



## Weaving evaluation into the Waipā ecosystem: Placing evaluation in an indigenous place-based educational program



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### ABSTRACT

Indigenous environmental education programs offer learning, while also serving as vehicles for cultural resurgence and perpetuation. Like any educational program these initiatives require evaluation to improve their quality, assess progress and meet obligations to funders. However, evaluation tools must be tailored to such programs, which tend to be values based, holistic, and often focused on group, family and community empowerment rather than individual student learning. At the same time, evaluation tools developed specifically for indigenous education programs may be difficult to compare across programs. In this case, we investigate how the logic model, an established and widely used western evaluation tool, can be adapted and applied effectively to evaluate a place based Native Hawaiian education program, Waipā Foundation's summer environmental program aimed at youth entitled *Mai uka a i kai* (from the uplands to the sea). In a pilot evaluation of Waipa Mai uka a I kai environmental summer program found that short-and medium-term outcomes associated with the program's logic model were generally met, particularly if qualitative assessment tools were used. The use of quantitative evaluation tools and incorporating long-term outcomes requires much more involvement from program staff, participants and the broader community. These findings offer lessons for application of logic models, as well evaluation more broadly, within indigenous education contexts.

### 1. Introduction

In today's competitive global society, evaluation often occurs for the purpose of comparing success across programs competing for similar resources. A challenge arises when culturally-based programs aim to demonstrate their effectiveness using western evaluation methods which may or may not capture the values and goals underlying these programs (Kawakami, Kanani Aton, Lai, & Porima, 2007; Kawakami, Aton, Cram, Lai, & Porima, 2008). Utilizing culturally-relevant evaluation integrates traditional values and behaviors into the evaluation process (Kawakami et al., 2007). Effective evaluation can create time and space for dialogue among diverse program stakeholders (Cajete, 2000). Validating such evaluation methodologies is critical to fully understanding and enhancing an indigenous program's impact on a community (Cajete, 2000; Kawakami et al., 2007) which often includes goals that encompass and integrate cultural and ecological health.

Connections and interactions with the natural world play an integral role in building indigenous identities and knowledge systems (Berkes & Folke, 1998; Blaich, 2003; Kamakau, 1992; Kame'eiehiwa, 1992; Kana'iaupuni & Malone, 2006; McGregor, 2007; Turner, Gregory, Brooks, Failing, & Satterfield, 2008). Many indigenous educational

programs aim to enhance cross-generational transmission of traditional ecological knowledge (TEK) which is defined as “a cumulative body of knowledge, practice and belief, evolving by adaptive processes” (Berkes & Folke, 1998). In Hawai'i, “physical, spiritual, genealogical, and sociopolitical/historical ties to land and sea... nourish Hawaiian well-being and are evident in Hawaiian epistemologies” (philosophies of knowledge) (Kana'iaupuni & Malone, 2006). Collective knowledge (Berkes, 1993) of Native Hawaiians prior to western contact encompasses deep understanding of *ka pae'āina o Hawai'i* (the lands of Hawai'i) and their reciprocal relationship with humans. The Hawaiian concept of Aloha 'āina (connotes love of the land, patriotism and political identity), also referred to as Hawaiian environmental kinship (Kanahale, 1986; Ledward, 2013a, 2013b) emphasizes harmonious relationships between people, nature and ancestral spirits (McGregor, 1996).

*Mālama 'āina* (caring for the land) is an integral part of the Hawaiian way of life (Trask, 1991) and evaluation of Native Hawaiian environmental education programs based on *mālama 'āina* must incorporate a holistic, place-based approach in order to support cultural revival and perpetuation of responsibility for the land (Kana'iaupuni & Malone, 2006). It is “new old wisdom at work” and it is being revived in

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the 21st century (Ledward, 2013a, 2013b). In this case study, the evaluation team worked with the nonprofit, Waipā Foundation, on the north shore of the island of Kauaʻi to evaluate the ten year old *Mai uka a i kai* (from the uplands to the sea) summer program that served 95 participants ages five to fifteen in 2014. Waipā is a well-respected Native Hawaiian organization that has worked to empower and sustain the well-being of the people and land for nearly thirty years. The logic model created in collaboration with Waipā leadership, links program inputs and outputs to positive environmental, social, and economic impacts within the surrounding community. This case study examines how a logic model can be used in a culturally appropriate manner to evaluate the goals of a Native Hawaiian educational program, offering lessons for evaluation in indigenous educational programming and other settings.

## 2. Literature review

In order to better understand the current research regarding culture-based program evaluation, the following literature review explores various evaluation methodologies that can be employed. It begins with an introduction to place-based evaluation, moves into purpose and use of the western logic model, and ends with various indigenous program research methodologies that have been developed out of the desire of many communities to validate traditional ecological knowledge.

### 2.1. Place-based education

Evaluation of place-based educational programs reveals multiple benefits for learners including exposure to diverse viewpoints, greater access to resources, and increased visits to, and knowledge of, local places (Powers, 2004). One challenge in evaluating place-based education programs is the tendency for them to have multiple, holistic goals, which go far beyond individual learning. Place-based education ultimately “increases academic achievement, helps students develop stronger ties to their community, enhances students’ appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens” (Sobel, 2004). Research in Hawaiʻi reveals that students benefit from education environments that are rooted in culture, as they experience positive socioemotional outcomes; this is especially true for indigenous students (Kanaʻiaupuni, Ledward, & Malone, 2017). Research recommends that place-based education programs clearly define their goals, in addition to improving communication with stakeholders to encourage greater endorsement for evaluation (Powers, 2004). Place-based education can offer perceptual, sociological, ideological, political and ecological dimensions of understanding a place, but it “does not come close to describing all the ways that place has inspired thinking across academic disciplines and across cultures” (Gruenewald, 2003). Therefore, place-based education can complement other ways of knowing, including indigenous knowledge, which provides a fuller picture about the “power of place”; this will ultimately lead to a more comprehensive understanding of the human experience from a specific cultural tradition (Gruenewald, 2003).

