

Formative Evaluation Strategies for Major Instructional Development Projects

Dennis D. Gooler
Director, Division of Educational
Development and Administrative
Studies
School of Education
Syracuse University
Syracuse, NY 13210

ABSTRACT: The paper contains three major sections. First, an attempt will be made to identify some general maxims that seem to shape major instructional development efforts and thus affect efforts to do formative evaluation within those projects. In the second section, I will seek to describe four major issues that must be addressed in any attempt to plan for and implement formative evaluation as part of a large development effort. The third section focuses on some simple but practical procedures that might enhance the probability of formative evaluation being effectively used as a part of a major instructional development effort. These procedures, taken together, constitute a strategy.

Introduction

The assimilation of new words into the vocabulary of a professional society makes for fascinating study. Take, for example, the term *formative evaluation*. One wonders if Michael Scriven had any idea that the term he described in his paper *The Methodology of Evaluation* would come to be a common word in the households of evaluators, developers, and technologists. Perhaps that's just what he had in mind, but regardless of his intentions, formative evaluation is now a popular concept, providing the stimulus for a host of activities.

There are no prescriptions nor magic ways for doing good formative evaluation. Indeed, there will be a continuing debate about the value of formative

evaluation in *any* setting. The debate is in some respects curious; evaluation, the theory at least, makes sense. We want to gather information that will help us do the best development job we can. Formative evaluation is not meant to be generalizable in nature but rather to be of direct and immediate assistance to those who have to make crucial decisions in a given situation. Formative evaluation is not evaluation intended to determine for all time the worth or value of the project being developed. Nor is it meant to make a major instructional development effort even more complex than it already is.

The working meaning of the term *formative evaluation*, however, may differ from setting to setting, from user to user. Similarly, the strategies and techniques used under the rubric *formative evaluation* may vary widely, due in some measure to differences among settings and to differences in the development process being used. The intent of this paper is to examine issues related to formative evaluation strategies as they occur in large instructional development projects, projects characterized by considerable complexity in purpose, participants, and possible impact.

There are two assumptions explicit in the title of this paper. The first assumption holds that formative evaluation is a part of a major instructional development effort, that it is normative and should be part of "competent" ID. While it is difficult to verify the assumption with any precision, there is at least a great deal of credence to it if one judges by the amount of attention given to formative evaluation in the theoretical literature on development. The results of formative efforts are seldom recorded for use beyond the project being evaluated, however. In a classification study recently completed by the author, only 21 of 225 evaluation studies of instructional technology, included in the ERIC system from 1970 to 1978, specifically cited (as the primary purpose of the

evaluation) collecting data for the purpose of making revisions in courses or materials.

The second assumption, somewhat more implicit, is that major instructional development efforts may uniquely influence and be influenced by formative evaluation efforts, and because of this reciprocal influence, the strategies employed in these development efforts need to be examined carefully. In some respects, this paper represents an effort to verify this assumption. It is the contention of the author that major development efforts do in fact demand formative strategies that are different in some important ways from formative evaluation strategies used in smaller development efforts.

It is important for purposes of this paper to distinguish between formative evaluation *strategies* and *techniques*. By *techniques*, I refer to those methods or procedures used to gather, analyze, and report evaluation data to whomever needs or wishes those data. To talk about formative evaluation techniques is to discuss the use of rating scales, script review procedures, interview protocols, regression models, or a host of other data-gathering and -analysis techniques. By *strategies*, I refer to more generic notions of how to conceptualize the evaluation issues at hand to establish the policies according to which the formative evaluation efforts will be planned, implemented, and assessed. To talk about strategies is to discuss the general milieu in which the program being evaluated operates, the broad purposes and desired impacts of the evaluation, and the general principles that will

Author's note: This article was initially delivered as part of a symposium entitled "Formative Evaluation Issues and Applications" at the annual meeting of the Association for Educational Communications and Technology, New Orleans, March 1979.

govern the conduct and use of the evaluation. This paper is directed at strategy issues related to the use of formative evaluation in major instructional development projects.

