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AUTHOR Alkin, Marvin C.
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INSTITUTION California Univ., Los Angeles. Center for the Study of Evaluation.
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ABSTRACT

Evaluation of instructional programs involves the process of ascertaining the decisions to be made. The decision maker, not the evaluator, determines the questions to be asked or the decisions to be made. A second task of evaluation deals with the specification of required information in light of system objectives. The task of the evaluator includes the development of research design and of instruments to provide the information appropriate to the decisions that must be made. The five stages of evaluation are: (1) needs assessment, (2) planning, (3) program implementation, (4) program improvement, and (5) program certification. Each stage is discussed and the categories of decisions are related to these stages to demonstrate the relevance or lack of relevance of students' behavioral objectives in each stage. (MF)

The Use of Behavioral Objectives in Evaluation: Relevant or Irrelevant?

Marvin C. Alkin

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The Use of Behavioral Objectives in Evaluation: Relevant or Irrelevant?

The question posed by the title of this paper is not readily answerable. Indeed, there is no single solution to the question. The use of specified behavioral objectives in evaluation is neither relevant nor irrelevant. It is the threefold thesis of this paper that (1) behaviorally stated objectives are of relevance only to certain stages in the evaluation process; (2) even in those stages where it is relevant to state student behavioral objectives, objectives specification alone ceases to be of singular significance with the increasing complexity of the program; and (3) even in relatively non-complex programs within stages amenable to objectives specification, there is little research evidence showing whether evaluation using specified student behavioral objectives "makes a difference."

The intent of this paper, however, is not to discount completely the value of specifying objectives in the evaluation of instructional programs; to do so would be ludicrous. The need for specifying objectives was pointed out by Lewis Carroll in Alice's Adventures in Wonderland, in the following conversation between Alice and the Chesire cat:

> "Come, it's please so far," thought Alice, and she went on. "Would you tell, please, which way I ought to go from here?"
>
> "That depends a great deal on where you want to get to," said the cat.
>
> "I don't much care where..." said Alice.
>
> "Then it doesn't matter which way you go," said the cat.

Behavioral objectives specification is not necessarily a panacea for evaluation problems of all types. While all enterprises should have a goal--these goals are not necessarily always specifiable in student behavioral terms. Moreover, when complex systems are involved the specification of objectives in behavioral terms has been somewhat overplayed in its relative importance. I would submit also that the broadening definition of evaluation has considerably modified views about the need for specification of behavioral objectives.

Introduction

The last two years have represented an exciting period in the field of evaluation. Indeed, it would not be an overstatement to maintain that evaluation as a field has just begun to assume an identity of its own. I would agree with Egon Guba that a major

failing of evaluation today stems from the lack of an adequate definition. Past definitions have equated it with either: (1) measurement and testing, (2) statements of congruence between performance and objectives, or (3) professional judgment. None of these by itself is really an inclusive enough definition for the multiplicity of activities now regarded as evaluation. During the past year, a consensus has been developing concerning a broader, more comprehensive definition of evaluation. This expanded view takes into consideration the decision making functions, since an evaluation must be predicated on, and adapted to, the specific problem or situation under analysis.

Definition

In view of the fact that there is no definitive statement of evaluation, it would be inappropriate and inaccurate of me to present my definition as "the" generally accepted one. However, in an effort to provide some framework for this paper, I will, somewhat hesitantly, step forward and present my definition of evaluation....Evaluation is the process

of ascertaining the decisions to be made, selecting related information, and collecting and analyzing that information in order to report summary data useful to decision makers in selecting among alternatives.

The first part of the definition of evaluation presented here deals with ascertaining the decisions to be made. The decision maker determines the questions to be asked or the decisions to be made and not the evaluator. The task of the evaluator is to determine from the decision maker the decisions for which information is required. The evaluator can and should, however, point out inconsistencies, potential difficulties, or additional data that might modify the decision makers views on the relevance of certain decisions.

A second task of evaluation deals with the specification of required information in light of system objectives. The specific nature of the information required will differ, depending on the kind of decision to be made. If the decision relates to specifying the needs of a community, the information requirements will be quite different from those of a study on the comparable success of two programs under experimental conditions. The task of the evaluator in specifying information requirements

includes the development of the research design of the project, and the selection and/or development of instruments designed to provide the information appropriate to the decisions which must be made.