Evaluation of indigenous, place-based programs require evaluation approaches that allow for consideration of multiple goals and perspectives. Though it is not new, the western logic model is a framework that can be adapted, and successfully utilized, to measure the multiple goals that these comprehensive programs require.

### 2.2. The logic model

The logic model is widely used as an evaluation tool, particularly for nonprofit and government agencies not seeking revenue maximization.

Various practitioners began developing the logic model in the 1970s because they saw value in the visual representation of ideas (Knowlton & Phillips, 2012). Two initial representations of the logical model framework are found in the literature, including the 1971 framework approach implemented by the U.S. Agency for International Development and the 1976 hierarchy of program effectiveness developed by Claude Bennett (Knowlton & Phillips, 2012). The logic model has evolved from visuals showing simple cause-and-effect relationships to detailed, time-bound, operational models (Wholey, Hatry, & Newcomer, 2010).

A logic model demonstrates a progression from inputs through outputs to outcomes, providing a visual road map for an organization (Haggard & Burnett, 2006; Moss & Bond-Zielinski, 2010). Logic model outcome statements can be specific or broad, providing freedom within the evaluation framework (Knowlton & Phillips, 2012). When the logic model is complete, “critical measurement areas can be identified” and assessed repeatedly to guide progress towards outcomes (McLaughlin & Jordan, 1999). Logic models are commonly used by grantees to demonstrate outputs and outcomes to both funders and stakeholders (Moss & Bond-Zielinski, 2010). Models created with a clear understanding of a program provide “a benchmark to measure against” (Fetterman, Kaftarian, & Wandersman, 1996) and can be referenced in future evaluations.

Logic model inputs consist of resources including staff, time, money, research, materials, equipment and technology (McCawley, 2010). Furthermore, outputs can include workshops, trainings, and meetings; publications, curriculum and strategic plans; or stakeholder participation (University of Wisconsin System, 2012). Short-term outputs lead to the achievement of short, mid- and long-term outcomes, which are intended to improve social, economic, civic, cultural and environmental conditions in the community (McCawley, 2010).

Success in creating and implementing a logic model depends on the time and resources allocated to the evaluation process. According to the literature, evaluating educational programs is challenging, oftentimes due to factors such as potential negative consequences of evaluation, limited capacity and time, and insufficient prioritization of the process itself (Carleton-Hug & Hug, 2010). Some researchers believe that implementing a logic model is too time-consuming, because stakeholders must articulate goals that align with program activities in spite of inconsistencies between program goals and its day-to-day activities (Carleton-Hug & Hug, 2010; Dwyer & Makin, 1996). Since Waipā needed to develop a logic model and use it for evaluation, these challenges, coupled with the inherent challenges of adapting a western evaluation tool to an indigenous, place-based program, created an opportunity to develop this case study.

### 2.3. Indigenous evaluation methodologies

Literature suggests that the logic model can be adapted to fit the evaluation needs of indigenous communities and educational programs, although integration of indigenous and western evaluation methodologies is not well-documented in academic publications. Omitting cultural dimensions in planning activities can have adverse consequences by excluding critical knowledge and ways of knowing such as the “material and lived aspects of culture, identity, community cohesion and sense of place” (Adger, Barnett, Brown, Marshall, & O’Brien, 2013). These are difficult to measure concretely, yet necessary for effective program evaluation. Ignoring intangible cultural dimensions can render the evaluation ineffective and biased evaluation results may cause maladaptation (McMillen, 2015). The following research provides insight into other indigenous communities that struggle with the same challenges in evaluating culturally-based programs.

In the Pacific region, Aotearoa (New Zealand) Māori are at the forefront of developing culturally-relevant evaluation research methods rooted in Māori worldviews and grounded in “respect, honesty, confidentiality and integrity” that account for the diverse experiences of the Māori people. These methods also provide understandable feedback to participants, build *koha* (reciprocity) into the process, develop strategies to build community partners, and give researchers with cultural and research competency the opportunity to use both skill sets (Mataira, 2003).

The logic model has been implemented successfully across Aotearoa in Māori communities to improve service-delivery by non-governmental organizations in a 2010 government-sponsored initiative called Whānau Ora or “Family Health” (Baker, Pipi, & Cassidy, 2015). Logic models were grounded in Kaupapa Māori, which rooted in oral tradition, affirms Māori cultural philosophies and lifestyle in the westernized world (Pihama, Cram, & Walker, 2002). Researchers concluded that utilizing the logic model and rubrics emphasizing the value of relationships provided “clarity around the nature of relationships and their contribution to outcomes” (Baker et al., 2015).

First Nations communities are also recognizing the need to craft culturally appropriate education evaluation. For instance, the Institute for Higher Education Policy identified the need for program evaluation models that are successful in supporting American Indian students as they pursue higher education (Institute for Higher Education Policy, 2007). Some evaluation researchers have documented practices for use of logic models in Native American programs. Researcher Joan LaFrance holds evaluation workshops for program leaders on Indian reservations. Her evaluation process involves: discussion of assumptions of the program and intended results, designing the evaluation plan and how results can be validated with information (i.e. creating the logic model), and building a “participatory ethic” into the evaluation in order for participants to feel responsible for the process (LaFrance, 2004). LaFrance also avoids the use of name “logic model” because it may be perceived as pretentious to workshop participants (LaFrance, 2004).

