

Building the Scaffolding

This section describes the design or methods that will be used to address our evaluation questions. We refer to design as Building the Scaffolding, as it describes the shape and the building blocks that will be used to create the evaluation. The questions we want to answer to tell our story influence the designs to be used in the evaluation. For example, if we want to know what changes occurred in those who participated in the program, our evaluation design will include methods to assess change. If we want to understand how the program is being experienced and what people think about the services, we will need to include methods that yield this type of information.

Major Approaches to Designing Evaluations

To build the scaffolding, we first need to revisit the traditional ways in which knowledge was gained. Two of the three elements to traditional knowledge described by Vine Deloria include learning from keen observation of the environment and individual and communal experiences. These traditional methods support multiple ways of knowing using what Western evaluation science describes as quantitative and qualitative methods.²⁵

Observation of the Environment

To understand our program's story and collect information related to our evaluation questions, we need to observe and record data on many aspects of the program. Our evaluation scaffolding will include data that require counting, measuring, and computing percentages. Examples of this type of observation include:

- Attendance records
- Scores and ratings
- Tallies of survey responses

²⁵ Use of more than one primary method or approach is formally described as a mixed method evaluation design in Western evaluation literature.

Evaluation designs:

- *Quantitative*
- *Qualitative*



- Rubric scores of demonstrations
- Retention rates
- Completion and graduation rates

They are collected through recording a number. Some would consider this objective data; however, in our representation of knowledge as described by Manulani Meyer, these data are considered facts. In Western evaluation, these data are called quantitative.

Observation of Individual and Communal Experience

Gregory Cajete cautioned us that knowledge is more than explaining an “objectified” world, and Manulani Meyer stressed the importance of the subjective, that is our relationship to facts and to experience. We cannot fully understand our program’s story if we do not explore individual and communal experiences of those engaged with the project. We capture this information primarily by talking with people. However, images such as pictures or videos also record people’s



Southwestern Indian Polytechnic Institute Nature Resources/Environmental Science Student

experiences. As Indigenous evaluators, we understand this type of data as:

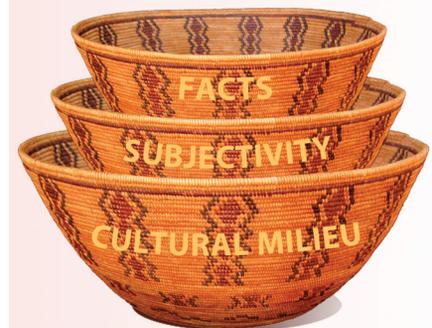
- Stories captured in talking about the program:
 - With individuals being served, or other stakeholders;
 - With groups of people being served, or other stakeholder groups;
- Stories of relationships within and across programs;
- Images created through photographs or drawings;
- Images of relationship captured in video recordings.

Western evaluation defines this type of information as qualitative data. It describes experiences and relationships through narratives and images rather than numbers.

Knowledge Is Gained through Multiple Perspectives

The traditional principles of knowledge creation demand that we not limit our approaches when designing an evaluation. We need to include multiple vantage points. Marlene Brant-Castellano described traditional empirical knowledge as that which is gained through careful observation from multiple vantage points over an extended time. In Western evaluation practice, use of multiple vantages points that include collecting both quantitative and qualitative information is called using mixed methods. Our traditional approaches to knowledge creation always encouraged the use of mixed methods because we need to gather both quantitative and qualitative information to fully understand a program's story. All of our evaluations will use both quantitative and qualitative approaches within its design. Indigenous evaluation demands that evaluators be skilled in knowing how to carefully observe and measure as well as how to listen. These skills also depend on having the ability to build relationships and foster participation.

Nested Layers of Knowledge





Northwest Indian College

Gathering Information Over Time and Measuring Change

As Brant-Castellano reminded us, it is important to collect data over time. To understand the story as it unfolds, we need to gather information at various points during the life of the program and not just as it is ending. Collecting information over time is consistent with traditional knowledge creation. Most program stories predict some change will occur, so information collected at the beginning of the program (often called baseline information) is compared to the data collected during and at the end of the program. Both qualitative and quantitative information should be collected over the life of the program. Sometimes it is possible to continue collecting data after a program ends. For example, a tribal college may collect graduation rates or enrollment of four-year colleges for students who were involved in a freshman enhancement program after the program ended.

Developing Comparisons that Describe Change

When we create a design for the evaluation, we explain the methods we plan to use to capture information about change. The most common designs used to capture change collect quantitative information and make comparisons. Evaluations that make comparisons are useful in learning if and how the assumptions for change happened as the program is implemented.

