framework is finalized, the SenseMaker® software team at Cognitive Edge codes the questions and develops the website/app portal for the project. For this project, we will use either a set of iPad mini or Android tablets as data collection devices with the app downloaded (the app does not require connectivity to collect and store data). We plan to identify approximately 5 interviewers from each community to train in naive interviewing techniques (and hopefully some of the interviewers will have

¹This series of workshop are in a project proposed by William Campbell and McGinnis and Associates, LLC in support of this current RFP by the GBLCC.

participated in the development of the question framework). A short 2-3 hour training will introduce the project, the app, and basic protocols. Each interviewer will receive a modest honorarium for their time and costs (gas, etc). As appropriate, we also plan incorporate the project into existing school projects or as an extra curricular project to support college-level applications. A schedule for data collection will be established with the interviewers, as well as

pre-determined check in points with either the research team or a tribal community member involved with the project. We hope that each interviewer will interview approximately 5 people, with 3-5 stories from each individual, for a minimum of 225 stories. Each time the tablets are connected to a Wi-Fi network, the collected stories will be uploaded to a secure server. Once the interviewers are satisfied with the stories they have collected, the tablets will be returned to the research team.

Data Analysis

Preliminary data analysis will be done using the Cognitive Edge Explorer tool, to identify basic patterns and trends in the data (Figure 3). The important part of this process, however, will be a one-day facilitated workshop in each of the study areas (or combined, as appropriate) to go through the results and identify what the themes suggest in the context of what cultural or subsistence resources are vulnerable to climate change, adaptation options, and priorities for each Tribe in the study area. The final portion of the day will discuss how this information can/should be disseminated to the management community, and how it can begin to inform management planning.

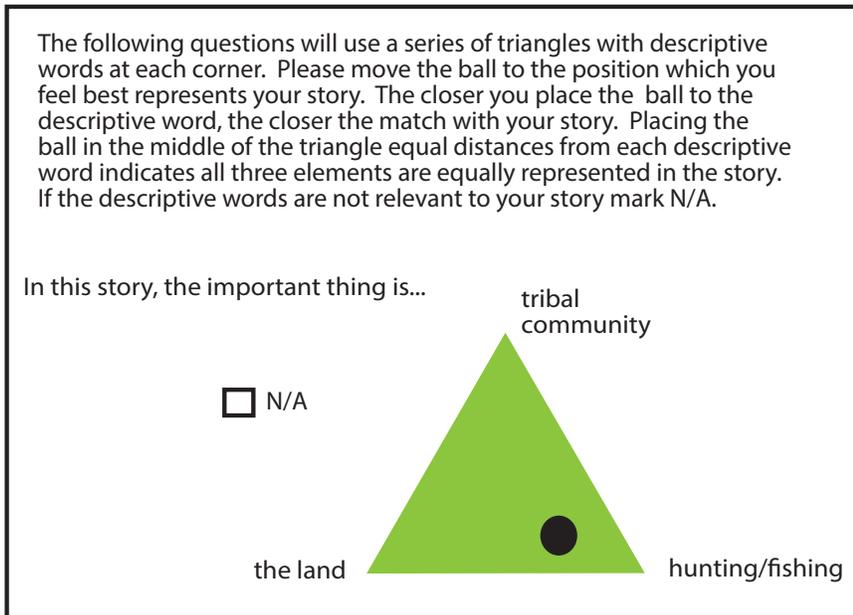


Figure 2: Triad Type Question

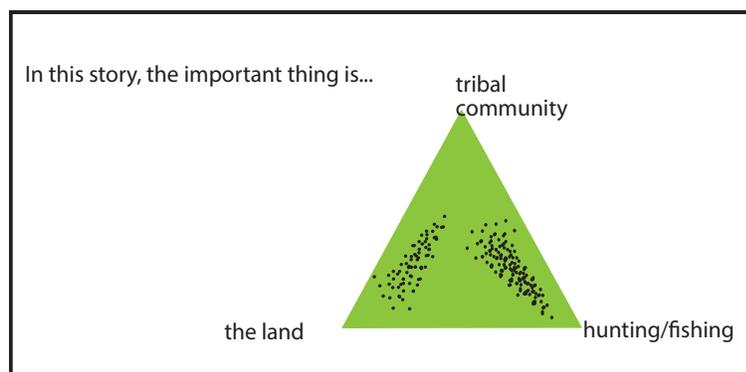


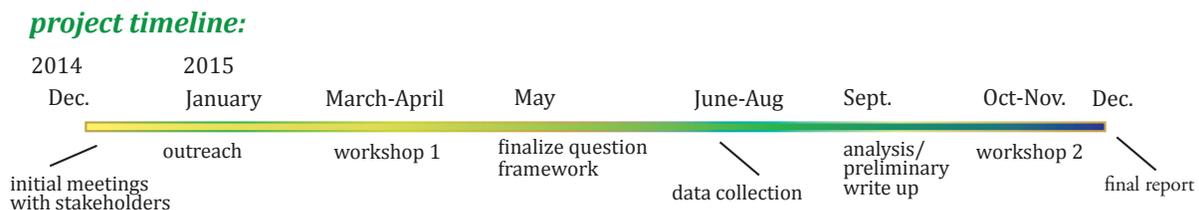
Figure 3: example of analysis

Broader Impacts

If this pilot project is successful in meeting the needs of the tribal communities that participate, and meaningfully supports management planning and actions, the researchers will do outreach to judge the interest level of other tribal communities in the Great Basin, and if the interest level is sufficient, seek additional funding to leverage the work done in this project and carry it out across the region. The work done in this project has the potential to support similar outreach activities in native communities across the United States and internationally. By using the naïve interviewing process, this approach also offers an opportunity to educate and preserve TEK knowledge in these communities, by involving the younger generations in addressing the severe climate-related environmental impacts they will be facing in coming decades in this region.

2.0 Project Products and Data Sensitivity Plan

Final products will include an in-depth analysis and report of the SenseMaker® dataset for the tribal communities, to be disseminated at their discretion. The original dataset can be held on a secure server or destroyed according to the wishes of each community in the study area. A final report will summarize the findings from the SenseMaker® dataset and workshops and provide input and suggestions utilizing TEK for management planning in the Great Basin. A project timeline is below.



3.0 Communication and Engagement

Key stakeholders in this project include the Tribal communities participating in the project and the managers for the relevant TEK areas. The tribal communities will be involved iteratively throughout the project. As the question framework is developed, the researchers will coordinate with the relevant management units to ensure the questions framework covers the primary questions and concerns they may have in regards to incorporating TEK into their management plans.

References

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