Data collection and analysis are tasks of prime concern to the evaluator. The evaluator will encounter different problems associated with these tasks, depending upon the nature of the unit being evaluated, the kind of question being asked and other things.

One of the most vital parts of the evaluation process is reporting to the decision maker. Most evaluators often overlook this function as being merely a pro forma exercise. Indeed, if the purpose of evaluation is to provide information that will enable decision makers to form judgments about a program or about alternatives, then the nature and form of the reporting should be appropriate to the problem and the audience.

Stages of Evaluation

This definition of evaluation carries with it a concern for the decisions to be made. Thus, if we are to understand the evaluation process, it is necessary to categorize educational decision situations. In this classification, it would be necessary to examine the nature and kinds of decisions that are likely to require evaluative data.

I have identified what I consider to be the five stages of an evaluation--each is designed to provide and report information useful to a decision maker in making judgments. They are: (1) needs assessment, (2) planning, (3) program implementation, (4) program improvement, and (5) program certification. I should note that I have borrowed liberally in the development of these stages from the work of Dan Stufflebeam, Bob Stake, Mal Provus and others.

The first area in which evaluation might take place is in the assessment of needs. Needs assessment is a means of determining the educational objectives most appropriate for a particular situation. The needs may be represented as the gap between the goal and the present state of affairs. Thus, the evaluation problem becomes

one of assessing the needs of students, of the community, and of society in relation to the existing situation. Needs assessment does not refer to specification of process characteristics appropriate for a district, school, or classroom. The needs assessment must be related to the ultimate behavior of clients of one type or another (Pupils, parents, community, etc.; all are clients of the school). To put it simply, needs assessment must be a statement of objectives in terms of outputs rather than process characteristics of the system.

It is obvious from these examples as well as to all of those who have been engaged in needs assessment under a Title III program, that the process of deciding the purposes of needs assessments, as well as specifying, collecting, analyzing, and reporting information is quite different from the methodology and techniques ordinarily associated with typical evaluation.

Planning

The planning stage in evaluation is concerned with information which will enable the decision maker to select between alternative processes in order to make a judgment as to which process should be introduced into the system

in order to fill most efficiently the critical needs which have been previously determined. After the decision maker receives the needs assessment evaluation, he might make a decision as to the appropriate means of fulfilling that need. Alternatively, he might designate several possibilities and ask the evaluator to provide information on the possible impact of each. Thus, in the planning stage, the evaluator provides the data for an evaluation of a program prior to its inception. The task of the evaluator is to look forward to the attainment of goals and to determine the likely goal achievement or outcomes. To repeat this, in yet another way, the purpose of evaluation in the planning stage is to assess the potential relative effectiveness of different courses of action.

It is quite obvious from this discussion that the collection and analysis of data of the type required for this evaluation stage will be quite different from collection and analysis problems for other stages. The techniques may require both internal and external evaluation criteria. (The most appropriate technique might be informed judgment or other so called soft data.)

Program Implementation

The next step in the evaluation process is determining the extent to which the program has been implemented in the manner in which it was described in the design. (A part of the information specification, collection, analysis and reporting process is the specification of the design or procedures by which each of these activities will be accomplished.)

In the case of an existing program, where no known changes have been implemented, the evaluation task for this stage is to determine the degree to which planning descriptions of the program coincide with the actual program.

Program Improvement

The evaluator can assume a leadership role in program improvement by providing as much information as possible about the relative success of its parts. In order to perform program improvement evaluation, it is necessary to recognize the basically interventionist role that the evaluator has been asked to play. As the evaluator identifies problems and collects and analyzes information, data is presented immediately to the decision-maker in

order that changes to improve the operation of the program might be executed within the system. This stage of evaluation has often been overlooked or ignored by the traditional evaluator who has attempted to reproduce the antiseptic sterility of a laboratory in the real world. This approach may make a fine experiment, but it does little to improve a program which is often not in its final form.

Program Certification

Finally, evaluation must provide information to the decision maker that will enable him to make judgment about the instructional program as a whole. This is the "audit" stage of evaluation. The evaluator might attempt to provide information which will enable the decision maker to determine whether the program should be eliminated, modified, retained or expanded.