The term *major development projects* also requires some definition. A major development effort is one which generally involves numerous participants in the development process. It involves programs that impact on a large number of people and that may encompass a

there will be on what the project actually is.

Instructional developers often face the curious dilemma of knowing generally what they are trying to do, without being able to define exactly the parameters of their development project. The goals of large development projects may be numerous or complex; many people will be involved; and pressure is likely to be exerted from various interest

Maxim 3: The bigger the instructional development project, the more diffuse or unpredictable may be the impact of formative evaluation data.

Because of the complexity of large instructional development projects, it is difficult to obtain a critical mass of formative evaluation data that will impact in any controlled sense on the project. So many people want so many different kinds of data that the formative evaluation effort has a tendency to become fragmented. What makes the impact of such data unpredictable is that someone involved in the project may respond to a particular bit of formative data and use that data to champion a certain cause or position. If the person is in a key role in the project, that kind of impact could be great. Just as easily, however, it is possible that no one will use the data, thus rendering much of the evaluation effort futile. In smaller development projects, the evaluation effort is usually more clearly defined, with the impacts of formative data more predictable.

Maxim 4: Timing is just about everything.

As with most situations where decisions are being made, timing in an instructional development project is critical. Unless formative evaluation data are collected and reported when they are needed, the evaluation effort is for naught. Evaluation has a reputation in some circles for delivering too little too late. The problem for formative evaluators in large development projects is that it is extremely difficult to ascertain who will need what data when, and thus the difficulty in getting the timing right.

Within the context suggested by these maxims, it is possible to identify more specific issues germane to establishing formative evaluation strategies for large-scale instructional development projects. These issues are identified, in the next section of this paper.

Issues in Formative Evaluation

What is a Development Project?

As suggested above, the larger the instructional development project, the less certain we can be of exactly what that development project comprises. It is essential to the effective use of formative

“What makes the impact of such data unpredictable is that someone involved in the project may respond to a particular bit of formative data and use that data to champion a certain cause or position.”

range of goals. As the term *major* is used in this paper, for example, the development of a single course would not be considered a major development project, but the design of a new undergraduate curriculum, together with the development of a number of new courses as part of that curriculum, would be considered a major instructional development project. Planning for and implementing an educational radio and television system in a developing nation is a major instructional development effort by my definition; a single programed instruction book is not. The familiar adage may apply here: It is tough to define, but you'll know a major development effort when you see it.

groups interested in having the ends of the project fit their needs. With such complexity, alternatives for what the project *could* be arise. Furthermore, the complexion of the project may well change several times during the course of its development. The developer and the evaluator, to say nothing of other participants, may find themselves uncertain about what they are trying to accomplish.

Maxim 2: The more people involved in some way in the instructional development project, the greater will be the pressure for things to remain as they are.

Most large development efforts are based on at least two assumptions: (a) instructional development assumes change; and (b) instructional development assumes compromise among competing means and ends. Each of us as professionals has an idea about the way things are supposed to be or to work in our field or discipline. Most of us also recognize the need to give and take on our ideas, but only to a certain point. As a development project involves more and more people, there are correspondingly more conceptions of what ought to be. Even given a willingness on the part of everyone to compromise, there may be a limit to how many perspectives can be honored within any project or program. When too many perspectives are involved, the tendency may be for things to remain as they are, thus negating to some extent the first assumption.

Maxims

The maxims described below comprise some general considerations that must be taken into account when contemplating the use of formative evaluation as part of large-scale development projects. These maxims are admittedly very global observations that probably do not apply in every case. Nonetheless, it seems useful to keep them central as one tries to formulate a plan for formative evaluation, for if they are even partially correct, these observations may heavily influence the appropriateness of various formative evaluation strategies.

Maxim 1: The bigger the instructional development project, the less agreement

evaluation that some clarity about the nature of the project being evaluated be attained. While the initial description of the development project may be somewhat vague, and while the project may change form as it develops, it is incumbent upon the formative evaluation specialist to obtain some preliminary ideas about: the proposed end products of the development project; the timelines that have been tentatively set, particularly as they relate to needs for evaluation data; the participants who will be involved in the development project and their particular roles in the project; and the instructional development process that will be used in the project.

