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*This chapter recommends an educational role for evaluators in nonformal settings, including the development of program theory and long-term evaluation capacity building.*

## Evaluators as Educators: Articulating Program Theory and Building Evaluation Capacity

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The opportunity that evaluators have to be educators is well known. Patton (2002a, p. 93) emphatically states, “Every interaction with an evaluation client, participant, stakeholder, and user is a teaching opportunity.” This chapter discusses two ways in which evaluators can help educate the staff of nonformal programs: helping them articulate the theory that drives their program and helping them build evaluation capacity within their organization.

### **Articulating Program Theory**

One challenge in working with nonformal educators is not that they lack understanding of the program’s details but that they do not easily articulate why the dissected elements of the program achieve the program’s goals.

**Nonformal Educators.** Although nonformal educators may lack specific education or evaluation training, they are generally knowledgeable about the content they teach and extremely passionate about the services they provide. This is evident in the way one naturalist described her work:

As I remember my nature center days, I think the powerful thing was establishing a center and a program that was strongly connected to the community.



We were their source of all things environmental. We developed the county recycling center, we had award-winning school programs, we taught their teachers, and we had lists of public library books related to each of our program topics. They came to us for all kinds of information. It was our responsibility to provide the community with programs and opportunities to enhance their quality of life and protect the environment—for the future. Granted, we only served one midsized community, but at that scale, we could do it [Anonymous, personal communication, 2004].

There is no less passion among nonformal educators who work in historical or other types of settings:

Our program serves children and teachers in six county school systems. It provides rich opportunities to use the powerful stories and settings of Antietam and Monocacy National Battlefields to enhance classroom instruction. Learning experiences at the battlefields are powerful. They help make history lessons meaningful and personally relevant for students, encouraging them to explore and consider the causes, sacrifices, and lessons of the American Civil War and what those lessons mean for us today [Anonymous, personal communication, 2004].

Often nonformal educators are motivated not just by the benevolent and important mission of sharing knowledge and providing learning experiences for people, but by the deep desire to save the world with programs that benefit society through broader long-range goals such as increasing scientific literacy, promoting world peace, preventing global climate change, enhancing American democracy, preserving America's natural and cultural treasures, and eliminating homelessness. Although these are motivating, worthy goals, it is virtually impossible to evaluate whether a program will actually affect these types of changes. An evaluator's challenge is often to help program staff identify, evaluate, and assess short-term outcomes, as well as program logic, processes, and administration.

At the other extreme, perhaps because the long-range goals can be overwhelming, some nonformal educators are interested only in collecting participant satisfaction and feedback for program evaluation that is often too narrow and, on its own, has limited value for ongoing program improvement. One evaluator noted that when beginning to work with wildlife refuge and nature center staffs to determine what they would like to learn from evaluations, "I always hear—we just need to know that they liked it!" She went on to say:

I distinctly remember the school programs at a particular national wildlife refuge. Staff train teachers and chaperones and then they are out of the loop. The teachers come to the center, grab a knapsack, and conduct the program.

So staff really only want to find out that the teachers are happy and the kids learned something. But since they aren't interacting with the kids, they don't have much control over what is learned. They wanted to get posttests from every fourth grader (didn't know they could sample) with really simple general questions. For the pretest they were going to count hands when teachers asked the kids a question, "How many of you know the name of one animal that lives here?" [Anonymous, personal communication, 2004].

There is an array of other challenges an evaluator may encounter when beginning to work with nonformal education program staff. For example, some program staff want to accomplish a variety of learning outcomes in a program with limited contact time and want to assess participants over a broad range of those learning outcomes. One National Park Service education program that lasted two hours on-site with additional pre- and postvisit materials for classroom use was intended to teach about the Civil War, archeology, preservation of historic and cultural resources, local history, topography and mapping skills, and a variety of other learning outcomes. Working with evaluators helped staff refine the program design to be more realistic and then develop an approach to assessing participant outcomes commensurate with the amount of time and involvement they actually had with the program.

Evaluators in nonformal settings need to have a variety of evaluation methods and approaches to be responsive to the context. However, seldom do evaluators have the in-depth knowledge of the content area that the nonformal educators bring. So while the case has been made that nonformal educators generally have a lot to learn about evaluation, the same is generally true for the evaluators about the content and area of expertise that is the basis of the program. We suggest that successful evaluation activities are those in which the evaluator is an educator and through that role enables nonformal staff to share their knowledge and passion, identify reasonable evaluation goals, and gain a foundation in evaluation that will serve them through future program development opportunities.

