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ABSTRACT

It is suggested that to communicate effectively, evaluators in museum settings must be collaborators with the people they intend to influence, understand the inherent conflict of interests, and design an evaluation which enhances interstaff communication. Four factors are considered essential for conducting a successful evaluation: (1) the evaluator should have a detailed knowledge of the museum setting, which will act as a key to effective communication; (2) the evaluator should have the ability to understand and handle conflict of interest resulting from individuals' vested interests in conflicting outcomes (hypothetical perspectives of a museum director, fundraiser, curator, board of directors, exhibit designer, funding agency, museum education department head, and museum evaluator are presented); (3) the evaluator should focus on relevant policy issues where he can have the greatest impact, such as the useum's capacity to make provision for learning and entertainment; and (4) the investigation should be planned to have maximum impact with limited resources. The ultimate goal of museum evaluation is stated to be museum policy improvement and representation of public interests without forcing the museum to compromise its values. (Author/AEF)

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Evaluation in the Museum Setting: Focus on Expectations

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On a rare occasion, the Director of the science museum and the Education Department Head agreed--money should be spent on evaluation. In justifying this expense to the Advisory Board, the Director pointed out that an evaluation would help decide which exhibits should be deleted assuring the board that only cost effective exhibits would be retained. In reporting this decision to the education committee, the Education Department Head remarked, "Now we can determine which exhibits we should augment so we can educate the public better."

While rejoicing that money might be spent on evaluation, the evaluator must now incorporate these and other expectations into the plan and design an appropriate investigation--without being blamed for the initial misunderstanding between the Director and the Education Department Head or for other misunderstandings likely to occur between involved individuals. The evaluator must foster communication among key individuals who often have differing expectations about the uses of evaluation.

Conducting an evaluation in a setting where evaluations are uncommon, such as a museum, has its advantages and its drawbacks (Linn, 1976). Advantages include opportunities to answer important and woefully neglected questions. Drawbacks frequently include unrealistic expectations for the evaluation from those commissioning the evaluation and unjustified suspicion of the evaluation from those being evaluated.

This paper focuses on how evaluators can anticipate differences in expectations among

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those involved in museum policy and therefore conduct an evaluation which might influence museum policy. Topics covered include:

- (a) Understanding the evaluation setting;
- (b) Examples of conflicts of interest in the museum setting;
- (c) How evaluation can influence museum policy;
- (d) Efficient use of limited evaluation resources.

Understanding the Evaluation Setting

Each evaluation setting has special problems and idiosyncratic institutional arrangements which must be understood by the evaluator. Although the evaluation issues in new settings are often the same as those in other settings, responding to these issues requires expertise in the setting being evaluated. Frequently, new evaluation settings appear more similar to previous settings than they really are. For example, museums are frequently thought of as schools although they differ from schools in important respects as described below.

I have been known to remark that all discussions of evaluation start to sound the same after 15 minutes. One reason that evaluation discussions often sound repetitive is that the same issues appear repeatedly in different guises. The details, however, do change and create different problems in each evaluation.

The power of knowing details of the evaluation setting is well illustrated in a few examples from curriculum evaluation. In an evaluation of a literacy curriculum in a developing country, we discovered, after some planning had occurred, that the villages involved in the program were inaccessible for five months of the year due to flooding. In another country, an agricultural curriculum required people with jobs to spend an additional 15 hours per week learning. We, in planning the evaluation of the curriculum, were concerned about absenteeism. When we presented the plan, however, we discovered that there would be no absenteeism-- if the village council decrees attendance, those involved attend under penalty of death. Clearly, details, like life and death, can determine the course of an evaluation.

Museums Are Not Schools

Museums differ from schools in important respects, yet some evaluations have treated museums as schools. Museums are characterized by: a) learners attending by choice and freely choosing their activities once they arrive, b) opportunities to learn and be entertained, generally in a family or peer group, c) financial support from visitors, community groups, government agencies, and other sources.

