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ABSTRACT

Using architectural design as a model, the article discusses the process of evaluation design. Like the architect, the evaluator faces a problem of finding forms that best fit a partially defined set of contextual demands. The context is the set of all factors which made demands upon the final design form. Like the architect, the evaluator's design comes out of an analysis of the context. The evaluator's working plan corresponds to the architect's sketches. The form and the product of evaluation design are not really physical. The ultimate work is to communicate, inform, educate, inspire or to produce a beneficial impact upon the appropriate people. By constantly monitoring what is happening during the evaluation, the evaluator can continually update the working plan and flexibly adjust the design to respond to what is needed. Out of the general nature of the design process, the following guidelines are extracted: (1) begin by not knowing what to do; (2) begin with what is happening; (3) work from the general to the specific; (4) use both analytic and integrative modes of thinking; (5) formulate general questions to guide the evaluation; (6) use evaluation methods flexibly; and (7) monitor, recycle, and rethink. (JAZ)

A more extensive and complex piece of art (e.g., a symphony) cannot be created by starting at the beginning and going on in a linear way to the end. On the contrary, it is necessary to continuously keep the totality in mind, and go from the whole to the parts and from the parts back to the whole.

Norberg Shulz (Intensions in Architecture)

THE DESIGN PROBLEM

When you set out to evaluate an educational program, how do you know what to do? How do you decide what kinds of activities your study will include? What approaches or methods do you consider using?

One way of deciding what to do is to identify yourself with a method or an approach ("I am an expert in experimental designs") or ("I do case study research"). This approach certainly resolves many methodological questions and works fine, as long as you are careful to study only questions that are amenable to the methods you specialize in. However, the lessons of recent evaluation history appear to point out that one-dimensional evaluations, even when they are done well, are often of very limited value. Most programs are multi-dimensional and require a correspondingly multifaceted understanding.

A second way of deciding what to do when you find yourself in the position of the evaluator is to settle on an overall purpose, or a set of goals, for the evaluation. This purpose can then guide the choice of activities and methods. For instance, an evaluator can adopt the purpose of measuring the extent to which the program's objectives have been achieved. While this purpose is, in fact, commonly chosen, it is clearly not unique. A slightly different goal (often adopted by state evaluation agencies) is to evaluate the extent to which the originally legislated intent of a program has been realized.

There are other evaluation goals worth considering, as well. You might, as in an accreditation study, wish to certify a program's quality by comparing it to some external standards. You might wish to see to what extent a program is fulfilling students' actual needs, or you might decide that it is most important to discover ways to improve the program. It is clear that there are many possible goals for an evaluation--many of them quite worthwhile, and each one requiring a different set of methods and activities. Where do we find guidelines for choosing among them?

A third way of deciding what to do is to consider the audience of the evaluation. By considering the needs of decision makers, program developers, staff, students, interested researchers, and other affected special interest groups, the evaluator may choose method(s) which enhance the impact of the evaluation.

Another source of guidance for the evaluator is the Program itself, since its nature is clearly going to have an effect on the kinds of methods the evaluator chooses. For example, an in-depth case study may be appropriate for the evaluation of a controversial graduate theological program, but not as useful in the study of the utility of a high school typing course.

How does one then decide what to do? All of the above factors--the skills of the evaluator, the purpose of the evaluation, the nature of the program, and the needs of the audiences--influence the approach and methods the evaluator may select.

The evaluator typically faces a situation in which many factors influence and make demands upon the evaluation design. That is, neither the evaluation task nor the program being evaluated are well defined. This is exactly the kind of problem that designers face as they try to create functional forms that satisfy many different criteria. It is the general nature of the design problem that makes the architect a useful metaphor for the evaluator.

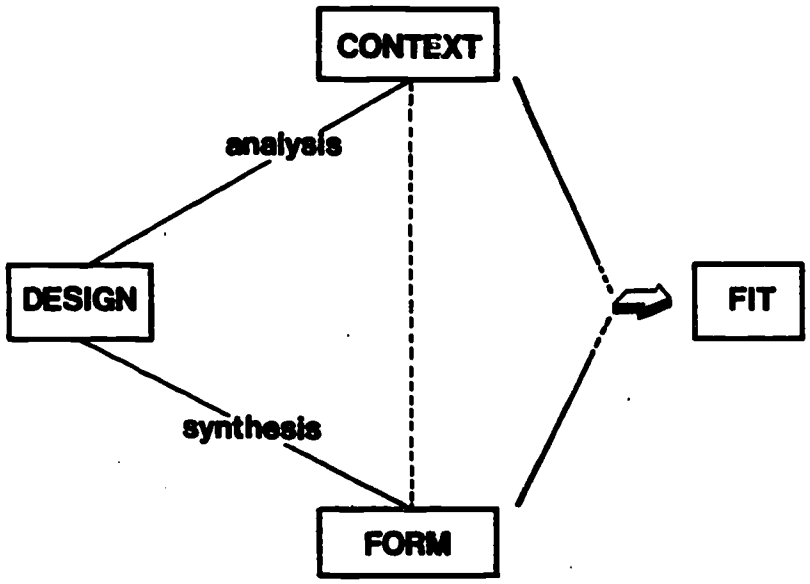
In the following section, the process that an architect goes through in defining and solving a design problem is described in terms of a general model, which is shown to be analogous to the evaluation process.