**Nonformal Program Evaluation Tradition, History, and Practice.** It is often initially difficult for evaluators to engage program staff in helpful dialogue about evaluation goals because the staff may have never articulated the program's conceptual structure or compared the program's reality to the vision that motivates their work. The staff may believe ultimate goals are the only ones worth evaluating or think desired outcomes are too difficult to measure or attribute to their program. They may know some desired outcomes are not being reached but not why the program is failing to work as intended. Worse, they may not have thought about what their outcomes might be. The use of program theory and logic models is particularly important in these nonformal settings because the program may have developed out of an intuitive grasp of what is available and possible rather than a

formal exploration of needs. This may be evident in the range of program outcomes discussed previously, including the extremes of idealism and the simple informality of documenting an enjoyable experience.

It is helpful for evaluators to understand these nearly ubiquitous challenges of nonformal program evaluation. Despite this difficulty, however, there are many opportunities for evaluators to assist nonformal program staff if they understand the multiple dimensions of this problem. It is more than a language barrier. To become helpful partners in the evaluation effort, staff members and stakeholders need to understand the fundamentals of program theory and the evaluation process, and evaluators need to be willing educators of program staff.

Program theory in evaluation is not in wide use in nonformal evaluation practice (Bickman, 1987). Most nonformal program evaluations have consisted of “black box” evaluations, which identify what goes into a program (inputs) and what comes out of a program (outputs), but without considering what goes on inside a program. For many staff in nonformal programs, “theory” simply means assertions about why the program should work (Bush, Mullis, and Mullis, 1995). An assessment of multiple studies reported in the *Journal of Extension* highlighted the prevalence of the “black box” method in nonformal program evaluation:

One recent study reported on a teacher training program. The authors clearly defined problems to be addressed in this program, the objectives of the program, and how these objectives would be measured (Turner and Travnichek, 1992). Another study evaluating stress and coping programs reported its findings in much the same way (Fetsch, 1990). Both programs were reported as successful in meeting their objectives. What is not known is why they were successful. For example, what factors were leading contributors to making the program work? Was there a particular theory used as a basis for developing the program? If so, did the results support the theory? [Bush, Mullis, and Mullis, 1995]

The transition to theory-driven evaluations means an emphasis on the development and use of a more intricate framework that describes the basis of the program. When an evaluator joins the program after the program has been developed, it is sometimes necessary to recreate the program theory with nonformal program staff and stakeholders. That exercise, as explained below, is an educational one.

### **Program Theory Approaches**

When evaluators work with nonformal program stakeholders, it is first necessary to deconstruct and analyze the assumptions behind the program itself. This process can motivate program staff and illustrate the connections

between the program's components. These program theory discussions can help the evaluator understand how and why programs work and what is accomplished as a result. Whether the evaluator chooses to speak of a logic model (W. K. Kellogg Foundation, 2004), a conceptual and action model (Chen, 1990), a program theory (Weiss, 1998), or the program's theory of action (Patton, 2002b), the nonformal partners need to understand what is meant.

The word *theory* refers to the practitioners' knowledge and intuition of what works, that is, their program theory. *Logic* refers to the logical connections among the program's invested resources (inputs) that allow activities to be accomplished (outputs) and the resulting benefits and changes (outcomes). Practitioners need to understand that the model is a helpful tool, but only a beginning step in evaluation, and that the model is not the evaluation plan, but a tool that helps decide what to evaluate and when. It provides conceptual understanding of complex programs and helps focus an evaluation. With the evaluator, staff can use a program theory model to clarify the evaluation's purpose, create evaluation questions, identify criteria, select data sources, establish key clients, and determine available resources.

For nearly forty years, evaluators have based program evaluation on causal models of programs (Rogers, Hacsí, Petrosino, and Huebner, 2000). There is a variety of terms, definitions, frameworks, and procedures for the kind of evaluation that is guided by an understanding of how a program causes intended or observed outcomes. Some of these variations that can be useful in nonformal program evaluation are highlighted here. Chen (1990) has described six types of theory-driven evaluation. Recently he added to his list a holistic assessment approach to program theory that includes prescriptive and descriptive assumptions underlying programs (Chen, 2004). Prescriptive assumptions, or change models, include a description of the actions that must be taken in a program so that change occurs. Descriptive assumptions, or action models, include descriptions of the causal processes that must occur to reach program goals. Huebner (2000) believes that by involving education staff in program theory development, the evaluation receives clarified program goals, cooperation and buy-in, and reflective practice.