Some development projects proceed according to a specified instructional development model. When this is the case, the formative evaluator must determine the expectations held for formative evaluation as part of that process. Such expectations about the role of evaluation may not be entirely clear in the minds of the developers. Furthermore, the formative evaluator may play a significant role in helping the developers to conceptualize the nature of the development process itself by asking a series of key questions which are ostensibly asked for purposes of guiding the evaluation activity but which may also assist in conceptualizing the overall development process.

Evaluation needs to occur early in the development process. In many respects, this is one of the defining characteristics of formative evaluation. There is some evidence, however, that many major development projects regard evaluation as an activity which occurs late in the project, and is essentially done for external audiences. To the extent that evaluation can be viewed as one mechanism for helping shape the parameters of the development project, that evaluation activity may have served a very useful purpose.

Who is the Audience for Formative Evaluation Data?

A critical issue confronted by most formative evaluators working in large development projects is: For whom are formative evaluation data intended? The question appears to be a simple one, yet the answer is often complex. There are many people involved in these development efforts who want or feel they have a right to some kind of evaluation data. The reverse sometimes hap-

pens as well: Those who *should* be using evaluation data don't want to see any. In almost all cases, the evaluator's resources are limited. The same formative evaluation data are not likely to be germane or relevant to everyone who might want some kind of evaluation data. The evaluator is often in the position of having to choose a primary recipient for his or her efforts.

Consider, for example, the case of a major instructional development project to redesign the entire undergraduate curriculum in arts and sciences. Who is the appropriate audience for evaluation data in this case? Is it the individual professor working to design a course in English literature? Is it the Dean of the college? Is it the arts and sciences curriculum committee? What about students? In a development project as large as this, there are many people who play key roles in determining the overall success of the development effort. The evaluator must clarify as early as possible primary constituents for data, or it is likely that no one will feel a sense of ownership of the data collected.

Ownership of data can be thought of in another way. Some kinds of formative evaluation data might be suitable for use by some audiences but may be detrimental if acquired by other audiences. Suppose those other audiences demand to see and/or use certain evaluation data? What policies will govern the use of data?

Knowing the primary constituents for evaluation data also assists the formative evaluator in determining which questions he will seek to address. The information needs of primary audiences may well be the primary consideration for determining what issues will be addressed by the formative evaluation.

What Questions Should be Addressed?

There is a wide range of questions might be addressed in any formative evaluation effort, but particularly within a large instructional development project. Because resources are finite, the evaluator in some manner must determine which of many questions he or she will try to address. The determination of which questions to address can be made in a number of ways.

For example, the evaluator could identify the primary audience for evaluation data and seek a specification of the questions that audience feels should be addressed. A difficulty in proceeding in

this manner is that, in a major development effort, the primary audience for evaluation data often simply does not know what questions are going to be appropriate. This is due in part to the nature of development; we cannot always predict what will be important at each stage of the development process (or indeed, even what the stages of development are). The formative evaluator must be flexible and responsive to the changing information needs of the audience, as they are recognized by the audience.

Another approach to specification of questions is to determine what decisions must be made within the development process, irrespective of who must make those decisions. The evaluation plan would thus focus on the kinds of data needed to make those decisions.

Again, there is a problem with this approach in terms of a major development effort. Decisions that must or might be made are often ambiguous. In many instances, developers might not even be aware of the decisions that will ultimately have to be made and are therefore unable to describe such decisions in advance.

No formative evaluation plan will be entirely precise in the identification of questions or issues. Nonetheless, the formative evaluator is urged to consider early in the development process, both potential decisions that have to be made and the particular information interests of primary audiences involved in the development effort.

What Will be Acceptable as Evidence?

