HOW ARE WE DOING? EVALUATION OF CAVE AND KARST PROGRAMS.

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Abstract

A routine of evaluation and assessment of program success is a critical aspect of knowing if you have achieved your objectives, where to focus further attention and resources, and of demonstrating your success to administration and granting agencies. Evaluation may be in the form of a satisfaction survey with questions ranking responses using a Likert-scale, open-ended questions, or gap analyses. Gap analysis evaluates the gap between what your constituents want your program to achieve and how they perceive your program is succeeding. Focus groups provide another format for evaluation that is flexible and interactive. A formal external review includes preparation of a critical self-study, review of documents by an external review team, an on-site visit, and a final report. An external review of the National Cave and Karst Research Institute was conducted in 2004.

Introduction

Why should we be concerned with evaluation? Evaluation is a form of assessment, and assessment allows us to know if we have achieved our goals and objectives. We can determine if we are putting enough resources into critical areas for more effective use of scarce resources. Evaluation also gives useful information for supervisors, accrediting and granting agencies, and other decision-makers who impact a program.

There are many different ways to evaluate programs; we will focus on four types of evaluations: 1. Satisfaction surveys, 2. Gap analysis (also known as importance-performance surveys), 3. Focus groups, and 4. External reviews.

Evaluation often falls under the regulations of the Department of Health and Human Services for the use of Human Subjects if your organization receives any federal, and often, state, funding. Nearly all evaluations you are likely to conduct will fall under the category of exempt research, particularly if subject anonymity is maintained, but the researcher is not allowed to determine if their own project is exempt or not. All Federal and Academic institutions have Internal Review Boards that evaluate proposals involving the use of human subjects. Be sure your evaluation, no matter how simple, has approval before you begin.

Satisfaction Surveys

Satisfaction surveys are the simplest type of evaluation. It's everywhere these days. Usually they are used to determine the effectiveness of a discrete program or event. Examples include instructor and course evaluation, service where they change your oil, or satisfaction at a conference. You have cer-

tainly seen the advertising campaign used by Geico insurance, where they proudly claim that 97% of their customers are satisfied that their claim service is fast and fair.

Most satisfaction surveys use a five-point Likert scale, where you are given a simple statement to evaluate. The most difficult choice to state is the middle one. You want it to be truly in the middle and not just a neutral or not applicable choice. An additional category can be added for not applicable.

5 = strongly agree
4 = agree
3 = undecided
2 = disagree
1 = strongly disagree
(NA = not applicable)

In the Geico example, the 97% customer satisfaction is the number of respondents in the top two categories (highly satisfied and satisfied).

A five-point scale can also be used to gather specific information, for example:

Select the number of caves you visit per year:

5 = more than 20
4 = 15 to 19
3 = 10 to 14
2 = 5 to 9
1 = 0 to 4

Or for simple choices:
1 = yes
2 = no

Gap Analysis

A gap analysis evaluates the gap or the space between where we are and where we want to be. This style of survey is often described as an importance-performance evaluation. You may be familiar with the United States Geological Survey Gap Analysis Program that is often used in State Comprehensive Wildlife Management Programs. (See http://biology.usgs.gov/cbi/ or http://www.gap.uidaho.edu/) The focus of this program is to keep common species common. The program attempts to identify common species and plant communities and to determine if they are adequately represented in existing protected areas at the local, regional, state, or national level. The Gap Analysis helps to identify priority areas for conservation.

A gap analysis is often part of a satisfaction survey. In the Geico example, one question would be: "Geico is fast to process my claim." The next question would be: "Fast processing of claims is important to me." Each question has the five-point Likert response choices. You can determine the gap between importance and satisfaction by simple subtraction. One of the most important applications of a gap analysis is to make important decisions about effective use of resources. The data can also be plotted as shown in Figure 1. The actual quadrant boundaries can be shifted as appropriate: in this example the boundaries are simply set in the middle of both scales. Note that the points fall into one of four areas. The area marked Well Done indicates projects of increasing importance that are being done well and need to be maintained. Low Priority Items are not being done well, but your constituents don't care. Items falling into the Less Attention area are being done well, but are not valued. The Needs Attention quadrant is the most important one. These items are very important to your constituency, but they are not satisfied with the job you are doing. Often resources can be shifted from Less Attention or Low Priority areas.

Survey Design

Get whatever assistance you can before you begin. (For a good review on survey design, see Schuett *et al*., 2000.) Stay focused on what you want to know. Let your overall goal or question guide you in writing the questions. You want to keep the survey brief; generally no more than 15–20 questions. Keep your questions neutral, short, and direct, with no more than one item per question. For example, Geico would have to ask a question about speed of processing claims and a different question about the fairness of claims. To ask if claims service is both fast and fair in one question will not get you the information you want. Perhaps clients are satisfied with the fairness but think the service is too slow. Having two answers for one question is not possible. Make sure your categories of responses make sense, especially the middle one. (As a bad example, a recently received survey asked for frequency of participation but choices of yes or no.)