Weiss (2003–2004) defines theory-based evaluation “as the logical series of steps that lays out the path from inputs to participant responses to further intervention to further participant responses and so on, until the goal is achieved (or breaks down along the way)” (p. 3). She posits three reasons that program theory has become popular for evaluation:

- It yields “a logical framework for planning data collection” (p. 3).
- It enables evaluators to monitor movement of the program and participants through a sequence of steps and claim causation even when randomized assignment is not possible.

- It contributes to the evaluator's understanding of how and why the program works.

Considering logic models, Patton (2002b) describes them as follows:

A logic model or theory of action depicts, usually in graphic form, the connections between program inputs, activities and processes (implementation), outputs, immediate outcomes, and long-term impacts. . . . I distinguish a logic model from a theory of change. The only criterion for a logic model is that it be, well, *logical*, that is, that it portrays a reasonable, defensible, and sequential order from inputs through activities to outputs, outcomes, and impacts. A theory of change or theory of action, in contrast, bears the burden of specifying and explaining assumed, hypothesized, or tested causal links. Logic models are *descriptive*. Theory of change and theory of action models are *explanatory* and *predictive* [pp. 162–163].

The focus on program theory development includes the identification of both explicit and implicit objectives of program staff. Theories of action are explicit descriptions of how strategies and techniques produce outcomes. Theories of use are what is actually done in the field. A frequent challenge is that the two theories may be contradictory. The conceptualization of theories of action within programs derives from the work of Argyris and Schön (1974, 1978), who studied the connection between theory and practice as a means of increasing professional effectiveness within organizations:

We begin with the proposition that people hold theories of action about how to produce consequences they intend. Such theories are theories about human effectiveness. By effectiveness we mean the degree to which people produce their intended consequences in ways that make it likely that they will continue to produce intended consequences. Theories of action, therefore, are theories about effectiveness, and because they contain propositions that are falsifiable, they are also theories about truth. Truth in this case means truth about how to behave effectively [Argyris, 1982, p. 83].

Identifying both the theories-of-action and the theories-of-use is necessary in determining how a program works and helps bring together theory and practice [Kolb, 1992].

We believe these benefits of program theory are important for evaluators of nonformal programs to keep in mind. For evaluators who find themselves in a nonformal setting, we offer the following discussion of two program theory models. For nonformal educators who wish to evaluate a program, we encourage the use of the following discussion to take the first step in evaluation planning.

## Two Models for Nonformal Settings: Logic Models and Causal Mapping

Two models are particularly appropriate for nonformal settings because they help construct a better understanding of a program so that evaluation can occur. The first is the basic logic model (it is described in detail by the University of Wisconsin Extension at <http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html>). The logic model uses the basic approach of identifying inputs, outputs, and outcomes. Work can start from either end, moving forward or backward (Taylor-Powell, 2002).

The second example is a form of causal mapping, as described in *Visible Thinking* (Bryson, Ackermann, Eden, and Finn, 2004). This methodology is particularly appropriate in nonformal settings because the process is straightforward, it uses common language, and it can be used to develop an action-oriented logic model. The process begins by asking simple questions:

1. What do you want to do?
2. How would you do that (or what would it take to do that)?
3. Why would you want to do that (or what would the consequences be of doing that)?

Rather than starting at the beginning or end, the *Visible Thinking* causal mapping approach, sometimes referred to as action-oriented strategy mapping or an action-oriented logic model, starts in the middle. While these questions might have been asked before the program was developed and answered with the program itself, an evaluator can begin the process of educating staff about program theory by using the same questions that recall the purpose and rationale of the program.

With either model, key needs for the evaluator and questions for the staff include the following:

*Identifying the goal.* What was the program designed to do? What problem are you solving with this program? Why do you offer these programs?

*Identifying a program theory.* Why do you think this program will solve that problem? How will your programs help achieve that goal? What about your program makes it possible to reach the goal? Is there any research that supports the links between the program and the goal?