Throughout the process of exploring evaluation literature, it became clear that indigenous, place-based programs need to balance multiple goals and perspectives and to evaluate accordingly. This literature review reveals that a western evaluation tool, such as the logic model, can provide the freedom for programs rooted in culture to assess their goals. A logic model can be utilized successfully by indigenous peoples if they believe it can articulate their values, their work, and indigenous ways of understanding the world. The simplicity of the logic model holds the potential to communicate the step-by-step goals and long-term vision of these comprehensive programs.

### 3. Site description – Waipā foundation

The Waipā ahupua‘a is in the *moku* (district) of Halele‘a, on the north side of the island of Kaua‘i. Waipā, reaching from the shores of Hanalei bay to the peak of Māmalahoa, is located between the ahupua‘a of Wai‘oli and Waikoko (see Fig. 1). Ahupua‘a are divisions used by Native Hawaiians to organize land and are defined as “culturally appropriate, ecologically aligned and place specific units with access to diverse resources” (Gonschor & Beamer, 2014). The majority of ahupua‘a stretch from the mountains to the sea encompassing diverse resources needed by their inhabitants to survive (McGregor, 1996; McGregor, 2007). Ahupua‘a inhabitants had an intimate understanding of the interactions between mountains and sea, nutrients and runoff, as well as precipitation and flora bringing forth respect for “the integrity of the delicately balanced ecosystem of which they were a part and upon which they relied for their every need” (Smith & Pai, 1992). A small percentage of ahupua‘a were landlocked and/or resource-limited

suggesting that fish, freshwater, marine materials and agricultural products were traded for subsistence (Gonschor & Beamer, 2014). The word ahupua‘a includes the idea of *hō‘ahu* (to set something aside for later) which upholds the value of sustainability in Hawaiian culture. Furthermore, the word *Waipā* means “a request, a prayer, as to the gods” (Pūku‘i & Elbert, 1971), though other translations imply “touched water”. The name could also indicate stuck water, or *Waipā‘a*, acknowledging the sediment that slows the river flow (Blaich, 2003).

The Waipā Project began in 1982 when a group of Hawaiian *kūpuna* (elders) from Halele‘a, along with their *‘ohana* (families) and *kāko‘o* (supporters), organized to preserve the Waipā ahupua‘a from luxury residential development. After four years of negotiations, the landowner, Kamehameha Schools (KS), formerly known as Kamehameha Schools Bishop Estate, leased them the land instead of developing it (Sproat-Beck & Ventura, 2014). Kamehameha Schools holds 375,000 acres of ancestral land across Hawai‘i endowed in trust by Princess Bernice Pauahi Bishop to educate Hawaiian youth and safeguard the perpetuation of Hawaiian language and culture (Kamehameha Schools, 2017). The *kūpuna* aimed to restore the ahupua‘a so that it could support a subsistence lifestyle and serve as a *pu‘uhonua* (place of peace and safety) for cultural practices such as *‘ōlelo Hawai‘i* (Hawaiian language) and *lā‘au lapa‘au* (medicine) (Blaich, 2003). As “The Hawaiian Farmers of Hanalei,” the group started *kalo* (taro) farming, production and a farmer’s market. The group led to the formation of Waipā Foundation in 1994 (Waipā Foundation, 2017) with educational programs that integrated Hawaiian culture and environmental science in ‘āina-based activities (Blaich, 2003). Over the years, Waipā has been working to revitalize the ahupua‘a system by training residents to become *ma‘a* (familiar) with the place, to care for and cultivate the ‘āina, and to enhance its potential to provide food. This effort has become increasingly important since Hawai‘i imports 90% of its food (Meyer, 2014), and is less food secure than it was in the 1960s (Southchack, 2007).

#### 3.1. The *Mai uka a i kai* Program

Waipā Foundation began the *Mai uka a i kai* program in 2001 with six participants. “*Mai uka a i kai*” means “from the uplands to the sea,” and participants engage in activities in the *mauka* areas (uplands), the *kula* areas (fields), the *loko i‘a* (fishponds), and the *kai* (sea). Program participants are children in grades kindergarten through 9th grade primarily from the north shore of Kaua‘i. Of the 95 children enrolled in the program in 2014, 61% were of Hawaiian ancestry. That summer, the program also faced some resource constraints, including a smaller budget along with fee increases that gave parents the option to provide volunteer labor in lieu of tuition. These constraints increased Waipā’s interest in evaluating the program.

Kamehameha Schools requires community programs that it supports to collect participation data and encourages programs to develop meaningful ways to understand and communicate the impact they have. For several years, Waipā collected basic data and evaluated the *Mai uka a i kai* summer program by asking kumu and parents (via surveys and debriefs) for their suggestions using surveys and debriefings to improve the program. The KS ‘Āina-Based Education Department encouraged Waipā to develop logic models to better articulate its work and to provide a means to evaluate its impact (Ledward, 2013a, 2013b). With support from KS, Waipā leadership had begun to develop an overarching logic model to articulate the breadth of all of the organization’s activities, though they had not developed one for the summer program. Waipā leaders were enthusiastic about working with the rest of the evaluation team to develop a summer program model and pilot an evaluation. After adopting the logic model