Having made a determination of questions the formative evaluation should seek to address, the evaluator is next confronted with the issue of evidence. That is, what will people accept as information or evidence relevant to the question being addressed? Different people have different opinions about what constitutes acceptable evidence. To some audiences, the results of interviews conducted with students in a program are acceptable as evidence germane to a given question. To other audiences, student opinions are of little value, and would not be treated seriously as evidence. Still others regard as legitimate only those data derived from an experimental research design. Others regard qualitative data as highly acceptable, perhaps even most desirable.

The evaluator must seek both to determine the acceptability of certain kinds of evidence to his intended audiences and determine the extent to which this evidence will meet technical standards. Once again, the formative evaluator is not likely to attain complete clarity on this issue. Many audiences will be unable to make judgments about the acceptability of evidence prior to seeing it. It is almost certain that no single body of evidence will be credible

involves a variety of data-gathering activities. The activities outlined below, then, might be viewed as precursors to actual data-gathering efforts.

An Evaluation Plan

An essential aspect of a formative evaluation strategy is the design of an evaluation plan. Too often, a great deal of attention is given to planning the overall development process, without a corresponding level of attention given

If the evaluator attends to these eight components, he or she will have created the general structure of an evaluation plan, which will be useful in guiding the overall formative evaluation efforts. The formative evaluation plan may take a considerable amount of time to construct. One must have a certain belief in the function of planning to accept this as an important part of a formative evaluation strategy. Without such a plan, however, particularly in a larger instructional development effort, formative evaluation efforts could be dissipated to the extent they would have no impact on the development process. Planning cannot guarantee either successful implementation or positive impacts of formative evaluation activities. Without a plan, however, formative evaluation in a major instructional development effort is not likely to be successful.

“. . . the evaluator has been the clearinghouse for different people's perceptions of what would constitute acceptable evaluation efforts.”

to all audiences. Data priorities will need to be established.

It should be clear from the issues suggested above that formative evaluation in a major development effort is seldom a precise activity. A certain trust level must be developed among the many participants in a development project if formative evaluation is to be effectively utilized. The evaluator himself must be credible to the participants in the development project. The questions addressed must be relevant and the evidence acceptable. This is a tall order for anyone to undertake and may explain in part why formal formative evaluation is often not conducted as part of major development efforts. Within the context of this complex picture, however, it is possible to outline some steps that could be taken to enhance the prospects of effective use of formative evaluation in a major instructional development effort.

Strategies for Formative Evaluation

There are four steps or activities that might be pursued as a strategy for formative evaluation in a major instructional development effort. It is important again to emphasize that we are talking about a strategy, not a set of data-gathering techniques. Actually conducting formative evaluation, of course,

to designing a plan for formative evaluation activities. There are many ways in which such an evaluation plan could be devised. Perhaps one of the most simple yet helpful approaches is to think of an evaluation plan as consisting of eight components, each of which should be attended to in some fashion in the design of an evaluation plan.

1. Purpose: For what purpose(s) is this evaluation being conducted? What ends does the evaluation serve?

2. Audience: For whom are the evaluation data intended? If there are multiple audiences, who is the primary audience for these data?

3. Issues: What are the major questions to be addressed by the formative evaluation effort?

4. Resources: What resources will be needed to undertake this formative evaluation effort? What resources are presently available?

5. Evidence: What evidence will be acceptable in addressing the issues proposed?

6. Data-gathering techniques: What methods can be used to gather the evidence required by the formative evaluation? What are the potentials and limitations of those methods? What resources will be needed to utilize those methods?

7. Analyses: How will the data collected be analyzed?

8. Reporting: How will the data be reported, to whom, when, and with what follow-up activities?

Reactions to the Plan

Once the evaluator, working with the various participants in the development effort, has formulated a plan, he or she will want to share for critique that plan with as many participants in the development effort as possible. It must be kept in mind at this point that the evaluator has been the clearinghouse for different people's perceptions of what would constitute acceptable evaluation efforts. Sharing the completed plan serves the purpose of asking each participant if the issues they feel are important are in fact going to be addressed by the evaluation, whether the proposed evidence will be acceptable and in general whether the plan as proposed is likely to yield usable and timely data.