In this stage, the need for valid and reliable data would generally mandate that the evaluator attempt to apply as rigid a set of controls as possible. The evaluator might use pre and post test designs, and employ sophisticated statistical techniques for analyzing the data. Whenever possible, intervention should be avoided in this stage.

Use of Student Behavioral Objectives in Various Evaluation Stages.

I will discuss each of the stages and the categories of decisions related to these stages in order to demonstrate the relevance or lack of relevance of students' behavioral objectives for each. A decision is associated with each of the five stages and it is the job of the evaluator to provide the information that will assist the decision maker in selecting between alternatives for that decision. The nature of the decision at each stage, I believe will demonstrate, that information on the achievement of student behavioral objectives is not relevant to some stages and is not the only source of information appropriate for other stages.

In the discussion that follows I do not mean to imply that the evaluator will necessarily participate in each stage of the evaluation. In some instances prior decisions may already have been made and the evaluator may be asked, simply, to provide information for succeeding stages. In other instances the nature of the information to be collected may be relatively simple and the process of information selection, collection and analysis may be internalized by the decision maker or his staff. However, for the sake

of clarity, we will assume a hypothetical situation where the evaluator is asked to provide information for decisions at each of the five stages.

The first question facing the evaluator is related to selection of objectives for the system or modification of existing objectives. Thus, depending upon the situation, the decision maker may want information on whether various constituent bodies (i.e., the community) concur with the existing objectives of the system and what changes are needed. It may be appropriate to present information on the potential relevance of alternative objectives in terms of possible future significance.

In a hypothetical situation, a school principal might be faced with a budgetary decision and want to get some insights as to how best to spend an incremental budget amount. He is anxious to spend this in a manner that is likely to be most beneficial to the school in terms of its needs. The evaluator has been asked to provide information about various possible objectives for the system, including some presently stated objectives which may be inadequately met.

Thus, the evaluator may inform the decision maker that a number of behavioral objectives of the system have been considered highly relevant by the community, that the

evidence appears to demonstrate that these have been inadequately met. High on this list might be the student's inability to defend themselves, i.e., trained in "the art of self defense," against attacks by other students. He might also provide information in which he attempts to indicate the potential value of selecting "self defense" as an objective of the system. Thus, the needs assessment evaluation would provide the decision maker with information that would assist him in selecting between alternative objectives. The information is provided by the evaluator, but the relative weightings of the alternatives must be made by the decision maker.

It is obvious from this example that the major source of information provided by the evaluator in this stage is related to student's behavioral objectives for the system. The evaluator, in essence, provides alternative objectives along with other descriptive information to the decision maker.

In the planning stage, the evaluator provides information about possible means of achieving the objectives. The question asked by the decision maker is "what process is to be chosen from among a list of alternatives?" The evaluator is not an instructional development expert and ordinarily should not assume the job of developing

a program appropriate to the stated objective. However, the decision maker might have narrowed his choice to several alternatives and would like additional information on each of these alternatives.

In the case previously presented, if we assume that the decision maker has selected a behavioral objective related to "self defense" instruction and has considered three alternative processes, then the evaluator might provide information related to each of these processes. The information of necessity will be limited in this pre-implementation stage. The evaluator, of course, will examine each of the processes in terms of various internal criteria, such as the extent to which material purports to achieve the specified objective, the clarity of the materials, the cost of the materials, etc.

In addition, the evaluator may invoke certain external criteria. An examination might be made of the literature related to the use of this process to determine the extent to which it had been found to be successful in similar situations. In the absence of any evidence related to the use of these materials, the evaluator might choose to use systematically sampled expert judgment about the potential worth of each of the processes. Thus, given

the information collected and analyzed for this stage, the decision-maker would be in a position to make a more rational choice. In this phase, the provision of information centers about data related to alternative processes. While it is true that the processes are examined in relation to potential desired student outputs, the main source of information for the second stage of evaluation is not information on student behavioral objectives but on processes.

The evaluation related to the 3rd stage, program implementation, has as its purpose providing information on whether the process which was selected has been implemented according to plan and whether the context of the situation in terms of the fixed attributes of the program have been described properly in the planning stage. That is, did the equipment arrive on time? Does the description of the students in the planning stage and which was considered at the time when the process was selected, correspond with the actual situation? It is obvious that in this stage, also, specification of student behavioral objectives is not of critical importance.