THE ARCHITECT

The architect is concerned with the process of design--the process of inventing physical things that display order and organization in forms that respond to functional needs. Successful design requires that the architect operate both in a linear, analytical fashion and in a more intuitive, holistic mode. The architect must possess a wide range of technical skills and use the methods of many varied disciplines.

In moving from the initial presentation of the problem to the development of the final design form, the architect goes through a process which can be reconstructed in a general way, as shown in Figure 1.

Figure 1



Context

The context is the name given to the multidimensional problem space that the architect faces. The context is the set of all factors which make demands upon the final design form. The context includes physical, legal, psychological, and philosophical factors. All together these factors define the boundaries of possible solutions. For example, the context for the architect includes such factors as the client's desires, the functions the final form must serve, the resources available (including funds, material, personnel, time . . .), the nature of the site (including soil type, slope, exposure, access . . .), and any social or legal constraints (such as building codes, zoning laws, neighborhood tradition . . .). All of these factors are elements of the architect's problem context. While they influence the direction and shape of the architect's solution, they do not uniquely define it.

Design

In the first phase of the design process, the architect carries out an analysis of the context. Information is gathered and separated into components along different dimensions. For example, the architect may examine the "site dimensions"

collecting information about the soil, the topography, the vegetation, the orientation to the sun and the wind, the variation with season, and so forth. Studying the context in an open-ended way, the architect discovers which dimensions are important, probes into the component factors of that dimension, and even begins to learn about how different components interact. (For example, in deciding where to place a house on the crest of an exposed hill, the architect may learn about the trade-offs between energy efficiency and the quality of the view.)

In the second phase of the design, the architect begins to formulate outlines and pieces of the design. Priorities emerge and vague goals are stated (such as "the design should create an ambiance of excellence and tradition"). The philosophy, the style, and the basic elements of the design begin to take shape in the architect's mind.

The Form

The form is the realization of the design process; it is a solution which it is hoped fulfills those dimensions of the need most demanding of attention. The form is arrived at through a process of synthesis in which the ideas that arose in the design process through analysis are combined to form a coherent whole. Since the demands or factors influencing the form interact with each other, and since the final form must simultaneously satisfy as many of these demands as possible, a kind of gestalt or integrated vision of the final design is required. In achieving this integration, the architect may begin by sketching important conceptual relationships, by then moving to two-dimensional diagrams, and finally by producing three-dimensional models.

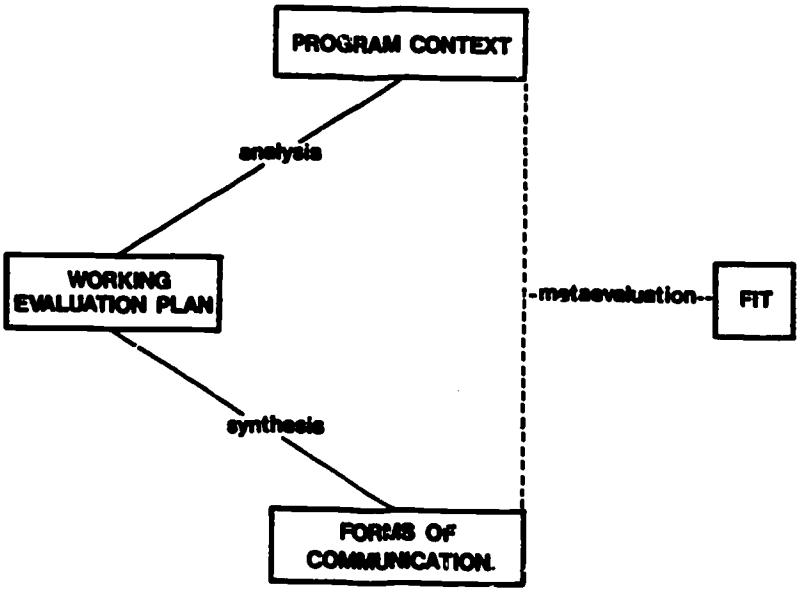
The Fit

The fit is the degree of congruence between the form and the context. It is a measure of acceptability. Out of the evaluation of the fit, judgments are made about how well the design has met the many demands of the context. Standards of consistency, integrity, and aesthetics are applied. Poor designs lead to such judgments as "arbitrary, obsolete, incongruous, or dysfunctional." Successful designs are judged to be "efficient, compatible, energy-saving, and practical." Such judgments are based on the contextual factors deemed most important in a given case.

THE EVALUATOR

Very much like the architect, the evaluator faces a problem of finding forms that best fit a partially defined set of contextual demands. The process the evaluator goes through can be viewed as very similar to that of the architect, as illustrated by Figure 2.