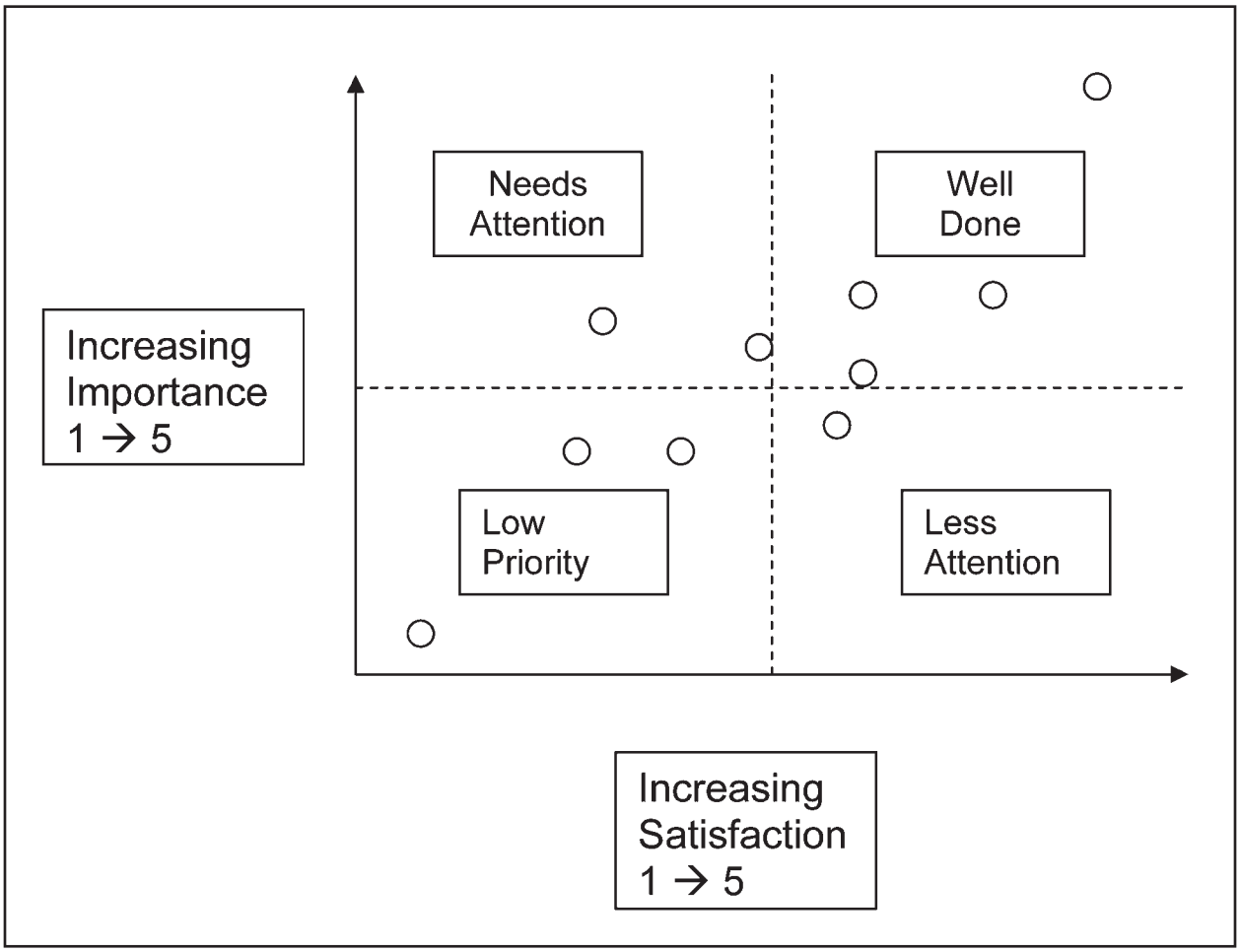

Figure 1. The gap between importance and satisfaction, and the amount of attention each item needs.

How will you conduct the survey? A paper form? Will it be passed out to participants or mailed? Will you do a Web survey, as the NSS recently did of its membership? Should you telephone? There are software programs available that make survey design very simple, but success still depends on good questions.