Museums serve an important and special function by providing information for those who have left school, by serving family groups, and by providing information on recent advances not included in school curricula. In fulfilling this function, museums must exploit their differences from schools. Evaluators of museums must recognize and can encourage these differences.

Unlike schools, attendance at museums is by choice. Museums, therefore, must grapple with questions such as: Who comes?, Why do visitors come?; Should visitors be recruited?; and, How should our programs respond to visitors' needs? Unlike in schools, visitors to museums may spend a very short time learning about a particular subject. In contrast, exhibits often seem to be designed as college courses rather than random exit and entry short term experiences. For example, a recent exhibit included *whole books* as part of its depiction of famous people.

Visitors to museums frequently approach exhibits as a family group varying widely in age, in contrast to schools where students are usually uniform in age. Museums can have a *special* and *unique* function of interesting the family in issues that might be discussed subsequently. The museum visit could initiate interest in current scientific and artistic questions and might lead to family discussions of these questions. Thus, museums could be influential in helping visitors develop mechanisms for updating their scientific and artistic ideas. These and other issues confront the museum evaluator.

Museums depend on public and private donations for support. They need to recruit members and attract donors, unlike schools. Some museums, such as the Lawrence Hall of

Science, raise most of their operating costs from donations. Others receive support from public or governmental agencies.

The evaluator must be the modern equivalent of the Renaissance person to be familiar with the many settings where evaluations are conducted. Yet, familiarity with the setting is essential for conducting a successful evaluation. Perhaps the best way to develop familiarity with new settings is by becoming familiar with a range of settings. The purpose of this paper is to increase familiarity within one infrequently studied setting.

Examples of Conflict of Interest

in the Museum Setting

Over 40 million museum visits occur each year (Kimche, 1978). Museums can potentially influence a wide segment of the population. This paper focuses on science museums and art museums which have been studied more than other museums (e.g. Linn, 1976; Yalow, Strossen, Jennings, & Linn, in press).

Evaluation in museum settings is often difficult because key individuals have different expectations about the purpose of the museum and because these individuals have vested interests in conflicting outcomes. A bit of this conflict was illustrated in the conversation between the Museum Director and the Education Department Head.

Most museum settings are characterized by *conflicts of interest* among those involved in policy making. Table 1 illustrates some of the possible expectations of key personnel in a museum. These expectations lead to conflicts which may be intensified if individuals feel threatened by the evaluation. To succeed, the evaluator must anticipate and consider the expectations of each participant and may often need to help participants understand each other's expectations.

Let's consider a hypothetical example of *conflict of interest*. Suppose a science museum receives a government grant to build a new exhibit. The government earmarks 3% of the budget for evaluation. Possible conflicting responses to the evaluation by each of the individuals or groups involved include:

1) *The Museum Director*. Museum directors generally think the museum is terrific and may not want to know anything else. One museum director confiscated a questionnaire designed to assess visitor expectations because of a question which asked visitors to give their first impressions of the entry to the museum. It was a typical museum entry: large lobbies on either side of at least 30 steps, and a black and white marble foyer with 20 foot ceilings. Visitors were given an adjective checklist which included words such as friendly, forbidding, impressive, inviting, and austere. The director said the question was "silly" and forbid further evaluation. He did not care if anyone considered the entry austere. In fact, he remarked that he didn't even care if anyone came. Museums, in his view, were evaluated on the fame of their collections and on the response of critics to new exhibits, not on their ability to attract or please visitors.

Museum directors often criticize the questions that evaluators choose to study. As mentioned above, many museum evaluators have considered museums as schools and have focused on what is learned from museum visits (e.g. Screven, 1975). Directors (e.g. Laetsch, 1979) point out that visitor learning in a 90 minute visit will be limited. More important questions might focus on exhibit communication (do visitors understand the message?), exhibit attractiveness (do visitors approach the exhibit?), exhibit feedback (can visitors discover their ideas about science are wrong without being embarrassed in front of their family or friends?), and exhibit focus (can families interact together at the exhibit?). Museum directors rightfully proclaim that the primary aim of a museum should be to stimulate interest in science or art rather than teaching science or art history.

