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Evaluation of Cave and Karst Programs

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Introduction

This project began when I was contacted by Louise Hose, director of the new National Cave and Karst Research Institute (NCKRI). NCKRI is still in the very early stages of development, but she was looking ahead to establish procedures for evaluating the success of programs and of NCKRI itself, and to conduct a streamlined version of a review.

Why should we be concerned with evaluation? 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 us important information for supervisors, and for accrediting and granting agencies.

There are many different ways to evaluate programs. I will focus on four types: (1) satisfaction surveys; (2) gap analysis, also known as importance-performance surveys; (3) focus groups; and (4) external reviews.

Evaluation falls under the regulations of the U.S. Department of Health and Human Services concerning the use of human subjects. Nearly all evaluations you are likely to conduct will fall under the category of exempt research, particularly if subject anonymity is maintained, but researchers are not allowed to determine if their own projects are exempt or not. All federal and academic institutions have internal review boards that evaluate all 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. Usually they are used to determine the effectiveness of a discrete program or event. Examples include such things as evaluations of a course and its instructor, of a service where they change your oil, or of your satisfaction at a conference. A specific contemporary example, drawn from the realm of business, is the advertising campaign used by the Geico insurance company, in which they proudly claim that 97% of their customers are satisfied that their claims service is fast and fair.

Most satisfaction surveys use a five-point Likert scale, where the respondent is given a simple statement to evaluate. The most difficult choice to state is the middle one. The researchers want it to be truly in the middle and not just a "not applicable." Sometimes an additional category is added for "not applicable," so that the scale becomes 5 = strongly agree, 4 = agree, 3 = undecided, 2 = disagree, 1 = strongly disagree, (NA = not applicable). In the Geico example, the claim of 97% customer satisfaction is probably derived from the number of respondents in the top two categories.

The five-point scale can be used to gather specific information. For example:

Select the number of nights you go camping 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 U.S. Geological Survey gap analysis program that is often used in state comprehensive wildlife management programs (see http://biology.usgs.gov/cbi/ or 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 usually added to a satisfaction survey. One of the most important aspects of a gap analysis is that it can be used to make important decisions about effective use of resources. 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 five-point Likert response choices. You can determine the gap between importance and satisfaction by simple subtraction. The data can also be plotted as shown in Figure 1. The actual quadrant boundaries can be shifted as desired. In this example the boundaries are simply set in the middle of both scales. Note that the points (circles) fall into one of four areas. The area marked Well Done indicates projects of increasing importance that are being done well. Low Priority Items are not being done well, but no one cares. Items falling into the Less Attention area are being done well, but are not particularly important. The Needs Attention quadrant is the most important one. These items are very important to your clients, but they are not satisfied with the job you are doing. Often resources can be shifted from Less Attention or Low Priority items.

Survey design

For a good review of 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 the speed with which claims are processed, 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. Make sure your categories of responses make sense, especially the middle one. As a bad example, I recently got a survey that asked me how often I did something, with the choices being "yes" or "no." The actual survey should have
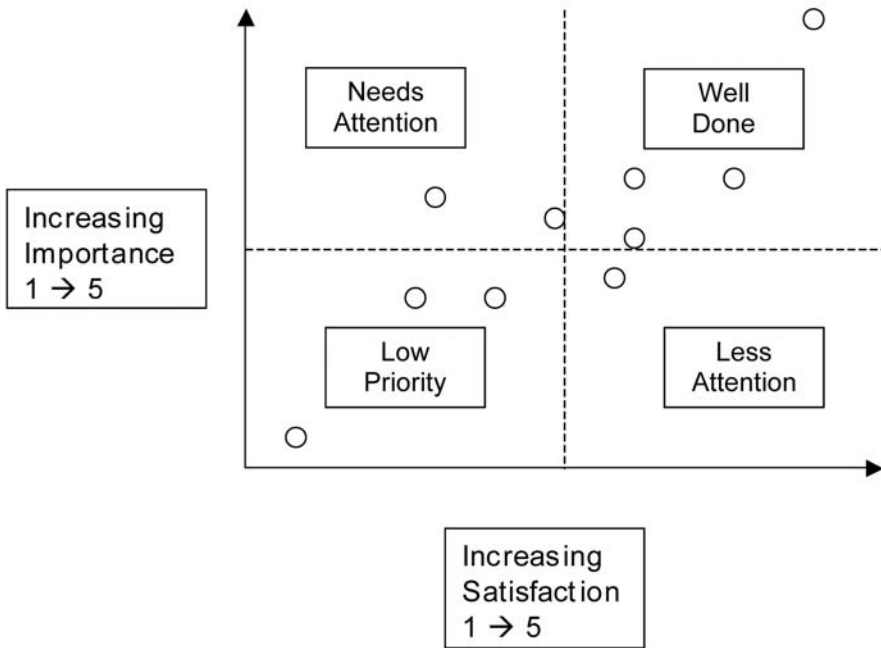
Figure 1. The gap between importance and satisfaction, and the amount of attention each item needs.