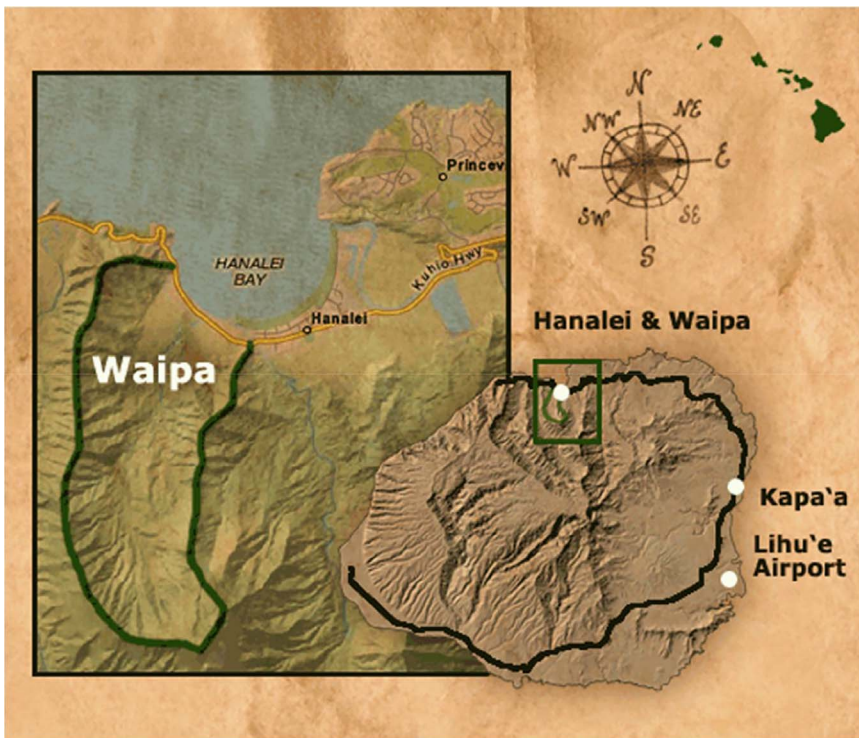


Fig. 1. Waipā ahupua'a. (Waipā Foundation, 2017).

Table 1  
Mai uka a i kai Logic Model.

INPUTS	ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	MID-TERM OUTCOMES	LONG-TERM OUTCOMES
Stewardship of Waipā ahupua'a	Learn and demonstrate Hawaiian cultural values, skills and language	Ōlelo Hawai'i vocabulary list (pre/post)	Deeper pride and commitment to Hawaiian culture	Increased cultural practice and learning	Cultural practitioners, advocates, mentors
Commitment and knowledgeable staff	Explore and give life to the ahupua'a of Waipā	Waipā place names and activities	Greater familiarity with 'ōlelo Hawai'i	Increased engagement in mālama 'āina	Mālama 'āina habits and sense of kuleana
Culture based learning and practice that is fun	Grow, prepare, share and eat 'āina food	'Āina revitalized: natives/food planted, invasives removed	Gain knowledge of, and a sense of connection with Waipā, Halele'a and ka'āina	Continued restoration of Waipā	Restored and productive ahupua'a
Local learners in Grades K-12	Encourage teamwork, kōkua, pa'ahana	Food harvested, prepared, distributed and eaten	Gain skills in gardening and preparing 'āina food (home-grown food)	'Ohana eat more 'āina food and/or grow own food	Vibrant farming, food economy
Family and community support	Promote community mindedness and sustainability	Skills introduced and practiced	Self-confidence through gained skills, abilities and knowledge	Participants actively share their knowledge with others	Healthy and self-reliant families and community surrounding Waipā
Funding		Enrollment, attendance and kuleana (expectation checklist)	Sense of accomplishment	Increased involvement with Waipā and volunteerism	Industrious and strong community
		Hō'ike: strong participant (haumana and mākua), demo of oli, mele, skills learned, groups projects			
		Learner and family satisfaction with program			
	PROGRAM MONITORING AND REPORTING			EVALUATION	

Background photo, Waipā Foundation (2017), Sproat-Beck, Ventura, Ledward, & Weldon (2014).

framework, Waipā leadership also mentored other nonprofits in the use of logic models.

#### 4. Logic model development

In order to evaluate the Mai uka a i kai program, Waipā Foundation enlisted the help of a graduate student pursuing a Master's of Science in the Natural Resources and Environmental Management (NREM)

department at the University of Hawai'i at Mānoa. The graduate student, who served as the lead researcher, was born in Hawai'i and raised in Minnesota. After college, she moved back to Hawai'i to seek a higher degree that would allow her to connect to her cultural heritage through a biocultural lens. The evaluation project formed after capstone discussions with the two co-author professors. One professor is a community economic development specialist and the other is an environmental educator who previously assisted in developing education

programs at Waipā. The latter is also community member who grew up in the area. Waipā staff expressed that the lead researchers' positivity, eagerness to help in all tasks, patient listening and approachability helped staff and community members feel comfortable working with her in the evaluation process.

The student worked with Waipā's executive director, operations manager, summer program director, and an education director from Kamehameha Schools to develop the logic model through two iterations over four months. Waipā leadership selected various methods to assess the prioritized outcomes. Participant learning and connection to the Waipā ahupua'a were central for short-term outcomes, while mid-term outcomes focused on sustained behavior change in children and families with more than five years of experience at Waipā. Long-term outcomes were included in the logic model, although they were not measured in the evaluation described here due to resource constraints. The term "evaluation team" will be used throughout this study to describe those who helped implement the evaluation alongside the graduate student. Waipā leadership, Kamehameha Schools staff, NREM professors and older summer program participants were instrumental to the evaluation process.