2) *The Chair of the annual fund drive*. Fund raisers generally need evidence demonstrating that the museum is terrific. A fund raiser, who wanted the evaluator to show why the program was so successful, when asked whether he also wanted recommendations about how to make the program better responded "No."

3) *The Curator*. Curators, according to Laetsch, (1979) the former Director of Lawrence Hall of Science, like most professionals, want to impress other professionals. They are happy

when their exhibits receive favorable reviews by critics and are praised by other curators. Thus, they often desire paintings which are of interest because they are atypical of the artist, unusual fossils which are often hard to see, and rare animals for the zoo which most visitors don't recognize. Curators choose artifacts of interest to other curators and specialists in the field, and possibly of interest to regular visitors.

4) *The board of directors.* Members of the museum board of directors are usually pillars of the community, eager to enhance the community's prestige with a museum housed in an impressive building and containing NONCONTROVERSIAL exhibits. Exhibits on energy, for example, are expected to focus on the cost effectiveness of nuclear power, not the potential dangers.

5) *Exhibit designers.* Exhibit designers hope to impress other designers with their knowledge of the latest trends. They may build a visually pleasing exhibit that does not work. The first draft of an exhibit is like the first draft of most things--in need of revision. For example, the designer may create a beautiful display but locate the start button in the far corner and two feet off the ground.

Revision ~~is~~. At the Lawrence Hall of Science, a single revision of an astronomy exhibit (Linn, 1976) improved public understanding of the exhibit, although there were still difficulties. In contrast, a health van exhibit was revised twenty-five times and became a fantastic success.

6) *The funding agency.* Government funding agencies frequently desire that an exhibit serve a large number of visitors, e.g., George Tresselt of the National Science Foundation remarked about government funding (Tresselt, Note 1).

"In allocating our funds and assessing the impact of different projects we are repeatedly led to ask questions about the nature as well as the size of the audience. We need a description of the audience that will give both a general characterization of who goes to science museums; and an indication of the difference between the audiences of different museums. And some indication of how museum audiences differ from, or parallel, the

audiences for broadcasting, journalism, books, etc. Such a description would be very useful."

In contrast, political scientists such as Almond (1950) have noted that only a portion of the population actually pays attention to scientific issues. Almond describes what he calls the *Attentive Public*. This segment of the population reads science magazines, votes, speaks out on issues, etc. The government funding agency may expect the science museum exhibit to have an unrealistic impact if they expect to enhance literacy of those not part of the attentive public.

Funding agencies, as noted above, often desire what could be called marketing information. They want to know who comes, how many come, and how to attract more visitors. Many museum directors resist gathering this information because they feel quality of visit not quantity of visitors is important. They object if the only purpose of marketing information is to persuade more visitors to come, pointing out that a roller coaster would attract more visitors but would not complement the museum's programs.

Directors often overlook the possible advantages of marketing information for improving the quality of their museum. ~~There~~ is no need to ask visitors if they want exhibits which are inappropriate for the museum. Rather, marketing information could be used to decide between appropriate exhibits such as available traveling exhibits or could be used, to determine whether the museum should plan exhibits to complement programs of local groups (e.g. an exhibit on Nepalese fossils when local citizens return from a climbing expedition in Nepal), or to determine how to attract those willing to donate money to the museum.

7) *The Education Department Head.* Often the Education Department Head desires to know what visitors learn during their visit. Undaunted by evidence that museum visitors generally stay two hours or less, half of which time is spent eating, deciding what to look at, and where to meet, etc., Education Department Heads often expect museums to be like school. Museum exhibits sometimes also resemble school courses. Shettel (1968) reports the evaluation of an exhibit where reading the labels alone took two hours. In contrast, observations of visitors (e.g., LHS report, Note 2) indicate that they spend, on average, 40 seconds at static

exhibits, up to 4 minutes with puzzles and games, and up to 15 minutes with interactive computer exhibits. Museums differ from schools and must be evaluated differently.

