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ABSTRACT

A procedure to relate funding decisions and project evaluations in an annual grant program for vocational education administered by a state education department (SED) is described. Objectives of the study included developing a set of predictor variables for funding decisions, and outcome variables for evaluating decisions; determining consensus among funding decision makers and applicants so one estimate of the validity of the major variables; and testing the feasibility of obtaining necessary data to implement a procedure linking funding and evaluation data. A first estimate of validity was obtained by examining the relationship between the SED and local education agency directors' ratings and rankings of outcome and predictive impact variables. Feasibility of obtaining distribution data was also examined. Combining distribution data and judgmental data was the recommended procedure for funding and evaluation purposes. The procedure is based on a series of objectively and subjectively known data which are revised systematically and which provide standards acceptable to both decision makers and fund applicants. (Author/MH)

VALIDITY AND FEASIBILITY OF A PROCEDURE TO LINK EVALUATION AND FUNDING DECISIONS

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Procedures are needed to relate evaluation findings and funding decision making. This paper describes a procedure that has been developed for a state education department's (SED) funding of vocational education programs. A first estimate of validity has been obtained by examining the relationship between the SED and local education agency directors' ratings and rankings of outcome and "predictive" impact variables. Feasibility of obtaining distribution data was also examined. The recommended procedure is to combine distribution data (as in the present study) and judgmental data, as used by Ory, Harris, Dueitt, and Clark (1978), for funding and evaluation purposes.

Validity and Feasibility of a Procedure to Link Evaluation and Funding Decisions

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Validity and Feasibility of a Procedure to Link Evaluation and Funding Decisions

Objectives

The goal of the present study was to define a procedure to relate funding decisions and project evaluations in an annual grant program in vocational education administered at the state level. The first objective of the study was to develop a set of both "predictive" variables (those that can be known at the time of funding) and outcome variables, for funding and evaluation decisions respectively. A second objective was to determine the consensus among funding decision makers and funding applicants as one estimate of the validity of the major variables to be used in funding decision making and evaluation. The third major objective was to test the feasibility of obtaining data needed to implement a procedure to link funding decisions and evaluation data.

The procedure to link evaluation and funding decisions requires determining the priority and criterion weights for major predictive and outcome impact variables, and providing estimates of the categories on which projects might be described for each of the impact scales (predictive and outcome). Rating for a variable determined to be a major priority and given a high weighting, an index of a program's fulfillment of that variable is needed. One way of providing a "score" for a project on the priority or impact variables is to categorize a project on an index into one of three categories, strong (3 points), average (2 points), or weak (1 point). In order to categorize projects, the values for the index and the category boundaries need to be determined through data or subjective estimates. This project sought to determine the feasibility of defining categories by obtaining distribution data for the indexes and using the distribution data to establish category boundaries. Local Education Agencies (LEAs) were surveyed to obtain data for each variable or to give an indication of future availability of data, i.e., data that could be available given advanced notice, or that the LEA considered impossible to collect. One other outcome of the study is a dialogue between granting agencies and vocational education program directors on the priorities in the funding decisions and the importance of providing data for evaluation of funded programs.

Related Research

Davis and Salasin (1975) have summarized many of the issues in the use of evaluation results, including statements by evaluators that their findings are not used and those by administrators that evaluation findings are not available when decisions have to be made. Although there is much discussion of the need to relate evaluation and decision making, there have been few efforts to specify the manner in which this might occur.

Edwards, Guttentag, and Snapper (1975) have proposed and applied a method called multi-attribute utility measurement to assist the Office of Child Development in defining the major dimensions of importance in developing priorities for funding research projects. The multi-attribute utility measurement method is one of a set of methods classified as decision aids by Slovic, Fischoff, and Lichtenstein (1977), as opposed to formal behavioral decision theory models. One framework for the present study is provided by the procedures used to aid decisions.

A second framework is the problem of defining "impact" for the diverse set of programs funded under the basic grants given in the Vocational Education Act (VEA). Bernstein and Freeman (1975) define Impact evaluation as movement or change toward the desired objectives of a project, i.e., prespecified operationally defined goals and criteria of success. In the current work these definitions are established externally to the individual projects. Projects will have varying goals and any one project may not meet all the priorities of the funding program. By operationally defining the set of variables that define "high impact," and developing a scale or distribution of these variables, individual projects can be evaluated as "high" or "low" impact projects.