One way to assess change is to gather baseline information and see if changes occurred by the end of the program. We can use regularly gathered information, such as students' GPA, graduation rates, and enrollment rates as baseline data and observe if changes occur in these measures as the program is implemented. Or we can create new ways to measure change. For example, we may want to know if student interest in science increased after exposure to field-based summer workshops. In such a case, we would measure the

students' interest in science through a type of instrument, such as an attitudinal assessment survey at the beginning of the workshop to collect baseline information. Then, we would give the students the same survey after the workshop and compare students' interest levels before and after the workshop to see if their attitudes changed. This is a pre/post test design.

Another way to create a comparison is to set up a different design by giving a pre/post attitude survey to the students in the workshop and to another group of students who were not in the workshop. The second group is called a control group. Designs that compare two or more groups are either Experimental (individuals or groups are randomly selected) or Quasi-experimental (comparison is made within the same group or in a matched comparison group).

We could create a control group of students who do not go the summer workshop by choosing students from a different location or school that is similar to our location. Then we compare the two groups, hoping that those who took the workshop show greater interest in science after the workshop than before, and that their interest is also greater when compared to the students who did not take the workshop. This is a matched comparison group design (a quasi-experimental design). If we use a design that compares two different groups (one that is involved in the program and one that is not), it is important that the two groups are similar enough to make comparisons valid. For example, if only students who were good in science were in the workshop, it would be unfair to compare their interest in science to students who were not good in science. It is challenging to construct this type of design because finding a similar group and matching for comparable interest in science is difficult in small and remote reservation communities.

Another way to establish a comparison group is to randomly select students to be in the summer workshop from a large pool of



*Northwest Indian College Second Campus
Planting Group*



Diné College Students in Chemistry Lab

students (an experimental design). Those not selected cannot take the workshop. However, both groups would take the same pre-and post-science interest surveys to assess the differences or changes between the two groups' interest in science. This design is challenging because it is hard to get a large number of students randomly assigned to the workshop, and students and parents may object to withholding the workshop from some students while offering it to others.

These two designs attempt to compare two different groups of students; however, the students have to be similar to make the design valid. It is assumed that when students are randomly selected to the two groups, there is a comparable mixture of students who are good, average or poor in science. In Western science, randomly assigning people to two groups is considered the best way to make them as similar as possible.

Another comparison approach measures the same individuals or groups over time (time series designs). This approach involves a series of measurements at key intervals over time. For example, suppose a tribal college introduced a new curriculum to improve learning mathematics in beginning algebra courses. Testing can assess how much was learned in the courses; however, it might also be useful to measure whether the new approach to teaching algebra influenced student performance in subsequent mathematic courses. A series of measures could be taken to track student enrollment and successful completion of mathematic courses taken at the college prior to the new curriculum and for a couple of years after the curriculum was introduced. This would demonstrate any differences in successful completion of mathematic courses prior to and after the introduction of the curriculum, and it would track student performance throughout their college program.

If the evaluation design is going to make comparisons between groups or take measures over time, it is good to consult with a trained evaluator or someone who understands statistical procedures to ensure that comparisons will be valid. Three articles in the Readings section discuss issues in using experimental and quasi-experimental designs. Two are from the Northwest Regional Educational Laboratory. These discuss the challenges and opportunities for using experimental designs. The article by Willard Gilbert describes a study using a quasi-experimental design.

Current Federal Agency Preferences for Evaluation

Some quantitative evaluation designs use a Western science paradigm that attempts to prove that the activities in the program actually caused the desired outcomes. This approach to evaluation is referred to as scientifically-based research. A major function of this approach is establishing causation, or answering questions related to whether the program (and only the program) influenced the desired outcomes.

These quantitative approaches gather evidence by comparing the outcomes of the program to a control group that did not receive the activities or treatment embedded in the program. These evaluation designs are based on the following assumptions:

- Program factors can be isolated and objectified.
- Essential program factors can be quantified and measured.
- Control or comparison groups can be created that approximate the group receiving the program.

Evaluations based on this approach use experimental or quasi-experimental designs. In 2005, the U. S. Department of Education issued a statement that the Randomized Controlled Trial was the preferred design to assess the effectiveness of educational programs,

Reference

See Readings, articles illustrating the use of experimental and quasi-experimental designs: “Bridging Tribal Science Knowledge with Western Science—Preserving Native Cultural Knowledge while Achieving Academic Success,” “Can Experimental Research Be Conducted with Culturally Based Education Interventions—An Assessment of Feasibility,” and “Preliminary Study for Experimental Research on Culturally Based Education for American Indian/Alaskan Native Students.”

such as those funded under the No Child Left Behind Act. The U. S. Department of Education often gives priority to programs that demonstrate experimental or quasi-experimental designs in their evaluations.