Rather than teaching, museums need to stimulate the desire to know. Museum exhibits may motivate visitors to buy books about astronomy; watch TV shows on science, have family discussions about computers, etc. rather than learning new science facts. The evaluator, also often trained to focus on learning, may have difficulty selecting alternative outcomes and testing for them. This may be compounded by discussions with exhibit designers who can't understand why visitors should learn anything as long as they enjoy their visit and are impressed with the exhibits.

8 Museum Evaluators Museum evaluators also have biases and expectations about the evaluation. I think it is neither possible nor realistic for the evaluator to be an impartial integrator of the varying points of view. Evaluators frequently desire to impress other evaluators with their complicated research designs or their ability to evaluate esoteric objectives. These impulses must be curbed. The museum clients, not other evaluators, are the audience for the evaluation. Improvement of museum policy is the ultimate goal of the evaluation. A successful evaluator will facilitate communication between those concerned or influenced by museum policy, make sure that varying viewpoints are heard, and gather evidence likely to impact on museum policy.

Methods for evaluating the museum must fit the environment. Since museums differ from schools in that visitors participate in evaluation activities by choice, the only thing a 20 item paper and pencil test is likely to measure in a museum is hostility toward the experimenter. Evaluation must reflect the mode of learning. Evaluation exhibits, as appealing as other exhibits, could be developed. Unobtrusive measures such as the proverbial nose prints on the glass or wear spots on the floor (Webb, et al. 1966) could be developed. Wolf and Tymoczko (1977) offer useful advice about how observational approaches can be used to evaluate museums. Diamond (Note 3) tells how observational approaches were used in science museums.

Role of Visitors

Although visitors are the primary recipients of out-of-school programs, their opinions are rarely considered. As mentioned above, the person likely to represent the visitors' views is the evaluator. The evaluator can consider the views of school visitors and family visitors.

School visitors. Objectives of school groups may not coincide with those of the education department head. Often teachers see the visit as both learning oriented and social. They are delighted if all their students get on the bus at the appointed time, and if all the accompanying parents are impressed with the museum (Gottfried, Note 4).

Kids on field trips differ from kids in school as you are no doubt aware. They are noisy, sociable, excited, curious and active. Gottfried, a Berkeley graduate student, did a thesis at a science museum on field trip behavior and benefits from field trips (Gottfried, Note 4). He noted that students were expected to be active and touch things. He observed that students approached exhibits on a physical level, rarely reading instructions or observing graphics. Peer instruction often characterized the interaction on the field trip. A delightful side effect of the museum visit was that students who were not successful in school were often successful peer tutors in the museum.

Both students and teachers expect the museum to be different from school and expect social interaction among field trip members to play a major role in their experience. Important side effects can emerge. Visitors' expectations need to be considered in evaluation of the museum experience.

Family Group Visitors. Because they are unorganized and have few avenues of communication to the museum decision makers, family group visitors lack power and are often neglected in museum decision making (and in educational research for that matter). Recall the museum director who didn't care if anyone came. About the only power a visitor does have is the choice of *not* coming but such a choice may have little impact.

Although the quantity of visitors may be irrelevant to museum directors, most directors desire to serve those interested in their exhibits. Many museum practices, however, deny access

to important segments of the population, even though they are often supported by federal funds. Art museums, for example, attract only 14% of the museum goers, at least in part because they cannot accommodate young children. Programs where children visit and then make their own art are a welcome solution to this problem and are employed by the Tate Gallery, London, and the de Young Museum, San Francisco, as well as other museums.