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, and where to return the completed survey. A self-addressed, stamped envelope is best for a written survey. As an option you can include a brief (no more than one page) cover letter that explains to the client why you are asking for their opinion, the purpose of the survey, and why it is important. If appropriate, ensure the client of confidentiality. Be sure the survey is approved by Department of Health and Human Services, as explained above.

If possible, pilot-test the survey using a focus group. I recently received a survey that asked me to rank a service using a scale of 1 to 5, but they neglected to tell me if 1 or 5 was good. 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? Do people understand how, when, and where to return the survey? Can you actually code the data you get for entry and analysis? Should you include space for open-ended comments?

Administering the survey

One very important issue when using surveys 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 sending mailed or e-mail reminders. You can also increase your response rate by conducting the survey over the telephone. However, an important consideration in doing any survey

is cost. 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

One use of a focus group in pilot-testing surveys was discussed above, but focus groups can also be a useful means of conducting a survey (Krueger and Casey 2000). The greatest benefit of focus groups is that they are interactive. 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 the meeting 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 in academia to bring in experts who can look at your program or department and help you determine effectiveness, suggest changes, and help set goals. The process I recommended for the National Cave and Karst Research Institute involved a review process in four phases: the preparatory phase, the development of the self-study, the site visit, and a response and wrap-up session, using a five- to seven-year cycle. The goals of the external program review process are to:

- Provide a comprehensive assessment of the current status of NCKRI using a "Progress, Plans, Problems" approach in the development of a self-study;
- Examine stakeholders' and potential stakeholders' attitudes and opinions on issues related to NCKRI;
- Identify strengths and weaknesses; and
- Develop recommendations to allow NCKRI to build on existing strengths, maximize opportunities for growth, and solve current problems.

The guiding principles for program review are:

- Make a candid assessment of strengths and weaknesses that can lead to program improvement;
- Provide a framework for excellence within NCKRI mission and goals;
- Facilitate short- and long-term strategic planning;
- Account for use of resources and level of support among constituencies; and
- Be broadly participatory.

Phase I: Preparatory. The responsible individual notifies NCKRI that he or she is due for an external review. The self-study team is appointed, and external reviewers are selected.

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 NCKRI mission and goals. Although the report is com-

piled and written by the self-study committee, the director of NCKRI is responsible for the content, accuracy, and completeness of the work. I recommend a "Progress, Plans, Problems" approach which assesses 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 and avoid whining. The report should also be realistic. Yes, we could all achieve more if we had twice as much staff and money, but we need to be realistic in our expectations.

Phase III: Site visit and report. The actual review includes a site visit by the external reviewers. In the case of the National Cave and Karst Research Institute, I visited the offices in Carlsbad, met with city officials, traveled to the New Mexico Institute of Mining and Technology (New Mexico Tech) in Socorro, and interviewed many individuals by telephone. The final report should include information and recommendations from structured and open-ended questions. A firm deadline for completion of the report should be established.

Phase IV: Response. Once the final report is received it needs to be reviewed by all of the principal partners. Each needs the opportunity to respond to the report and offer additional information. The self-study team should meet to discuss the report.

Selected findings and recommendations

Following are some of the findings and recommendations I made, but this is not a comprehensive list. In summer 2004 NCKRI 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.

NCKRI's mission statement reads: "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, NCKRI has clear objectives. Yet upon further review of documents relating to NCKRI and the self-study, I found three objectives in the mission statement, six goals, five core values, and six services that NCKRI promises 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 achieving your goals needs to be assessed, so keep them to a manageable number, typically no more than five.

Several recommendations dealt with the relationship of NCKRI to the National Park Service, which has indirect oversight of its activities, and NCKRI's relationships with the other principal partners, New Mexico Tech and the city of Carlsbad. Construction of the new institute facility in Carlsbad is obviously a top priority.

NCKRI needs to try to change the congressionally mandated limits on fundraising, which state that the institute must match federal funds 1:1 from nonfederal sources. Since most of NCKRI'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.

NCKRI also needs to make progress on strengthening ties to its academic partner, New Mexico Tech, which can provide assistance with grant writing, fundraising, and personnel. 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. All of the individuals contacted agreed to work with NCKRI on projects of significance.

An area of concern of increasing importance 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 does not. The program also did not have a formal curriculum after two years.

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

The types of program reviews presented here can be used to evaluate a wide range of activities and organizations, from individual programs on up to entire institutions. Evaluation allows you to assess the success of programs in meeting your goals.

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