Cluster Evaluation: A Method to Strengthen Evaluation in Smaller Programs with Similar Purposes

ZOE A. BARLEY and MARK JENNESS

BACKGROUND

An increased interest in funding of community-based, locally initiated and directed programs has occurred in the last decade. Large foundations have made important new funding initiatives in this direction. For example, the W.K. Kellogg Foundation has initiated community-based funding in problem-focussed health services and for local school districts in science education. The John D. and Catherine T. MacArthur Foundation's Fund for Community Development supports local community organizations in Chicago. Departments and agencies of the federal and state governments have also opened new initiatives to local entities.

PURPOSE

This paper reports on an approach to evaluation initiated by the W.K. Kellogg Foundation (1989) and called cluster evaluation, not to be confused with cluster sampling. Since its initiation, 10-15 clusters have been identified, cluster evaluators contracted, and cluster evaluations begun. These evaluations have evolved in somewhat different directions seemingly as a function of the size of the cluster, geographic location of projects, nature of the topical area or targeted populations, and degree of similarity of the project implementations. The authors are serving as cluster evaluators for two clusters in science education.

Zoe Barley • Assistant Professor, The Evaluation Center, Ellsworth Hall, Western Michigan University, Kalamazoo, MI, 49008; **Mark Jenness** • Senior Research Associate, The Evaluation Center, Ellsworth Hall, Western Michigan University, Kalamazoo, MI, 49008.

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NEED FOR CLUSTER EVALUATION

The need for a different approach to evaluating community-based projects can be explicated more fully from the perspectives of the various stakeholders. *Funders* need credible information on program impacts to be responsible administrators of the private or public funds they represent. They need to know which programs work and under what conditions or in what contexts. They also need to know whether these smaller, unique projects are contributing to solving the larger problem they address. *Staff* of community-based efforts lack the analytical skills to describe and identify program impacts and may judge a program for its popularity rather than for its assessed impact. They rarely use formative evaluation processes to distinguish effective from ineffective aspects of the program and make appropriate mid-course adjustments. As taxpayers, the *public* needs to know that fiscal resources are used wisely. As community members, the public also needs to know that community needs are actually being met, that time contributed to funded programs is well used, and whether the program should be continued after external funding ends.

These needs present a challenge to evaluators. The knowledge and skills of evaluation must be communicated to a growing number of project managers with little prior evaluation experience. Evaluations must be designed which address the information needs of managers within the local project as well as the needs of funders and the public to learn lessons across a group of similar projects. Cluster evaluation meets this need by providing a skilled, credible evaluator to work with a cluster of projects to assure that useful and defensible information is obtained.

STATEMENT OF THE PROBLEM

While funders typically require that a project proposal include an evaluation plan and reserve a portion of the award for evaluation, certain aspects of evaluation in community-based projects limit the usefulness of usual evaluation findings.

Staff Evaluation Skills

Project staff typically lack skills or training in assessing the effectiveness of their programs. Moreover, while an evaluation consultant might substitute in part for the lack of evaluation expertise, project directors are poor consumers of evaluation services.

Focus of Evaluation

Evaluation is often viewed by project personnel as a summative process intended to find fault. Perhaps as a consequence, they tend to focus evaluative writing on implementation activities rather than outcomes.

Project Reports

Resultant project reports are weak in establishing the efficacy of the project strategies, describing relevant context variables, candidly addressing issues, and presenting

compelling evidence of important outcomes. Project reports may be little more than listings of accomplishments in the form of activities completed. Immediate or sustained project impact is often not assessed.

Overall, the problem is making sense of diverse and yet limited findings within the domain of funding interest. A secondary problem is the absence of a formative evaluation process to strengthen project implementation along the way. The funder is left with inadequate information as to whether and how to further the work in the area of concern. Even if an outside evaluator is brought in to 'make sense' of a collection of project reports, the nature of the information and the distinctness of each report does not generate the sort of information funders need in order to make decisions about continued, revised, or expanded funding of similar community-based projects. Thus, this recent direction in funding presents new challenges to the field of evaluation as well as an opportunity to explore new models for evaluation.