Visitors, as Sherman Rosenfeld (1979), a Berkeley graduate student, has ascertained, have a wide range of important needs. Rosenfeld studied zoo visits, of which there are about 120 million per year. He set up a mini zoo at the Lawrence Hall of Science and also studied visitors to the San Francisco Zoo. He found that family groups came to the zoo a) to watch people, b) to walk in a safe place, c) to "have fun," d) to eat food not eaten at home, and e) to strengthen family ties. Over two-thirds of the reasons given for visiting the zoo were unrelated to the educational goals of the zoo.

The evaluator has an obligation, I think, to represent the public visitor (of which family groups are the major segment), especially when evaluating a federally funded exhibit (see House, 1976, on evaluation as justice). Museums may take their visitor response model from the model used by schools. Schools rarely alter programs when students make requests. However, most museums, unlike schools, depend in part on federal funds, fees paid by visitors, and voluntary attendance. Also, visitors generally are part of the attentive public in the Almond model and, therefore, are likely to have policy making impact on museums.

Museums and Marketing

How can evaluators gather information which will increase museum responsiveness to visitors without suggesting that museums compromise their values and install roller coasters?

Science museums and zoos have not traditionally emphasized the needs or desires of the visitor. Theme parks such as Disneyland, however, have paid serious attention to visitor viewpoints. Museum evaluators may benefit from the experiences of those evaluating theme parks. Surveys administered in places like Disneyland offer visitors choices about what they

would like (e.g., should there be more trees, more birds, etc.) and often assess lasting impressions (e.g., did the balloon-seller at the exit leave the impression that the park was after your last dollar?) When asked to choose among alternatives, visitors often respond informally. If asked an open-ended question about what new exhibits they want, visitors rarely have good ideas (museum staff are paid to generate good ideas), and may suggest things the museum cannot offer.

Although theme park evaluations may offer ideas to museum evaluators, museums also differ from theme parks in important respects. Theme parks aim for family entertainment; museums usually aim for both entertainment and enhancement of scientific or artistic awareness. Museums only need a few "attractions" (mummies are terrific) and can then provide lots of less universally appealing exhibits which visitors might view along with the mummies.

Can Evaluation Influence Museum Policy?

Museum evaluators who focus on museum policy have the greatest impact (e.g., Cronbach & associates, 1980). Changing a single exhibit but not changing the policy which created the problem has limited impact. The evaluator must be able to recognize and articulate the consequences of current policies. Further, evaluators need to gather evidence museum policy makers can accept in order to influence policy changes. As House (1976) has noted, policy change does not occur simply because the new evidence supports a different viewpoint. Change, especially in settings where evaluation is uncommon, occurs through a complex political process (Cronbach & associates, 1981).

It is a mistake to presume that the evaluation has its greatest impact after lots of information has been collected and synthesized. Frequently a few cogent questions asked during the design of a new exhibit have a greater impact on the final outcome than results from a well-designed survey. The questions may be less threatening and more convincing than a barrage of survey evidence. For example, when one evaluator raised the issue of family group response to an exhibit, one designer added features that allowed two people to interact with the exhibit at once. An evaluator who asked why people would want to know the information to be included

in an exhibit on optics spurred designers to focus on less esoteric and more applicable information

It's easier to criticize programs than to create them; evaluators can quickly lose their credibility by focusing their evaluation on criticism. Museums receive plenty of criticism from visitors, and staff members; they do not receive enough praise. Museums, however imperfect, serve an important societal function. Many provide a repository for important artifacts. Science museum exhibits are generally intended to ameliorate a real social problem: lack of scientific knowledge. That they could be more effective is hardly news. Evaluations which focus on the mechanical failures of the exhibit, lack of adequate or correct labeling for artifacts or the unrepresentative nature of the issues addressed by the designers are reporting valid but possibly inappropriate information. They may find that information relevant to the policy issues of the museum goes unnoticed.