*Revealing the less obvious connections.* What is it about your program that makes it effective?

The roles of the evaluator in the process of developing the program theory include those of constituent, another stakeholder, and consensus generator. The evaluator shares knowledge of evaluation and relevant information

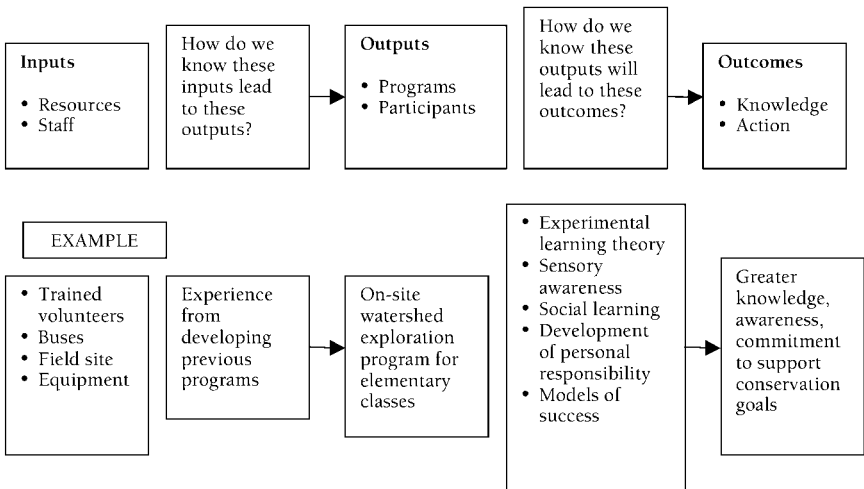
on similar programs, applicable policy, research, and theory (Chen, 1990). The evaluator educates.

**Essential Features of a Logic Model.** Using a logic model approach with nonformal educators can help them confront their expectations for the program. Evaluators can help nonformal educators understand the words used in the model in order to generate a useful evaluation plan. In the logic model, outputs and outcomes have specific meaning. The process involves identifying (see Figure 5.1):

- Inputs: What is invested?
- Outputs: What is done?
- Outcomes or Impacts: What are the results?

As staff and evaluators begin to work with the model and describe what is invested, what is done, and what results they expect to see, the logic model expands to include a description of the situation, assumptions, external factors, and priorities. The evaluator can help staff realize that the evaluation is only as good as the logical connections that form the arrows between the inputs, outputs, and outcomes. What evidence do they have to suggest that these short- and long-term changes are expected outcomes from these people engaging in those activities? How reasonable is this assumption? What else would have to be in place to see this type of change? What other variables might explain the same outcomes? Some of these factors can be identified as assumptions and external factors.

**Figure 5.1. Logic Model Diagram**



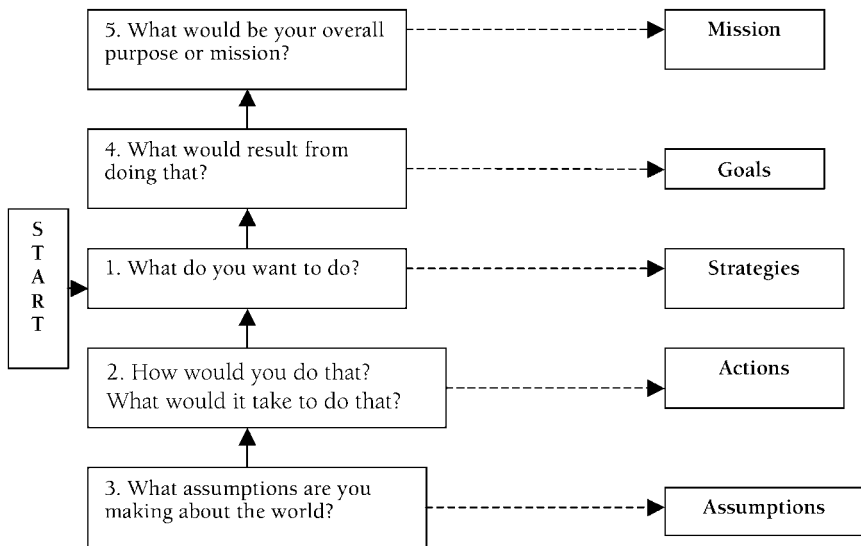
*Source:* This example is adapted from the University of Wisconsin website, which includes several graphs that may be useful in educating nonformal practitioners about program theory and logic models.