One of the foundational pieces of logic model creation was integrating the underlying values of the Waipā community. These community values are woven in to the fabric of the place and people and are not necessarily outwardly spoken. The *mo'olelo* (story) of Makaihuwa'a came forth throughout the program and connected the past to the present. The history of Makaihuwa'a, a hill above Waipā, demonstrates the observation, determination, hard work and ability of a *konohiki* (chief) and his community. These foundational values are still present at Waipā today. The *konohiki* observed that his *lawai'a* (fisherman) were coming back with empty boats. The deep sea schools of fish were so far out that they could not find their way back to Hanalei bay in the heavy rain storms. The *konohiki* decided to build a shelter and burn bright torches atop the hill's summit so that the *lawai'a* could navigate home. This clever tactic led to an abundance of fish for the community. After that, the hill became known as Makaihuwa'a or "eyes at the prow of the canoe." The foundational symbols of this story, eyes, representing keen observation, and fire, through determination, coupled with hard work and ability, are evident in the way Waipā operates today, carefully integrating new wisdom with the old. These values were integral to informing logic model development and the evaluation itself. Refer to [Table 1](#) for the *Mai uka a i kai* logic model.

## 5. Methods

### 5.1. Evaluation instruments

A set of evaluation instruments was used to assess progress on the short- and mid-term goals outlined in [Table A1](#). The week prior to the program was spent finalizing evaluation instruments and their applicability, developing an assessment timeline, and attending *kumu* (teacher) training. The graduate student and Waipā leadership developed the questions for the parent and participant talk story sessions, past participant interviews and the final parent survey. The graduate student also took on the role of gathering photos and video clips for a final program video. The following summaries describe the various evaluation instruments that were employed during the program.

Hō'ike (to show, exhibit) was held on the final day of the summer program and consisted of cultural demonstrations dinner, and a summer program video.

#### 5.1.1. Parent survey

Parent surveys were administered prior to hō'ike. The survey had fourteen questions and queried participants about family connections to Hawaiian culture, cultural activities at home, homegrown food consumption, favorite program memories and suggestions for program improvement. Of the 75 families in the summer program, 37 parents or guardians filled out the written survey (49% response rate).

#### 5.1.2. Participant surveys

During the first week, an oral pre-survey was given to kindergarten through 3rd grade participants and a written pre-survey was given to 4th-9th graders. The post-survey was administered during the final week of the program. The oral and written surveys had three sections, including:

1. An open-ended portion asking for a list of cultural practices that they learned at Waipā.
2. Five questions asking respondents to rate their connection with cultural practices and the importance, frequency, pride in, sharing of, and learning of those practices.
3. An open-ended portion asking for names and importance of Waipā's special places

#### 5.1.3. 'Ōlelo quiz

The pre-quiz for 'ōlelo Hawai'i was also administered the first week. The quiz had 68 vocabulary words that the kumu chose. The K-3rd grade groups were quizzed orally and the 4th-9th graders took written quizzes. The post-quiz was administered during the final week after the participants had been exposed to various words on a daily basis.

#### 5.1.4. Kumu datasheets

Each kumu recorded the daily activities completed for each week in the areas of ahupua'a stewardship, food activities, skills practiced, as well as attendance and keiki quotes. While the datasheets suggested the type of information that was desired, they were open-ended, giving kumu the opportunity to focus on activities that interested their group.

#### 5.1.5. Past participant interviews

Interviews were conducted with former participants who had been active at Waipā as young adults with the majority being among the first six participants in 2001. Three out of four (75%) past participants agreed to participate in 30–45 min interviews. They were asked sixteen open-ended questions.

#### 5.1.6. Participant and parent talk story sessions

Talk story sessions, a culturally acceptable way to gather information and share ideas ([Blaich, 2003](#)), were held over two days during the final week. Participants watched a 3:30 min video that displayed keiki actively engaging in Hawaiian practices, and then responded to questions in 60-min focus group discussions. Video prompts provided participants with the opportunity to analyze themselves partaking in activities and empowered them as equal participants in the learning and evaluation processes within the *Mai uka a i kai* program ([Blaich, 2003](#); [Tobin & Davidson, 1990](#)).

As shown in [Table A1](#), outcomes were evaluated with more than one method to capture all student learning. Once the program was complete, the evaluation team analyzed the results and reflected on what they learned from the process. Initially, the idea of using a rubric to determine if an outcome was achieved was investigated.

## 5.2. Rubric

The rubric used the following criteria: if at least half of the respondents were actively engaged in an activity or reported experiencing a positive feeling for every evaluation method, then the outcome was achieved; if at least one of the evaluation methods indicated that at least half of the respondents were actively engaged in an activity or reported experiencing a positive feeling, then the outcome was deemed partially achieved. If fewer than half of the respondents were engaged in an activity or reported experiencing a positive feeling, then the outcome was not met.

## 6. Results

Once the program was completed and all results were analyzed, the evaluation team reviewed the results and reflected on what they learned from the process. As [Table A1](#) in the [Appendix A](#) indicates, if the rubric outlined in the methods section was used, then the following results would occur:

- short-term outcomes one and four were met (2/6)
- short-term outcomes three, five and six were partially met (3/6)
- short-term outcome two was not met (1/6); and
- mid-term outcomes one, four, five and six were met (4/6),
- mid-term outcomes two and three were not met (2/6)

The conclusions differ a great deal if one looks at the results with a more qualitative perspective. The evaluation team concluded that as the literature suggests ([LaFrance, 2004](#)), much more deliberation is needed among everyone involved in order to develop an evaluation rubric for culturally-based programs that takes into account qualitative data.