In order to maintain communication with the museum staff, the evaluator should provide praise and criticism relevant to the museum issues. Criticism, when offered, should be helpful. Evaluators who develop and test three types of maps for visitors and discover which one works best, or who encourage the exhibit director to place exhibits in the cafeteria where visitors spend 25% of their time are offering useful information. Evaluators who gather information to alter museum policy on family group interaction may have lasting impact

Illustrative Museum Policy Issues

In museums, the policy on entertainment and learning is an important focus for evaluation. At the Lawrence Hall of Science (LHS), we have conducted studies of learning in informal environments to help museum policy makers design educational programs which are informative and of interest to visitors. Our research on free choice environments (e.g., Linn, 1980) has been used in the design of exhibits, planning of school visits and construction of classes. Evaluation at LHS has shown that people in informal environments only read text if all else fails (Linn, 1976). These results suggest that exhibits should help visitors understand how to participate without reading any instructions. Buttons to push should be located, designed and

shaped to indicate their function

Another policy issue in museum evaluation is sex equity. Observational studies of families done by Judy Diamond (Note 3) at the Exploratorium and the Lawrence Hall of Science reveal that fathers participate more than mothers in museums. Studies of free choice environments (Linn & Rice, 1979) reveal that females more than males choose activities which do not involve apparatus, which allow them to mix chemicals following a recipe, and which have clear instructions. Evaluators could enhance access of women and girls to scientific information by designing exhibits which females find inviting

Limited Resources. How to Use Them Effectively

Museum evaluators like all others must plan their investigation to make limited resources have maximum impact. Evaluators need to gather information that can be used for effective communication (Linn, 1976). For example, evaluators have found that visitors who stay longer at an exhibit read more of the labels and can recall more information than those who leave. Very few are surprised

Evaluators must choose to gather information which will be believed by those the evaluator hopes to influence. For example, it is unlikely that an exhibit would raise intelligence by 10% but even if results of an evaluation indicated that intelligence has been raised 10% by an exhibit most people would assume the results were caused by some artifact so the cost of gathering the information would be wasted

An example of how expectations influence the value of evaluation information comes from Shettle (Note 5). Shettle conducted an exhibit evaluation by making a small scale model of a large exhibit and asking subjects to indicate what was perplexing in the model. Subjects responded that one of the sculptures in the exhibit appeared irrelevant and perplexing. Exhibit designers rejected this information, claiming that the small scale model did not represent the exhibit and that the problem would be resolved when the full scale exhibit was established. As it turned out, the evaluator was right about the sculpture--visitors found it just as irrelevant and perplexing in the full scale exhibit as it was in the model. Unfortunately, the evaluator was

wrong about the evaluation design because the information gathered had no impact

Shettel (Note 5) failed to communicate with his audience but perhaps he paved the way for future evaluations. Bell, et al. (1978) recently successfully used models to evaluate museum exhibits at the same institution. In addition, Rosenfeld (1979) constructed a mini-zoo at LHS which turned out to be a valid predictor of behavior at larger zoos

Summary

To influence museum policy, evaluators must be collaborators with the people they hope to influence. Evaluators need to understand the *conflict of interest* inherent in a museum and design an evaluation which enhances understanding among the staff. Evaluators who focus on policy are likely to have the greatest impact; policy changes, once instituted, tend to prevail. Evaluators realize that no single study can provide a definitive answer for social policy. The right evidence, however, can initiate discussion about changes in social policy which ultimately lead to new policy.

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Figure 1

MUSEUM DIRECTOR

Thinks the museum is terrific &
may not want to know anything else

CHAIR OF ANNUAL FUND DRIVE

Needs evidence demonstrating
museum is terrific

CURATOR

Want to impress other professionals

BOARD OF DIRECTORS

Are pillars of community.
Want museum of noncontroversial exhibits

EXHIBIT DESIGNERS

Hope to impress other designers
with their knowledge of the latest trends

FUNDING AGENCY

Frequently desire that exhibit
serve a large number of visitors

EDUCATION DEPARTMENT HEAD

Wants to know what visitors learn

MUSEUM EVALUATORS

Have biases and expectations of own

CONFLICTS OF
INTEREST