Evaluators need to help program staff realize that the further the outcomes are from the program outputs, the weaker is the influence of the program itself and the more likely it is that outside influences will affect measured results (Plantz, Greenway, and Hendricks, 1997). For this reason, many evaluations focus on outputs and shorter-term outcomes. If the logical links are reasonable and defensible, however, program staff should not mourn their inability to measure grandiose claims. Evaluators can help them understand that measuring the first tier of outcomes indicates the program is functioning as intended and could lead to ultimate outcomes. Unfortunately, few program theories in nonformal education are strong enough to promise convincingly that a program will save the world.

**Essential Features of Causal Mapping.** In nonformal settings, the program's implementation may not be clearly linked to its design. Furthermore, the reason for embarking on an evaluation may have multiple motivations (funding requirement, public relations, program improvement, and so on). Causal mapping is used to make sense of a program. The value to evaluation planning is that the process fleshes out criteria that are measurable and linked to the program goals. It may also reveal important meanings to the program staff that were not previously identified, and it has the potential to provide direction for improvement. As illustrated in Figure 5.2, causal mapping uses word and arrow diagrams to link ideas and actions,

**Figure 5.2. Causal Model Diagram**



Source: Adapted from Bryson, Ackermann, Eden, and Finn (2004, p. 159).

which can help develop the program's theory of action. It is particularly conducive to engaging program staff and stakeholders.

Developing causal maps can require interaction on many levels. In order to make the mapping process one that can be enhanced over time and shared across locations, mapping software is available through several vendors. The Window-based Decision Explorer by Banxia is one such tool that has been used successfully with action-oriented strategy maps.

## Strategies to Build Capacity in Nonformal Education Organizations

Helping program staff articulate their program theory is one way evaluators can build evaluation capacity within nonformal education organizations. There are other ways evaluators can contribute to the evaluation skills of nonformal educators. Some nonformal educators are particularly interested in the opportunity to learn from the process of program evaluation. Indeed, they fully recognize the importance of evaluation and may also wish to build their professional portfolio to include evaluation skills.

Much can be done to enhance the culture of evaluation in the world of nonformal programs that will help prevent evaluation frustration and improve program quality. For example, in addition to clarifying initial assumptions about the program, evaluators can help nonformal programs make informed planning, implementation, and management decisions by addressing such questions as these:

- What should we expect from program activities?
- Who will benefit from the outputs?
- How can project activities be improved?
- How can we maximize the positive and minimize the negative outcomes?
- What do the program participants already know? What do they learn? What have they experienced? What are their ideas for program improvement?

**Identifying Primary Intended Users.** As they start planning the evaluation, staff could begin by identifying the stakeholders who will be the primary users of the evaluation, for without them, the effort involved in evaluation may be a poor use of resources. "As always the question of primary intended users is . . . primary" (Patton, 1997, p. 217). As defined by Patton, the primary intended users (PIUs) of the evaluation are those who are in a position to do or decide something regarding the program (a subset of all stakeholders). The first step in any evaluation process is usually to identify stakeholders, who may include those involved in program operations (administrators, staff, volunteers, contractors, sponsors, collaborators or coalition partners, funders), as well as those served or affected

by the program (clients and participants, family members, neighborhood organizations, academic institutions, elected officials, advocacy groups, professional organizations, skeptics, opponents).

Although the identification of PIUs may be a simple process, understanding whether these staff actually have the ability to alter the program as a result of the evaluation may be less clear. In those cases, an assessment of the roles of the stakeholders will be useful in determining who and how they should be involved in the evaluation. The process of searching for the PIUs is one that an evaluator could facilitate with nonformal staff. In doing so, the evaluator is both educating and building the capacity of the staff to see their program in a new light.

It is unlikely that all nonformal education stakeholders will want or be able to be involved throughout the evaluation process, yet it is essential to the success of the evaluation process that the PIUs be identified and engaged. Patton emphasizes the importance of gathering information for specific individuals who will have the willingness, authority, and ability to put evaluation results to work. Without this focus on specific intended users, he argues, it is too easy to collect information that may be potentially interesting but will never be used. Engagement of PIUs is crucial in the determination of program theory, including the identification of validity assumptions where reduction of uncertainty about causal linkage is critical. Building the capacity of the PIUs may improve not only the use of the evaluation results but the quality of the evaluation itself.