A related study has been conducted by Ory, Harris, and Clark (1978) and Ory, Harris, Dueitt, and Clark (1978). They developed and field tested a vocational education evaluation model for programs at the community college level, based on subjectively and objectively derived data. Weights for six criteria were derived from paired comparison ratings by state and local educators, legislators, college trustees, and businessmen. Vocational programs were assigned a rating of strong, adequate, or weak (3, 2, or 1 points) on each of six criterion measures, and the categories for the scale were established through conferences involving local program administrators and the evaluators.

In contrast, the present project has collected information on the distribution of major variables to establish scale categories.

Methods and Results

In the first year's work on this project, non-overlapping, highly relevant (impact) dimensions were identified for the funding agency, using interviews with decision makers and review of the literature in vocational education. In the current year these statements were revised in light of new legislative priorities. Three questionnaires were used. Questionnaire 1 provided for ranking and rating predictive and outcome impact statements. Questionnaires 2 and 3 collected data for the indexes for each predictive and outcome statement, respectively.

The response rates for the different groups and questionnaires ranged from 65% to 87%.[1] From the responses on the individual questionnaires returned it is clear that

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[1] 45 LEA Questionnaires were mailed and 39 returned (87%); 63 were mailed to large cities and 42 returned (67%). Questionnaire 1 rankings are based on 38 LEA directors, 33 respondents from large cities, and 5 state level supervisors.

most of the information asked for is either readily available or could be supplied if given advance notice. For most data, the SED can facilitate and improve the data base by conducting workshops or providing guidance to LEAs through sample forms and procedures. The data reported in the questionnaires were highly variable in quality.

The validity of the impact statements as defined by the amount of agreement between raters was significantly high as measured by Kendall's Coefficient of Concordance (W). W was computed for the ranks given by three sets of judges: BOCES, Large City and SED staff. W = .90 for the Predictive Impact Statements (χ^2 = 24.2, .01< p <.001), and W = .81 for the Outcome Statements (χ^2 = 21.8, .01 < p < .001). The SED staff rankings were used to develop weights, using the ranks similiar to the paired comparison method (Guilford, 1954).

An index was developed for each impact variable. For example, one of the predictive impact statements that was given a high weighting was concerned with the number of employment options that would be available to students after being exposed to the program. The index for this impact statement was based on a listing for each program of the occupational areas for which graduates of the program are to be prepared. The three scale categories of weak, average, and strong were defined by the distribution data as follows: if a program only offered 1 employment option, that program was given a weak rating; 2 3, 4, or 5 options, an average rating; more than 5 employment options, a strong rating.

Another high priority statement was that students will be trained for occupations where jobs are available. The index consisted of the ratio

$$\frac{\text{Total number of local jobs available}}{\text{Total number of students expected to participate}}$$

Intuitively, the funding applicant who shows that less than one job per expected student is available is a weaker applicant or is less likely to have an impact than an applicant for whom at least one job and less than two jobs is available (which would be considered average). Stronger applicants provided data that more than two jobs were available in the local area for each student in the occupational program.

By assigning a program to a category (weak, average, or strong) on each of the indexes and then weighting the index by the importance of the impact statement it measures, a "score" for each program, at both the funding and evaluation stage, is established. In addition to the impact variables, grant proposals would be evaluated by screening criteria and quality rating scales in the areas of management/planning and instruction/equipment. Since the variables that define high impact at both the funding and evaluation stages can be related, they are part of a system, providing feedback from evaluation to decision making. The basic process, then, has three major phases:

1) Determination of whether a program has potential impact to decide if it will be a) immediately funded, b) funded after recommended improvements are made, or c) rejected

2) Collection of evaluation data after a project is completed to assess outcome (impact); and

3) If a project is proposed for continuation, review of both outcome and predictive variables to make funding decisions.