Other federal government agencies award up to 20 extra points to proposals that offer randomized designs. Some federal agencies require program proposals include established treatments in their program strategies that have been proven through evidence-based evaluations. Evidence-based usually means that the treatment in the program has been evaluated using an experimental design based on random assignment. Evidence-based programs are considered generalizable—meaning that once proven to work when evaluated using an experimental design, the program should work regardless of the community in which it is placed.

Indigenous evaluators are concerned with the current federal policies that give preference to one design or approach to program evaluation. The American Evaluation Association developed a formal response to federal policy makers that supports responsive use of evaluation designs based on the questions and purposes of the evaluation rather than assuming one design is preferable.

An Indigenous Evaluation Perspective

The assumptions that underlie the Randomized Controlled Trial approach to evaluation are not congruent with the values and beliefs that form the foundation of the AIHEC Indigenous Evaluation Framework. We are not interested in proving causality using this type of approach to evaluation. Rather, we are interested in learning whether our story unfolds as we predicted and whether the changes we sought happen. Nor are we interested in establishing evidence that the program we are implementing can be exported to other communities. From an Indigenous perspective, context is critical. Programs are understood only within their relationship to place,

Reference

See Resources, American Evaluation Association Public Statement.



setting, and community. In undertaking a new program, the focus is to understand its relevance to our community and place.

Experimental and quasi-experimental approaches present challenges to many of our communities. Analysis of data collected within an experimental and quasi-experimental design structure usually employ statistical procedures. These procedures require that groups be large enough (usually over 30 people) to ensure proper statistical analysis. Thus, if two comparison groups are formed, a minimum of 60 individuals are needed for a statistical analysis. Numbers of this size are often not feasible in small reservation communities. Also, as stated earlier, randomly assigning some members of the community to a program while withholding it from others is problematic in small communities.

We may choose to use a comparison design based on experimental or quasi-experimental designs, but if we do, it is because it fits our situation and evaluation concerns.

Suggestions for Creating Comparisons

Some suggestions for making comparisons to measure changes in program outcomes include:

- **Collect baseline data on participants and compare changes over time.** This method is responsive to tribal programs interested in evaluating improvements or changes over time.
- **Administer a pre- and post-measurement.** This method uses the same instruments or tests to assess differences at the beginning and conclusion of a program.
- **Use retrospective measures.** This method allows participants to assess their own changes based on personal perspectives. The instrument to assess change is given at the end of the program and the individual rates how they perceived themselves to be at the beginning of the program compared to how they are at



Native American Week, Chief Dull Knife College

Measurement and comparison may be important aspects of observation in understanding individual and group experience if they fit the situation and community.

Reference

See Resources, "NAEP, PISA, TIMSS: A Brief Comparison" and "The National Indian Educational Study 2007" which summarizes National Assessment of Educational Progress performance.

the end. This approach is useful when a pre-treatment assessment instrument might be intrusive or intimidating to program participants.

- **Compare one group with another.** For example, if a new curriculum in science is introduced in the ninth grade, measure 2009 ninth graders with 2008 ninth graders who did not receive the new curriculum.
- **Compare tribal statistics with national data.** Many national or state tests or surveys contain data disaggregated by ethnicity. In some programs, the data on American Indians contained in these data banks might be useful to compare to tribal data on the same measures. The National Assessment of Educational Progress (NAEP) and Trends in International Mathematics and Science Study (TIMSS) are often used for comparisons to a local group.
- **Find or create another group within the community or in another reservation community that will act as a comparison group.** If this method is used, it is important to negotiate an understanding with the partner reservation or community to ensure that all are comfortable with the use of a comparison model and fully understand how evaluation findings will be reported.
- **Qualitative data can also be used to describe the changes that are experienced in the program.** Participants can describe their perceptions of ways the program influenced or changed them. Drawings and images can be used to illustrate changes.

In the AIHEC Indigenous Evaluation Framework, measurement and comparison are important. They are aspects of experience and observation, and they help us understand individual and communal experience. However, measurement needs to be responsive to our values and cannot be so limiting as to be the only criteria on which we draw lessons or learning from program implementation.

Practice Based Evidence

Many American Indian communities are not interested in statistical proofs that the evidence of program change was collected through a scientifically based research or a Randomized Controlled Trial design, making it generalizable to other communities. Project staffs want to be responsible to their own constituencies and to execute the evaluation in a highly professional manner. Testing a model for export to other communities is not part of the AIHEC Indigenous Evaluation Framework.

The AIHEC Indigenous Evaluation Framework supports practice-based evidence—information about the merits of the program that emerge from its implementation or its practice. It is from this evidence that we learn what is working or not working as we anticipated. This type of evidence is relevant to our desire to improve the quality of life and to increase opportunity in our communities.