**Building Evaluation Skills.** There are common strategies that nonformal educators can undertake to increase their evaluation skills: professional development courses, mentoring, training, and the opportunity to participate in their own program evaluation. When evaluators work directly with nonformal educators in the development of these opportunities and in the role of educators, the increased communication and understanding may be beneficial to all.

Large organizations and agencies are more likely to have the resources to coordinate evaluation training. One such example is the U.S. Fish and Wildlife Service's course, Education Program Evaluation. In 1994 the U.S. Fish and Wildlife Service's National Conservation and Training Center began a process to increase the skills of program staff in evaluation. Two parallel needs assessments asked (1) staff what they knew about program evaluation and in what situations they would use it and (2) nonformal education and evaluation experts what ought to be presented in a short course (Monroe, 1995). That information, plus the experiences of the initial instructor team, formed the basis of a four-day course, Education Program Evaluation.

The course has been offered seven times, evolving slightly in each rendition to continue to meet the needs of participants while retaining the basic framework. It has also been adapted for distance education and is offered

through the University of Wisconsin–Stevens Point. The purpose of the course is to provide participants with an overview of conducting evaluation for education and outreach programs and an opportunity to practice skills in designing and using evaluation tools. Emphasis is placed on formative evaluation that leads to improving program quality.

After an introduction to evaluation and the planning process, participants are introduced to several sites with nonformal programs or materials (usually a youth program, an exhibit area, an adult or family program, and a training workshop). During the course, they develop an evaluation plan and at least three data-collecting tools, administer those tools, analyze data, and present their findings to the group. The course participants share their results with the partnering organizations, which realize they are not getting a professional evaluation but are generally pleased to have any type of feedback about their programs.

This level of instruction, while extremely basic, is a necessary step to engage nonformal educators in evaluation. The four-day course introduces people to the process of thinking like a devil's advocate. An advanced course is needed to help nonformal educators develop the program theory links that will help them fill in the boxes between the arrows of the logic model.

Formal training opportunities are not the only way to build capacity. Mentoring, partnering, networking, and collaborating with colleagues are useful strategies to enable staff to see what others are doing and build a critical mass of nonformal educators learning from each other. In this sense, nonformal educators may have an advantage over formal educators. Although there is great diversity of programs across the nonformal community, the evaluation needs and questions are relatively similar. If staff can learn to look beyond the content differences to learn from evaluations at museums, libraries, parks, and airport kiosks, they will be able to increase their networking and learning opportunities. Evaluators could play a valuable role by linking interested educators.

When nonformal program leaders recognize the great need for capacity building among their staff and the equally great opportunity that exists to learn about evaluation through the process of doing one, they may wish to develop a contract for this process that includes both types of deliverables: program evaluation and training. The outcome of this effort will be not only an evaluation of the program but also program staff who are more aware of the value of evaluation, the process of evaluation, and the development of evaluation tools. Their increased capacity will help them develop new programs with an articulated program theory that will make future evaluations much easier. Consultants who can offer both services may see their workload increase as more administrators realize the importance of evaluation and the difficulty of building capacity on their own.

## Conclusion

Evaluators of nonformal education programs may be stymied by unintended outcomes, long-term impacts that defy clean measurement, and a myriad of other factors affecting the programs they evaluate. Evaluators often approach a project with a sense of what can be measured and documented and what cannot. Nonformal education staff can be taught to appreciate this distinction. Articulating program theories will help staff think more carefully about their program and the outcomes they can realistically and logically defend. For some, this is a milestone.

Tremendous potential exists to build an evaluation culture in the nonformal education community. Nonformal educators are coming to understand the advantages of integrating evaluation into all stages of program design and implementation. They know they need evaluative information to ensure continuous program improvement and optimize the use of limited funding and staff for maximum audience benefit. Nonformal education evaluators could embrace their dual roles of evaluator and capacity builder to help move the nonformal education community across the evaluation capacity continuum, working to institutionalize evaluation processes into the organizations they serve. If they do, all who participate in these important programs will be better served, and the long-term societal goals of nonformal education programs will have a better chance of saving the world, one bit at a time.

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