These results that follow are based on the experiences and qualitative observations of the evaluation team supported by quantitative and qualitative data in [Table A1](#) from the evaluation process. Several themes were identified as the data was analyzed and these were grouped into four topic areas that are presented here.

### 6.1. Weaving evaluation into the Waipā “ecosystem”

Evaluators must first become familiar with any program being evaluated, and with its people. Spending time up front learning how things were run across Waipā and getting to know everyone working there increased the evaluator’s self-sufficiency and was useful in supporting keiki and their families. Waipā has its own “ecosystem” with everyone filling in gaps or roles to ensure that each part of its operations ran smoothly. The word “ecosystem” was used by a Waipā leader during the first week to illustrate the inner workings of the nonprofit. Staff members across all of Waipā’s efforts functioned independently while contributing to the larger whole of revitalizing the community through many channels, including cultural education, ‘āina restoration, farming and running administrative operations. The evaluator understood that Mai uka a i kai program was just one of many efforts to build community resiliency at Waipā.

Another critical part of the evaluation process was the time that the Waipā leadership and community graciously shared with the evaluation team. Prior to the summer program, Waipā staff and the graduate student emailed and met in person several months in advance. This process was also furthered with guidance from KS staff members. From those initial discussions, the graduate student was also introduced via email to other Waipā staff members.

Upon arrival on Kaua’i from O’ahu, the graduate student also met

the kumu during training week and informal gatherings onsite. She was able to share individually with each of them the importance of the evaluation project. All of the kumu were involved in the group evaluation activities that were built into the daily structure of the program. However, they were challenged to find enough time to fill out the kumu datasheets resulting in a response rate of 50%. Evaluation activities that were planned ahead of time, and spanned multiple groups, had higher response rates.

Another event that supported the evaluation process took place the first day of Mai uka a i kai program at the initial meet-and-greet with families. The summer program director made a point to introduce each kumu and the graduate student. This conversation opened up the opportunity for families to ask questions about the evaluation, building the participatory ethic and sense of ownership in the evaluation process. This proved to be helpful in the long run in recruiting parents and keiki for talk story sessions.

All of these efforts and introductions by Waipā staff helped the graduate student acclimate quickly. The evaluation process then proceeded more quickly because the team, and everyone connected to the program, felt comfortable.

### 6.2. Committing to the community: the value of relationships and time

Over the course of the summer program, the graduate student spent each day with participants and their kumu, rotating from group to group to better understand what the keiki were experiencing. She was fortunate to learn alongside the youth, participating in everything from sailing, to throwing fishnet, to learning historical place names on hikes. The evaluation team grew to include older summer program participants who offered to take notes and support the logistics of the talk story sessions and oral surveys. They assisted in making the setting feel more comfortable because they knew the younger keiki already. They also served as positive role models for participants and contributed to the environment that nurtured language acquisition, viewing it as time well spent.

The total evaluation process was a time-intensive process when accounting for all the person hours spent by various evaluation team members involved in the creation and implementation. Including logic model development (3 staff × 10 h = 30 h), M.S. project creation for the NREM program (15 h), older program participants assisting the graduate student (10 h), kumu running evaluation activities (10 staff × 3 h = 30 h), data analysis (20 h) and report writing and editing (50 h), the evaluation took about 355 person hours (inclusive of the 200 h spent by the graduate student). In future years, summer program evaluations would not likely take as long given that this pilot evaluation set the process.

### 6.3. Determining appropriate evaluation instruments

Qualitative and quantitative evaluation tools often produced different results. For instance, mid-term outcome one, “Increased cultural practice and learning” appeared to be achieved based on the anecdotes shared and agreements reached during talk story sessions and interviews. However, the pre/post survey results and quantitative answers did not reflect this achievement. While quantitative information can be useful in evaluation, the team felt that it was not particularly useful here because it did not provide accurate enough data to show a tangible “increase” of cultural practice and learning over time. The evaluation team concluded that more time is needed to complete an effective evaluation of this outcome. The evaluation results presented here were based solely on verbal recollections, leaving out the metrics that observation over time could provide.

Furthermore, short-term outcome two, “Greater familiarity with ‘ōlelo Hawai‘i” was not met based on the pre- and post-quiz scores across all participants. Keiki in kindergarten scored 50% overall on the post-quiz, with post-scores generally decreasing as program experience increased. The evaluation team concluded that, on average, participants learned one new word a day, and that many integrated ‘ōlelo Hawai‘i into their everyday language. The rubric could be adjusted to include a goal of increasing the average post-score across all participants or an increase in the post-score for each participant, instead of using an absolute goal. Furthermore, for some kumu, “success” meant learning two words a week. This demonstrates the need for more agreement before measuring progress toward an outcome.

These examples of inconsistencies highlight the need to examine evaluation tools to ensure that they accurately measure specific outcomes according to the definition of “success” determined by program leaders. They also demonstrate the intensive nature of evaluation for indigenous programs to prioritize qualitative approaches, and the need to utilize a variety of evaluation tools together.

#### 6.4. Modifying the logic model

In order to provide a final evaluation report to Waipā, the evaluation team needed to determine whether various short and mid-term outcomes were achieved. The analysis indicated that it was difficult to measure certain outcomes accurately for a variety of reasons. The following discussion presents the forethought that could occur during the development of the logic model in order to set measurable outcomes, use clear and precise wording, and choose appropriate evaluation tools.