In the example that we have been using, let us assume that the decision maker has examined the alternative processes and has decided to introduce a course in shotgun manufacturing to achieve the objective related to

"self defense." One question for the evaluator is: did the gun barrels arrive on time?

In the 4th stage, program improvement, specified student behavioral objectives are of major importance. In this stage, the evaluator is concerned with determining changes in students and observing students' achievement on a regular basis in order to provide feedback to the decision maker that would be helpful in modifying the program. In addition to information related to the achievement of students on certain objective dimensions, the evaluator has as his function within this stage the provision of information relating to the effect of the introduced process upon other processes of the system. Thus, in the example we have been using, the evaluator might note that while students seem to be doing very well in learning to construct shotguns, there appear to deleterious effects upon teacher-student relationships. Moreover, other students in the school seem, for some reason or another, to be afraid of those in the experimental program. Finally the evaluator might observe that the general appearance of the school building has suffered. (The walls are pitted, and indeed many have large gaping holes in them). On the basis of this information, the decision maker may

choose to modify the program, expand it because of the surprisingly good results, or perhaps even delete it immediately.

Let us assume that the program has been allowed to continue and has gone through the program improvement stage to the point where the decision maker is now satisfied with the program and wants to provide a rigid empirical test. At this juncture, the evaluator may be called upon to provide an evaluation related to the program certification function. The evaluator is not being asked to certify the program but rather to provide information that will allow a decision to be made about certification. As opposed to the previous stages, the role of the evaluator in program certification is non-interventionist. Thus, in the example noted above, the evaluator will attempt to provide information to the decision maker on final (or nearly final) outputs of the system in student or other terms as a function of the course in shotgun manufacturing. Again, student behavioral objectives should be considered. The evaluator will also want to provide information on the extent to which students are now better able to defend themselves. There are, however, a number of other outcomes of the system that were perhaps not anticipated which might well be reported to the decision maker as a part of the program certification

evaluation. For example, he might note there has been a considerable increase in the amount of violence in the community, an increase in the number of armed robberies, etc.

I have attempted to demonstrate in the preceding paragraphs that behavioral objectives are of considerable relevance to various stages of evaluation, are of relevance along with other kinds of information in several stages of the evaluation and of little relevance and, indeed, irrelevant in other stages.

System Complexity

In areas traditionally conceived of as evaluation--i.e., program improvement and program certification--there is ordinarily a great need for specifying objectives in behavioral terms, but even here I must sound a dissident note. Those advocating the use of behavioral objectives as the main basis for evaluation are usually concerned only with the individual student, or at most, the classroom, as the unit of analysis. The examination of more complex programs often makes it impossible to state behavioral objectives at the outset. One can think of broad scale educational systems

with outcomes that are not clearly definable and where the process of specifying objectives is an iterative one. The complexities of this kind of system are often so great that to speak of objectives in any concrete sense is to mask the real outputs of the system. The outcomes and consequences of all of the many interactions within a system are very great, and are often at considerable variance with the objectives of the system.

Also, the nature of the context at this macro-level of complexity is of considerable significance. While we would maintain that at the micro-level, the most important element in evaluation is the specification of objectives, in large educational systems, the context or nature of the surroundings has tremendous impact on the outcomes of the system. The Coleman Report is just one example of a whole line of research which has tended to substantiate this.

Other difficulties of evaluating complex systems involve accurate specification of the instructional treatment. That is to say, often the instructional treatment is neither clean, easily identifiable, nor easily reproducible. It is, instead, a vast array of complex, interactive elements loosely called instruction.

Thus, we have shown that what is required in this

kind of evaluation is not simply a specification of objectives, but rather a total examination of a system, with all of the implications that derive from systems theory. A systems evaluation carries with it the necessity for specifying the inputs and outputs of the system, and the understanding that the process of evaluation must be an iterative one in which successive stages produce additional information.

If we think of evaluation as being the process of selecting, collecting, analyzing, and providing information for decision makers, then the implications of the data requirements for the evaluation of complex educational systems are readily apparent. In addition to specifying the objectives of the system and the degree to which the system has met these objectives, data must also be provided on other outcomes (unanticipated outcomes, consequences), on the inputs, on accurate descriptions of the alternative processes used, and on the input-output relationships, especially as they relate to the factors which can be considered by the decision maker.