INITIATION OF A CLUSTER

The need for a cluster evaluation begins when a funder decides to make awards to community-based projects within an area of funding interest. The cluster evaluation begins with the identification of projects to participate and the selection of a cluster evaluator. An initial networking conference is held involving the selected projects. Typically, semiannual networking conferences are held thereafter. Networking conferences, facilitated by the cluster evaluator, permit sharing of successes and mutual problem solving. The cluster evaluator, working with funders and project directors, identifies common outcomes and establishes appropriate data collection across projects. Descriptive information on implementation strategies and project contexts is also developed. Technical assistance in evaluation is provided.

There are costs associated with the cluster evaluation including the cluster evaluation contract and the conference expenses which can be high if projects are scattered across the country and beyond. There is also a 'cost' for individual projects—minimally, production of data for the cluster evaluation, but more frequently, costs of time and resources as the project's own evaluation takes form and is strengthened through the efforts of the cluster evaluator.

THE SCIENCE EDUCATION CLUSTER EVALUATION

A large, mid-western foundation determined that within its efforts to improve science education, it would include awards to community-based projects and form these awardees into a cluster for evaluation purposes. The 12 projects that make up this cluster are housed at four of Michigan's science colleges, three local school districts, two community mathematics and science centers, two state universities, a community college, a science museum, and a state education agency. Urban, suburban, and rural communities are served by the various projects. Targeted student populations are primarily upper elementary and middle school, but some early elementary and high school students are also involved in activities. Most projects serve students indirectly through teacher participation. Program participants include in-service teachers, pre-service teachers, and to a lesser degree

elementary, middle, and high school students. Programming is diverse and includes workshops for in-service teachers, summer science research projects for students and teachers, curriculum development, science and computer labs, model classrooms, science education outreach, minority and other underrepresented group activities, science equipment distribution, pre-service teacher course revisions, and cooperative projects with school and community groups and organizations.

The nature of five projects (Phase II) added in fall 1990 brought new dimensions to the cluster. The original seven projects were college- and university-based; two of the new projects are school district-based; two are operated by area mathematics and science centers; the fifth is a project within the Michigan Department of Education. Four of these new projects directly involve students, including significant numbers of minorities.

THE CLUSTER EVALUATION DESIGN

Overview

The cluster evaluation plan is based on the funder's basic programming strategies for the science education initiative. Input from project directors and evaluators, foundation staff, and cluster evaluators has resulted in a set of nineteen cluster outcomes. These represent important intended outcomes common to two or more of the projects. A first draft was prepared by the cluster evaluators based on project proposals. Further refinement and consensus on the outcomes occurred at networking meetings. Projects now use the outcomes to structure annual progress reports. Cluster evaluators collect data pertinent to these outcomes and to the implementation strategies and contextual factors influencing them. A multimethod approach is used to maximize opportunities for cross-validating findings.

Site Visits

Cluster evaluators visit project sites one to three times each year. Initial site visits include familiarizing project staff with the cluster evaluation and establishing communication and data reporting procedures between the cluster evaluators and the project. Initial and subsequent visits include: collecting information about needs and programs in science education in the project service area, identifying contextual information in the implementation of the project, identifying school administrative and community support of the project, identifying business, industry, community, and family support of project activities, and determining the extent of institutionalization of project activities.

Interviews with project staff and project participants are conducted to gain information about project activities and their effects on targeted populations. Data are collected during observation of workshops and other programs. Observing special facilities, equipment, and supplies being used in programs provides additional information.

Networking

Cluster evaluators facilitate networking among projects through: (a) semi-annual networking conferences, (b) project evaluator meetings to discuss issues and procedures

Technical Assistance

Cluster evaluators provide technical assistance in evaluation to individual projects as requested and assist with identification and training of project evaluators. Cluster evaluators have also worked with project evaluators and directors to develop common cluster survey instruments for teachers, elementary students, and high school students participating in projects. Current national information about science assessment methods and instruments, and science curriculum and instructional resources is made available to project staff.