The evaluation team determined that short-term outcomes five and six should be combined to read, “Sense of accomplishment through gained skills, abilities and knowledge”. The original outcomes addressed “self-confidence” and “sense of accomplishment” separately, although both outcomes were evaluated using the same methods. Combining them into one outcome streamlines the logic model and ensures that outcomes and measurement tools are aligned.

The evaluation team decided that mid-term outcome three, “Continued restoration of Waipā”, should be removed from the Mai uka a i kai logic model. Though participants actively assisted with various restoration and agricultural efforts, the summer program did not incorporate hands-on restoration activities on a consistent basis. Data from other Waipā programs would be needed in order to evaluate this outcome.

The evaluation team also determined that mid-term outcome four should be reworded from “‘Ohana eat more ‘āina food and/or grow food” to “‘Ohana eat more locally-grown food” or “‘Ohana grow their own food” depending on which is most important to Waipā. The need to differentiate between locally-grown food and homegrown food became apparent in the responses to the parent surveys. Survey questions must be worded specifically to ensure clarity for the readers.

## 7. Discussion

This case study demonstrates that logic models can be used in a culturally appropriate manner to evaluate the goals of a Native Hawaiian education program. It offers four lessons that are relevant to indigenous, place-based educators and evaluation teams that are interested in using western measurement tools for evaluating programs with cultural foundations.

### 7.1. Program leaders can create a participatory evaluation process through initiation and guidance

Program leaders must show strong interest in strategic planning and initiate the evaluation process in order for it to be effective. They must also invite evaluation team members and formally welcome them into the community. In this case study, the invitation that was extended to the graduate student helped create an environment that was more conducive to success. Program leaders also have an intimate understanding of program activities and long-term outcomes, and their local knowledge provides a crucial benchmark against which to measure change. Leadership is also integral to encouraging participation by other key stakeholders including participants, their families and active community members. Finally, participation and initiative of program leaders is essential for evaluation results to be applied and create meaningful change.

### 7.2. The evaluation team must prioritize relationships, flexibility, and learning cultural protocol

One component of becoming part of the community meant shadowing staff members, meeting community members, talking to keiki and their families, and asking questions. This engagement process required confidence and understanding that much could be learned from everyone. Creating relationships, building trust and understanding cultural protocol are all key to the evaluation process, and require extensive time and intimate involvement with community members. The team must be flexible and willing to become part of the program ‘ohana as participants, observers, and ultimately, storytellers.

In this case study, the evaluation team spent every day of the program with participants. This time helped them, and especially the graduate student, understand the close-knit relationships in the community and community values. A long-term commitment to evaluation will ensure that it goes hand-in-hand with strategic planning and program delivery as part of a continuous, iterative effort.

Research emphasizes cultural competence as a necessary skill for evaluation teams working in indigenous settings because relationships and credibility are crucial to participant and community support for evaluation efforts (LaFrance, 2004; Patton, 2011). Cultural competence within evaluation is defined as “active awareness, understanding, and appreciation for the context at hand, and it uses responsive and inclusive means to conduct evaluation” (SenGupta, Hopson, & Thompson-Robinson., 2004). At the same time, the evaluation team will need to be co-learners with program participants and the community in order to ensure the evaluation accurately reflects progress toward meaningful outcomes.

### 7.3. Culturally appropriate evaluation must include story-based measurement tools to capture participant learning of all ages and abilities

Developing culturally appropriate assessments for a program that has a broad range of participants of different ages, abilities, and needs, is challenging and necessary. Less experienced participants clearly made greater strides in learning than participants with more experience. Interviews and talk story sessions were effective ways to track the progress of the experienced participants, allowing the evaluation to better assess their growth in relation to the length of time that they spent in the program. The surveys alone were not able to accurately capture this difference in participants’ experiences.

This disconnect must be addressed by adjusting the assessment methods so they accurately reflect progress towards desired outcomes which may include somewhat intangible goals such as “a grounding in

culture and environmental stewardship.”

The literature review revealed that the logic model and rubric development often include tools such as interviews, focus groups, participant reflections and observations, documentation reviews, and case studies (Baker et al., 2015). In this case study, however, verbal recollection and storytelling meshed more effectively with the communication styles of current and past participants and families, building the participatory ethic of key stakeholders by encouraging a greater sense of involvement in the evaluation. This may be due to the fact that ideas and meaning could be expressed more readily through words, instead of surveys and rating scales. Reductionism based on quantitative data may not be revealing or meaningful given that the outcomes are different and should be measured differently. Qualitative tools appear to be more meaningful indicators of success, and coupled with well-chosen quantitative tools, they can capture more accurate portrayals of participants’ experience. These tools should be identified by program leadership prior to any evaluation. A holistic, culturally-integrated approach to evaluating success for the *Mai uka a i kai* logic model would involve using a trifecta of measurement tools to assess whether an outcome has been met. Three types of tools that can be employed to more accurately assess program outcomes include activities, perceptions of learning, and measures and performances of learning. For example:

1. Focus group discussions or talk story sessions with current program participants; their parents and interviews with past program participants to gather their perceptions (Blaich, 2003; Kawakami et al., 2007)
2. Videos/photos to prompt discussion at talk story sessions (Blaich, 2003; Knowlton & Phillips, 2012)
3. Place excursions and activities as described by kumu in weekly datasheets (Powers, 2004; Vaske & Kobrin, 2001) within the *ahupua’a* as well as field trips to other *wahi pana* (storied places)
4. Learning performances (Berman, 2008; Mataira, 2003) such as the final *hō’ike* served as its own measurement tool, encompassing place-based cultural practices such as *oli* (chant), *hula* (dance), *mo’okū’auhau* (genealogy), and storytelling.