Thomas Schwandt emphasizes in his article “Centrality of Practice to Evaluation” the need to value those who are engaged in delivering the program—the practitioners. He explains that practice-based evaluation leads to and **“is open to critical reflection the kinds of knowledge that resides not in scientific statements of program outcomes and effects, but in practice.”**²⁶ This knowledge comes when practitioners reflect on the routines and every day actions of the program, the manner in which they engage with each other and with those they serve, their sense of comfort with their work and their relationships and trust with others in the program. It is this deep sense of reflection that Indigenous evaluation should foster. Creating opportunities in our evaluation design to reflect on learning from our every day action and presence is as important as measuring what is being done.

²⁶ Schwandt, T. A., “The Centrality of Practice to Evaluation,” in *American Journal of Evaluation*, vol. 26, no. 1, 2005, p. 89.



Bay Mills Community College Classrooms



“ . . . knowledge comes when practitioners reflect on the routines and every day actions of the program, the manner in which they engage with each other and with those they serve. . . .”

Reference

See Readings, “Centrality of Practice to Evaluation.”

Looking to Our Own Ways of Knowing



Nakoda Elder Selena Ditmar
Fort Belknap College Board Member

When designing the approach and methods to use in an evaluation, decisions should be guided by our sense of community, its values and preferences. In addition to the aspects of design that are qualitative, quantitative or involve comparisons, we should also consider include methods that are uniquely suited to Indigenous ways of knowing.

Elder Knowledge

There is an evaluation design that uses expert judgment and relies on knowledgeable outsiders to render opinions about the program.²⁷ College accreditation processes include the use of outsiders who visit and, using the college's self-study, assess its programs against the standards for accreditation. Usually the prior experience and expertise of the outsiders gives their judgments value. We believe that this approach is important when considering an Indigenous framing for evaluation.

Elder knowledge is a form of expert opinion in our communities and is highly respected. Indigenous evaluators must not overlook the value of seeking elder opinions. Both qualitative and quantitative approaches can engage elders. For example, elders can serve as partners in the evaluation, or they can serve on advisory committees. They can be included in interviews or focus groups. They may also serve as judges in cultural demonstrations using a scoring rubric to assess student performance. However they are engaged, their contribution should be an important element of evaluation from an Indigenous perspective.

Reference

An example of guidelines for engaging elders is included in the Resources section. You can use these guidelines as a starting point, or you may have your own set of guidelines specific to your community.

²⁷ Described as an informal design in Weiss, C. H., *Evaluation: Second Edition*. Prentice Hall, Upper Saddle River, NJ, 1999, p. 189.

Knowledge from Spirits in Ceremonies, Visions and Dreams

Vine Deloria identified a third source of Indigenous knowledge, explaining that messages from spirits, ceremonies and dreams are other traditional ways of knowing. Some aspects of Indigenous evaluation go beyond conventional discussions of quantitative and qualitative approaches or comparison designs. We have referred to building the scaffolding to illustrate the extent to which evaluation has to embrace the structural frameworks of culture. In their article “Indigenizing Evaluation,” Robertson, Jorgenson and Garrow quote Matthew Zack Bear Shield, a Lakota spiritual leader:

When we followed the Lakota ways and spiritual laws of the universe, the people flourished. Because we went away from the Lakota spiritual calendar, our people suffer and are in chaos.²⁸

This statement underscores the community’s need to look to Lakota ways to go forward. To be fully guided by our cultural ways, Indigenous evaluation practice must honor spiritual protocols and calendars within the different tribal communities. The Lakota Project found its description in the metaphor raising the tipi because it was rich with the symbolism of cultural teachings, family responsibility, and living together peacefully. In choosing this metaphor, the elders were giving a definition to the evaluation that went beyond design and methods. The metaphor included spiritual and cultural grounding.

This same degree of care and consideration should be used when designing evaluation in any Indigenous community. Creating an Indigenous evaluation plan or scaffolding involves more than what is written on paper. It incorporates intangibles such as respect for elder guidance, prayers, and ceremony to guide the evaluation processes, and inclusive consultation and reflection. With this care, the proper designs will be chosen, designs that fit the context and ways of the community.

²⁸Robertson, P., Jorgenson, M. & Garrow, C., “Indigenizing Evaluation Research: How Lakota Methodologies Are Helping ‘Raise the Tipi’ in the Oglala Sioux Nation,” in *The American Indian Quarterly*, vol. 28, no. 3 & 4 (Summer/Fall 2004), University of Nebraska Press, Lincoln, NE, 2004, p. 499.



Remnants of Old Sweat Lodge (above) and Present Day Sweat Lodge (below), United Indians of All Tribes Foundation, Daybreak Star Center, Seattle, WA

Photos by Maria LaFrance



FRAMEWORK

Building the Scaffolding