Figure 2



Program Context

The context for the evaluator consists of a great variety of factors, including, for example, the following concerns:

The needs of:

- the client or sponsoring agency
- the students or other affected audience
- the teachers or program staff
- other indirectly affected audiences

The nature of:

- the program's goals or intent
- the program's activities
- the educational or institutional setting
- the political setting

The constraints of:

- time (the program's and the evaluator's)
- resources (including money and personnel)
- access
- social or legal requirements
- the evaluator's own evaluation skills
- the evaluation mandate

All of these factors push and pull the evaluator in the attempt to create a balanced and effective evaluation design.

Working Evaluation Plan

As the design is to the architect, so is the working evaluation plan to the evaluator. Like the architect, the evaluator's design comes out of an analysis of the context--that is, out of an insightful understanding of the total evaluation setting. The evaluator's working plan corresponds to the architect's sketches, and yet the working plan is a more dynamic entity. As the evaluation proceeds through the design phase and into its implementation, more is learned about the context. Important factors that were unknown will emerge, and what was thought to be important may turn out not to be. Accordingly, the working plan is never fixed, but rather is continuously evolving and changing.

Forms of Communication

The form, the product of the evaluator's design, is not really physical. Even the "final report" is more a means to an end than an end in itself. What the evaluator ultimately wishes to do is to communicate--to inform, educate, inspire, arouse, or otherwise produce a beneficial impact upon the appropriate people. Thus, it is effective interaction that is the product, the final form, of a successful evaluation design.

Fit

The fit is the degree to which the evaluator is able to understand and meet the demands of the situation. By constantly monitoring what is happening during the evaluation (a kind of dynamic self meta-evaluation), the evaluator can continually update the working plan and flexibly adjust the design to respond to what is needed.

SUMMARY
A Few General Principles

When evaluation is treated as a design problem, the vision of the evaluator's task is expanded, and the evaluator needs to become more creative, flexible, and artistic. There is less certainty, and rather than have a set of algorithms to follow, the best the evaluator can hope for are some general guidelines to go by. As discussed earlier, out of the general nature of the design process we can, with a little help from actual experience, extract the following general principles of "ideal" evaluation design:

1. Begin by <u>not</u> knowing what to do.

   This takes an act of courage on the evaluator's part. Many times there are strong pressures (both internal and external) to restrict the evaluation to a predetermined task or method. Often the evaluator will need to educate and convince clients that, to meet their ultimate needs, the evaluation will have to be different from what they initially envisioned. Even if, ultimately, the evaluator does exactly follow a prescribed course, an open-minded look at the beginning can only increase the overall quality of the work that follows.

2. Begin with what <u>is</u> happening.

   This is really a corollary to the first principle. Often the evaluator enters the scene blinded by someone else's concerns, the description of the program and its goals, or self-imposed ideas about what is and is not happening. All of these are legitimate concerns and questions--they should ultimately be addressed--but they are not necessarily good starting points. By beginning with what is happening, by studying the program as it is, the evaluator becomes grounded in a personal knowledge of the reality of the program. Then, through observation, discussion, document analysis, and serendipity, the evaluator can discover what in the setting (context) is and is not important.

3. Work from the general to the specific.

   Issues, questions, and important dimensions (as well as ways to proceed) may at first be only vaguely sensed. As in the design of a building, the final design will be more complete and successful if the evaluator's vision is allowed to mature slowly and change along the way.

4. Use both analytic and integrative modes of thinking.

Analysis is needed to discover and separate out the important dimensions of the scene, while an integrated vision is required to create an encompassing vision of the evaluation in its entirety. And these two modes of thought interact. When analysis yields a new factor to consider, the overall vision of the evaluation may change. When the overall vision changes, new directions for analysis may be indicated.

5. Formulate general questions to guide the evaluation.

Out of the analysis of the context, the evaluator begins to sense what is and what is not worth addressing. This sense can be made more specific by formulating a few general questions to guide the activities and methods of the evaluation. Questions such as "How can we understand what is happening in the program?" or "What are the barriers to this program's effectiveness?" are at about the right level of detail. (This notion of using general questions to help direct the evaluator is explored in detail in Guide No. 14.)

6. Use evaluation methods flexibly.

The architect must draw upon and skillfully use methods from a wide range of disciplines (art, mechanical drawing, engineering, sociology . . .). All of the techniques of these disciplines are needed and used by the architect. Guided by what needs to be done, a skillful architect even takes delight in the creative use of many different skills and methods. The evaluator would do well to emulate the architect in terms of the flexible use of methods.

7. Monitor, recycle, and rethink.

For some reason, evaluation plans seem to be cast in bronze early on. Even if the charted course makes no sense to anyone, the evaluation often proceeds as scheduled. However, if the evaluator begins with the idea of working with a sketch--a plan that is by design going to evolve and change--then the final evaluation is more likely to fit with what is needed.

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