7.4. *The evaluation process must be modified and adapted over time to ensure it is robust and useful*

The evaluation team concluded that logic models involve a time-consuming process requiring stakeholders to articulate goals that align with program activities. This highlighted an operational challenge and the need to be flexible and evolve. The team felt that logic models should be developed for all Waipā’s programs as part of a strategic planning process so that all outcomes could be aligned temporally and all evaluation methods could be coordinated across programs. They also agreed that making the logic model and evaluation process part of a strategic plan would ensure that the work is revisited regularly into order to align, simplify and understand how to produce evaluations. Incorporating evaluation into the strategic planning process will also

## Appendix A

ensure that sufficient stakeholder involvement occurs to produce logic models and rubrics that reflect the value of relationships in culturally-based programs as recommended by Baker et al. (2015).

The logic model can assist culturally-based education programs in improving program effectiveness and empowering the community. However, developing and using a logic model as the basis for evaluation is a time-intensive process, which can be successful only through involvement and commitment of program leaders who invite the evaluation team and process and facilitate the necessary relationship-building with community members. This case study highlights the usefulness of utilizing a western tool that can be tailored to the specific needs of educational programs that are founded in indigenous place-based settings.

## 8. Conclusion

This case study provides an example of how an evaluation tool, such as the logic model, can be successfully implemented in a Native Hawaiian, place-based education setting. It offers lessons for application of logic models showing how they can be adapted by indigenous communities to serve their interests and provide ways for indigenous values and epistemology to thrive. It also demonstrates how education programs in general can explore a modified approach to program assessments. Key takeaways of the evaluation include the need for program leaders to facilitate relationship building and cultural learning for the evaluators to increase their familiarity with the people and place; the need for the evaluation team to invest time into getting to know the community, building relationships and learning cultural protocol; the importance of diverse, culturally appropriate tools that capture learning by participants of all ages and abilities; and the need to revisit the evaluation in order to adapt it to safeguard its resiliency and functionality over time. With great consideration and time, the logic model can be a useful tool for indigenous programs that want to capture impactful learning and account for a sense of place that accurately reflects their heritage.

ka nānā no a ‘ike

By observing, one learns.

-‘ōlelo no’eau

(Hawaiian Proverb, Pūku’i & Varez, 1983)

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**Table A1**  
Evaluation on methods, sample size, population size and evaluation results by short-term and mid-term outcomes

Evaluation Method	Hō'ike	Pre/post Participant Survey	Parent Survey	Kumu Datasheet	Past Participant Survey	Participant Talk Story Session	Parent Talk Story
Sample size/population size	95/95	95/95	37/75	05-Oct	03-Jun	Oct-19	Oct-17
<b>Short-term Outcomes</b>							
1. Deeper pride & commitment to Hawaiian culture <sup>a</sup>	100% performed	100% of pre/post surveys reported some pride; older keiki had a decrease in pride from pre to post survey Average post scores indicated one new word was learned a day. Post scores tended to decrease as keiki age increased.	81% reported an increase in attitudes & behaviors, indicating pride				
2. Greater familiarity with 'ōlelo Hawai'i							
3. Gain knowledge of, & a sense of connection with Waipā, Halele'a and kā'āina <sup>b</sup>	100% performed	100% of pre/post surveys reported some knowledge; older keiki had a decrease in pride from pre to post survey	95% of respondents strongly agreed that their keiki gained knowledge & a sense of connection				
4. Gain skills in gardening & preparing 'āina (homegrown) food <sup>a</sup>				50% of participants completed skill-building activities. The reminder likely did, although kumu did not complete datasheets			
5. Self-confidence through gained skills, abilities & knowledge <sup>b</sup>		54% of K-3 <sup>rd</sup> graders reported self-confidence increased from a little to a lot. The rest reported some confidence on pre & post surveys.	95% of parents reported their keiki demonstrated new skills & knowledge confidently				
6. Sense of accomplishment <sup>b</sup>		54% of K-3 <sup>rd</sup> graders reported self-confidence from a little to a lot. The rest reported some confidence on pre & post surveys.	76% of parents taught an activity to another person				
<b>Mid-term Outcomes</b>							
1. Increased cultural practice & learning <sup>b</sup>					100% reported an increase	100% reported positive change & cultural practices were present, but did not report increases	100% reported positive change & cultural practices were present, but did not report increases
2. Increased engagement in mālama 'āina					66% reported increases	80% reported increases	No increases were reported
3. Continued restoration of Waipā					33% reported continuing with restoration		
4. 'Ohana eat more 'āina food <sup>b</sup>			21% of food consumed is home grown; 71% of fruit & vegetables are local; 48% of protein are local, on average		100% reported an increase in the local and organic food consumed	70% eating local organic food; 40% have home gardens; 20% not change in eating habits	70% eating organic food; 20% grow their own food
5. Participants actively share their knowledge with others <sup>b</sup>					100% reported teaching others	80% reported teaching others	80% reported keiki shared knowledge
6. Increased involvement with Waipā & volunteerism <sup>b</sup>					100% stayed connected by volunteering, work or family members	100% volunteered in the community.	30% volunteered 1–3 times a month in the community or during summer program

<sup>a</sup> At least 50% of the respondents were actively engaged in an activity or reported experiencing a positive feeling for every evaluation method (outcome met).  
<sup>b</sup> At least one of the evaluation methods indicated that at least 50% of the respondents were actively engaged in an activity or reported experiencing a positive feeling (outcome partially met).

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