DATA COLLECTION AND ANALYSIS

Cluster Outcomes

The intended outcomes provide a framework for studying the effects of the science education cluster projects. Data are collected by projects directly, including the use of a set of common cluster instruments, and by cluster evaluators through interviews and through independent surveys of program participants.

Working Hypotheses

As a way to accommodate the diversity of the data set and assess the impact of the cluster of projects, the evaluators developed a set of working hypotheses (Lincoln & Guba, 1985; Barley, 1991) based on commonalities and differences in project-level implementation strategies designed to address cluster outcomes. Working hypotheses are supported or not supported after review and analysis of the multiplicity of data sources available. The purposes of this mixed method analytic approach are triangulation and development (Greene, Caracelli, & Graham, 1989). Findings based on the working hypotheses provide rich information for use in other similar settings. For example, several projects created research teams of teachers and college faculty, some with students, others without. Initial findings suggest that subsequently, greater change in science teaching occurs when students are part of the team. Findings are reported along with the nature (ecological context) of the project settings for which they are valid.

Preliminary Findings in Science Education

At present, there are only preliminary results drawn from the working hypotheses. These were developed both as an exercise in explicating the methods to be used in combining data from the various sources and to provide project staff an estimate of the extent of analysis possible using current data sources. Annual reports are just beginning to accumulate, and two independent surveys of participants are complete with a third now underway. Moreover, the Phase II projects are, in some cases, still at pretest level of data collection.

At the same time, there are several important areas in improving science education in Michigan represented in the cluster the effects of which will not be seen until some years have elapsed. These include: the effect of the use of improved technology, such as computers, on student learning and interest in science careers; the effect of strategies to encourage underrepresented groups to pursue science careers; and whether strategies to institutionalize these new directions in science education are effective enough to continue programs after external funding is ended.

Limitations of the Science Cluster Evaluation

Cluster evaluations have both advantages and limitations (Sinacore & Turpin, 1991). The 12 projects in the cluster were selected by the funder based on the funding criteria, not on criteria that would create a systematic sample for evaluation research. As such, they are not representative of any population. Conclusions about the applicability of science education findings to other situations can not be assumed. In keeping with Lincoln and Guba (1985) we would suggest, however, that findings are transferrable, "the degree of transferability is a direct function of the similarity between the two contexts, what we shall call fittingness" (p. 124).

CONCLUSIONS ABOUT CLUSTER EVALUATION

Cluster evaluation is proving to be a useful tool in meeting stakeholder needs in the evaluation of community-based projects. The cluster evaluation has influenced the nature of project evaluations in several ways which assist in addressing the issues described earlier. The focus on outcomes in the cluster evaluation has shifted project foci from reporting program activity to reporting program impact. Individual projects have received technical assistance and help in developing evaluation plans. Both technical assistance and networking conferences have emphasized strengthening annual progress reports. The identification of common instruments and the independent surveying of participants by the cluster evaluators allows conclusions to be drawn across the varying contextual factors of the projects. Analysis of working hypotheses provides valuable information for generalization of findings. Finally, cluster evaluation reports draw conclusions about and make recommendations to the funder based on a coherent approach to the entire cluster.

Additional benefits have been gained from the clustering process related to evaluation. Two are worth noting. The networking conferences and the relationships formed provide a rich set of resources for programming and for problem solving among project directors. A mutual support system has evolved in which project directors problem-solve with each other. National, state, and local resource persons in identified key areas are brought to the networking meetings making their consultative expertise available to all projects. Secondly, the cluster evaluation is structured such that cluster evaluators present aggregate data and keep confidential individual project information. This has allowed project directors to speak freely with the cluster evaluators about lessons learned through failures as well as successes. The cluster evaluators can therefore provide assistance to the projects, and can alert the foundation to needs or problems of the projects without revealing the source.

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