The actual survey should have a title. Appearance is important, so you want to leave space and not cram questions together. Include clear instructions for taking the survey and how/when/where to return the completed survey. Provide a self-addresses, stamped envelope for a written survey. You can (optional) include a brief (no more than one page) cover letter that explains why you are asking for their opinion, the purpose of the survey, and why it is important. If appropriate, ensure confidentiality by reporting only results from the survey as a whole, and not by individual responders. Be sure the survey is approved by your Human Subjects committee, if applicable.

If possible, pilot the survey using a focus group. A recently received survey asked to rank a service using a scale of 1 to 5, but they neglected to define if 1 or 5 was good. In this case, a grading scale of A–E would have been a better scale choice. Use the focus group to find out if the client understands the instructions and the purposes of the survey. How much time does it actually take to complete the survey? Are there any questions the client does not understand, or interprets in a manner that was not intended? Are there any inadvertently offensive questions or terms? Do people understand how, when, and where to return the survey? Can you actually code the data you get for entry and analysis? Will you actually use all the information (if not, eliminate the question). Should you include space for open-ended comments?

You will need to identify all costs of survey design, printing, administration, return, and analysis.

Finally, be sure that all individuals who work with the target audience for the survey are knowledgeable about your program and can appropriately answer questions that may arise during the process.

Administering the Survey

One very important factor with any survey is the response rate. While there are no set standards, you want the best possible rate of return. You can increase your response rate by on-site, in-person interviews or surveys. You can also send mail or e-mail reminders that stress how important it is for the client to participate. You can also increase your response rate by conducting the survey over the telephone, but that approach will greatly increase your cost and risks making an unwanted intrusion upon your constituents time and home. If you use e-mail you will end up with faster responses and longer open-ended responses, but you will also have a lower response rate (Seguin *et al*., 2004).

Focus Groups

While a focus group can help with piloting surveys, they can also be a useful means of conducting a survey (Krueger and Casey 2000). The biggest limitation to a focus group is a small sampler size. The greatest benefit of focus groups is that they are interactive. Some telephone surveys can be interactive if you allow for multiple tracks of questions depending on a particular response. In an interactive survey, the clients will tell you what they want, and you have the flexibility of following up on an interesting discussion thread. Focus groups require a lot of planning and a clear objective. Whom will you invite and how? Where will it be held? Who will facilitate the discussion? How will you record the discussion? How will you translate the results from the focus group into action? Focus groups may require expert help to plan and conduct.

External Review Process

External reviews are widely used to bring in outside experts who can look at your program or department and help you determine effectiveness, solve problems, suggest changes, and help set goals. A typical external review may involve four phases: the preparatory phase, the development of the self-study, the site visit, and a response and wrap-up session. External reviews are often done using a five to seven year cycle.

Goals of the External Program Review Process:

- To provide a comprehensive assessment of the current status of the
- Examine stakeholder and potential stakeholder attitudes and opinions on issues related to the unit.
- Develop recommendations to allow the unit to build on existing strengths, maximize opportunities for growth, and solve current problems.

Guiding principles for program review:

- Candid assessment of strengths and weaknesses that can lead to program improvement
- Provide a framework for excellence within the mission and goals.
- Facilitate short-term and long-term strategic planning.
- Account for use of resources and level of support among constituencies.
- The review must be broadly participatory.

Case Study

We will discuss a program review process developed for the National Cave and Karst Research Institute. The Institute is still in the very early stages of development, but it is important to establish procedures for evaluating success of programs and the Institute itself. The recommended procedures were used in a streamlined external review conducted in August 2004 by Lavoie.

The U.S. Congress established the Institute through the National Cave and Karst Research Act of 1998 (S.231), which directed the National Park Service to establish the Institute in Carlsbad, New Mexico (NCKRI 1998). The Institute's legislative purposes are:

1. to further the science of speleology;
2. to centralize and standardize speleological information;
3. to foster interdisciplinary cooperation in cave and karst research programs;
4. to promote public education;
5. to promote national and international cooperation in protecting the environment for the benefit of cave and karst landforms; and
6. to promote and develop environmentally sound and sustainable resource management practices.

At the time of the review, the National Park

Service directly managed the Institute and the designated academic partner, New Mexico Institute of Mining and Technology (New Mexico Tech), managed parallel applied and academic cave and karst programs. The City of Carlsbad constituted a third primary partner who will build the headquarters building and has secured much of the non-federal matching funds that support the National Cave and Karst Research Institute effort.

The review process had four phases:

Phase I. Preparatory. The responsible individual notifies the Institute that they are due for an external review. The self-study team is appointed, and external reviewers are selected. One external reviewer will be appointed by each of the principle partners: The National Park Service, the city administrators of Carlsbad, New Mexico, and New Mexico Tech.