By sharing the evaluation plan, the evaluator enhances the probability that each of the participants in the development effort will feel some ownership of that plan. The formative evaluation effort is thus likely to be viewed less as an extraneous activity, and more as a very central part of the development effort, because the people for whom the data are intended have had a part in shaping the nature of the evaluation effort.

Data Scenarios

Some of the people involved in a major instructional development effort will not have had experience using formative evaluation data. They may have difficulty envisioning what such

data might look like and will therefore have a difficult time specifying what kinds of data they might find useful. The formative evaluator may wish to develop some data samples, or scenarios, to be shared with those individuals who might eventually be asked to use formative evaluation data. That is, the evaluator can physically construct some alternative ways certain kinds of data might be presented, and attempt to demonstrate how those data might be related to typical decisions in a development project. In so doing, the evaluator tries to give participants a better idea of what they can expect from the evaluation effort.

This technique is not used very often, primarily because it takes some effort on the part of the evaluator to create data scenarios. As part of an overall strategy, however, scenario building and sharing may be extremely useful in facilitating the eventual use of formative evaluation data.

The formative evaluator may need to accept, among others, a teaching role, particularly in a major instructional development effort. He or she simply cannot assume that all those involved in the development effort will either know about or be supportive of the concept of formative evaluation. In some cases individuals will be antagonistic toward the whole concept. In other instances, however, participants in development may be ignorant of the procedures and purposes of formative evaluation. The act of sharing data scenarios is one way the formative evaluator can carry out this important teaching responsibility.

Mechanisms for Changing the Evaluation Plan

Formative evaluation must above all be responsive to the information needs

of developers and others involved in the development project. Because the information needs of participants in a large development effort will not always be known in advance, it must be expected that decisions or events will be made as development progresses that will alter the fundamental nature of the development project itself and thus the formative evaluation requirements. While developing a plan for evaluation is an important part of the formative evaluation strategy, that plan must be tempered with the realism of how development gets done.

Responsiveness is thus a critical characteristic of good formative evaluation. How is an evaluator to be responsive? The answer is not simple. A part of the overall strategy for formative evaluation must be to define a mechanism whereby changes in the purpose and procedures of formative evaluation can be initiated. The difficulty here is that the formative evaluator may find him or herself serving many masters, each of whom may be making critical decisions, initiating changes, and insisting that the formative evaluation efforts also change.

It is recommended that the evaluator and the development team agree upon some procedures whereby alterations in initial evaluation plans can be made. Such procedures may be as simple as to agree that only the head of the development effort will make requests for changes in the evaluation plan. Without such agreements, the formative evaluator in a major development effort is in trouble right from the start. This issue, together with other issues (such as who will get what kind of data) should be settled before the formative evaluation gets started. It is easy to presume that the trust level among all those in the development project is high and there-

fore such agreements are not necessary in advance. More often than not, this assumption will turn out to be wrong. When people are backed into corners by timelines and other pressures, they will not always act sensitively or rationally. Early agreements can prevent later catastrophes.

Some Closing Thoughts

It might be argued that the formative evaluation strategy described above applies to small development efforts as well as to major instructional development projects. This may be the case, but such an argument does not lessen the need for such a strategy in a major development effort. The real differences between small and large projects lie in the complexity of the ends being sought, the number of people that have some role in the development effort, and thus in the scope or range of decisions that must be made. These important differences suggest that formative evaluation in a complex development situation may be a fundamentally different activity than occurs in a small development situation.

The strategy outlined above is a common sense one. To be effective, it is useful to try to plan what you are doing, to identify the needs of individuals within the project, to get some ownership in the plan, to be responsive, to help educate people about how to use data, and to be prepared through some predetermined mechanism to be responsive.

Although these things seem to be very simplistic, I have seen numerous instances in which the strategy outlined herein has not been applied in a major development effort: That bothers me. The results have not been good. The strategy may be worth trying.