An activity currently underway at the UCLA R & D Center is designed to provide answers to questions about the appropriate information necessary for various decisions.

The Project, the School Evaluation Project, is being directed by Steve Klein and myself and is attempting to develop an information system that will help school principals predict student outputs of their schools and make decisions about how to improve these outputs. The Project is uniquely different from most socio-psychological descriptive studies of education in that the orientation focuses on the decisions made by school principals. The project will attempt to determine information requirements (that is, appropriate evaluations) for a number of decisions or classes of decisions. It is hoped that the results of this research will provide insights into the relative importance of various kinds of information, including those related to behavioral objectives, for various types of educational decisions.

Lack of Research Evidence

Finally, it is imperative to note that even for relatively discrete units of evaluation, there is not definitive evidence that behavioral objectives specification "makes a difference." It has not been substantiated clearly that specifying objectives in behavioral terms

for a program modifies the instructional procedures or changes the amount of student learning that takes place. If, from the point of view of the evaluator, the most relevant considerations are the decisions that will be made as a consequence of the information reporting, then it will be of utmost concern to determine the impact of describing objectives in behavioral terms. There is little evidence to substantiate that such descriptions, and the available data relating to them, modify the nature of the subsequent judgments by decision makers.

A study by Eva Baker attempted to contrast the effect that behavioral and non-behavioral objectives have on pupil learning and found no significant differences in items directly measuring the objectives or on the transfer items. However, this study dealt with modification of student outputs as a function of using behavioral objectives, rather than the impact of such use on decision makers. In a study in which adult students are the decision makers, Blaney and McKie attempted to determine whether knowledge of instructional objectives in an adult education program assists participants in obtaining these objectives. The hypothesis that the group that was given behaviorally stated objectives would do significantly better than the

control group was confirmed. However, in a typical educational situation, one ordinarily would think of the teacher or another intermediate control agent as the appropriate decision maker rather than the student. A study presently underway by Eva Baker at the UCLA Research and Development Center will attempt to examine the use of student response data (information related to the achievement of student behavioral objectives) in relation to the subsequent revisions made by the decision maker of the instructional material.

Intuitive feeling, however, would lead to the view that, all things being equal, it is probably better to specify objectives than not to do so at all. With this in mind, and with a deep conviction at the Center for Study of Evaluation that the specification of system objectives should be the function of a local decision maker rather than of an external body, the center is developing a system to help the decision maker determine such selections.

In an attempt to provide local decision makers with behavioral objectives and appropriate test items, we have established an Instructional Objectives Exchange at the UCLA Center for the Study of Evaluation.

The exchange is under the direction of Rod Skager and Jim Popham and has been established in response to several problems presently existent in the field. These are: (1) the role of the teacher/decision maker as an objectives selector, rather than as an objectives generator; (2) the need for test items related to objectives, and (3) the imminent duplication of efforts in various parts of the United States.

While the Instructional Objectives Exchange Project will function as a claringhouse in the area of objectives and items, our prime intended use of the exchange at the UCLA Research and Development Center goes beyond this. We plan to use some of the material collected in the Exchange in order to study the form and use of behavioral objectives. For example we want to answer the following questions: (1) Do alternative modes of stating objectives have a relationship to pupil performance? (2) Does using behavioral objectives as the basis for determining information requirements modify the nature of the ultimate judgments of decision makers? (3) What are the types of decisions made by teachers, administrators, etc., who have been presented with objective-based data?

We hope that the results of these studies will provide

some insights into the relevance of behavioral objectives as a part of the evaluation of relatively well defined instructional programs, particularly in the program development and program certification stages.

A Response

The activities of the Center for the Study of Evaluation at UCLA are vitally related to the evaluation problems faced by schools and school districts every day. We regard ourselves as a research and development unit whose goal is to "make a difference" in education. Our activities in conceptualizing evaluation are designed, among other things, to enable us to understand the potential relevance of various procedures in evaluations of different types. Our School Evaluation project will hopefully provide insights into the information requirements of decision makers. The Instructional Objectives Exchange and Measurement System project will provide evidence as to the form and use of program objectives in decision making in the improvement and certification stages of evaluation.

The kind of mapping of the domain that is exemplified by the three activities named will ultimately allow us to answer in some definitive way whether the need for specification of objectives in evaluation is relevant or irrelevant.