Phase II. Self-study. The Self-Study Report is an interpretive document that uses data as much as possible to assess current program status and future directions. Data should be analyzed and discussed in relation to the Institute's mission and goals. Although the report is compiled and written by the self-study committee, the Director of the Institute is responsible for the content, accuracy, and completeness of the work. While there are many possible formats, the reviewer (Lavoie) recommend a "Progress, Plans, Problems" approach that reviews Progress since the last review, discusses Plans for the next three to five years, and candidly describes known Problems. It is important that the self-study be clear and objective. The tone needs to be positive (avoid whining). The report should also be realistic. Yes, we could all achieve more if we had twice as much staff and money, but you need to be optimistic yet realistic in setting your expectations.

Phase III. Site Visit and Report. The actual review includes a site visit by the external reviewers. The final review should include information and recommendations from structured and open-ended questions. Establish a firm deadline for completion of the report. In the case of the 2004 National Cave and Karst Research Institute review, Lavoie visited the Institute offices in Carlsbad, met with Carlsbad city officials, met with National Park Service personnel at Carlsbad Caverns National Park, traveled to New Mexico Tech, and interviewed several individuals by telephone.

Phase IV. Response. Once the final report is received it needs to be reviewed by all of the principle partners. Each needs the opportunity to respond to the report, and offer additional information that can be added to the report. The self-study team should meet to discuss the report. In the 2004 National Cave and Karst Research Institute review, principle contacts for each of the three primary partners (National Park Service, City of Carlsbad, and New Mexico Tech) received copies of both the Institute review and the proposed methodology for future program reviews as the Institute evolves. The National Park Service forwarded the report to the Associate Director of the Natural Resource Stewardship and Science with the recommendation that they be shared with other National Park Service science and education programs considering external reviews.

2004 National Cave and Karst Research Institute Review: Selected Findings and Recommendations

We will report on selected findings and recommendations. In summer 2004, the Institute was still in the very early stages of formation. The next review will be much more useful, and will use three reviewers rather than just one person.

Mission Statement:

The National Cave and Karst Research Institute facilitates speleological research, enhances public education, and promotes environmentally sound cave and karst management.

As you can see from the Mission Statement, the Institute has clear objectives. Yet upon further review of documents relating to the Institute and the self-study, Lavoie found three objectives in the Mission Statement, six goals, five core values, and six services that they promised to offer. There is considerable overlap, but it is important to stay focused on a manageable number of issues. If you say you will do something, then your success needs to be assessed, so keep it to a manageable number, typically no more than five to seven.

One problem that was identified going into the review was negative relations with several individuals dating from the time of the transition from an interim director to a full-time director. Many of the individuals were contacted and agreed to work with the Institute on projects of significance.

Several recommendations dealt with the re-

lationship of the Institute to the National Park Service, which has indirect oversight of its activities, and the Institute's relationships with the other principle partners, New Mexico Tech and the City of Carlsbad. These relationships were clarified over the following year through a Cooperative Agreement and several task assignments between the National Park Service and New Mexico Tech, a community workshop convened by New Mexico Tech that led to the establishment of an Interim Board of Directors, and extensive discussion between the National Park Service and the City concerning building design. New Mexico Tech can provide assistance with grant writing, fundraising, and personnel.

Construction of the new Institute facility in Carlsbad is obviously a top priority. Since the review, the project has been delayed several times, and construction is now planned to begin in early 2006 (the construction bid period is open through October 2005). At the time of the building dedication, the Institute needs to try to change the congressionally mandated limits on fundraising that they must match federal funds 1:1 from non-federal sources. Since most of the Institute's activities in research and education are in areas where the largest single funding source is the federal government, this restriction places an excessive burden on fundraising.

An area of increasing importance to consumers is Web presence. While the National Cave and Karst Research Institute has a good Web presence, the Cave and Karst program at New Mexico Tech did not. The program also did not have a formal curriculum after two years. (A Google search string (cave and karst education) follow-up run in October 2005 still does not mention the New Mexico Tech program in the first 20 hits.)

Lavoie also made a series of minor recommendations. The Institute hosts a popular speaker series at Carlsbad, and Lavoie recommended taking the speaker series on the road. The Institute would publicize available speakers to appropriate educational and professional agencies, and might even defray some of the costs. The Institute should develop a small financial assistance program to organizations and to individuals working in areas of importance to cave and karst, although there are some technical issues that limit awarding grants. Lastly, Lavoie recommended expanding developing partnerships by making it possible for individuals to formally associate with the Institute through a program of associates.

Conclusion

The types of program reviews presented here can be used to evaluate a wide range of individual activities, programs, or entire organizations. Evaluation allows you to assess the success of programs in meeting your goals. For more information on the National Cave and Karst Research Institute, go to http://www2.nature.nps.gov/nckri/

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