In addition to the general project review process, there should be provision for annual review of the weights and scale categories for both the predictive and outcome impact statements. The process is Bayesian-like in procedures, but not formalized. The process includes using weights during one fiscal year, collecting data on the impact statements after the project evaluation has occurred, and using the data for all projects to form distributions on the indexes for the impact statements. These distributions can be examined to determine if the scale categories still are appropriate or need to be "raised" or "lowered" on the basis of project attainments. These processes should help in improving programs and making funding decisions on the basis of both "objective" and "subjective" information.

Educational Importance

The significance of the present study is in demonstrating that evaluation findings and funding decisions can be linked to make better estimates of both predictive and outcome impact of projects. By showing that two groups of raters both concerned with the decision making process are in agreement on the important impact variables, the communication gap which presently exists between funding agencies, local education agencies and evaluators can be narrowed considerably. The process by which programs are both funded and evaluated is a potentially dynamic system, in the sense that the weights and indexes suggested in the study can constantly be reviewed and updated on the basis of current data. The nature of the decision making task is clarified and grant applicants would be aware that there were minimum standards as suggested by the scale categories. The complete procedure for linking funding decision making and evaluation is based on a series of objectively and subjectively known data that are considered for revision on a systematic basis, and that provide standards known by both the decision maker and the applicant for funds.

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Table 1. Overall Ranking of Predictive Impact Statements by BOCES, Large City, and DOES Staff

Predictive Impact Statements	Ranking			
	BOCES[a]	Large Cities[a]	DOES[a]	Overall
1. Students will be trained for occupations where jobs are available	4	2	1	3
2. Project objectives are stated in measurable terms	5	5	3	5
3. No sex discrimination will be made in recruiting and placing students in vocational programs	7	7	7	7
4. Training objectives will be met in the most cost effective manner	6	6	4	6
5. Large number of students will be trained	10	9	10	9
6. Training will be provided to increase students' employment options	1	3	5.5	2
7. Students will be prepared to meet entry level skill requirements as specified by prospective employers. (e.g. employer's ratings of program performance objectives in terms of job requirements).	2	1	2	1
8. Program will serve students' interests.	3	4	5.5	4
9. Program is articulated with local post secondary institutions	8	8	8	8
10. Program will be replicable in other LEAs	9	10	9	10

[a]Overall rank based on mean ranks.

$\underline{W} = .896$

X^2W (9 df) = 24.18 $p < .01$

Table 2. Overall Rankings of Outcome Impact Statements by BOCES, Large City and DOES Staffs

Outcome Impact Statements	Ranking			
	BOCES[a]	Large Cities[a]	DOES[a]	Overall
1. Program graduates are working in occupations for which they were trained.	5	2	1	4
2. Project objectives are fulfilled	6	1	5	5
3. No sex discrimination occurred in student selection, training, and job placement	7	8	7	7
4. Training objectives are met in the most cost effective manner	4	6	2	6
5. Large numbers of students are trained	9	9	9	9
6. Training increases student employment options	1	3	4	2
7. Employers are satisfied with graduates of program	3	5	3	3
8. Students trained have positive attitudes toward work	2	4	6	1
9. Students trained continue their education	8	7	8	8
10. Program can be replicated in other LEAs	10	10	10	10

[a]Overall rank based on mean ranks.

$\underline{W} = .809$

X^2_W (9 df) = 21.84 $p < .01$

FIGURE

Project Quality Criteria: Predictive Impact

Impact Statement	Scale Categories				SCALE X WEIGHT
	WEAK	AVERAGE	STRONG	WEIGHT	
1. Students will be trained for occupations where jobs are available.	Total number of local jobs / Total number of program students				
	< 1 (1)	1 < 2 (2)	≥ 2 (3)	X 3 =	___
2. Students will be prepared to meet entry level skill requirements of employers.	No. entry level skills checked by Employer / No. skills listed by school				
	< .7 (1)	≥ .7 ≤ 1 (2)	1 (3)	X 2 =	___
3. Project objectives are stated in measurable terms.	No. measurable objectives / Total no. of objectives				
	0 (1)	> 0 < 1 (2)	1 (3)	X 2 =	___
4. Training objectives will be met in the most cost effective manner.	Total grant $ / Total no. students served				
	> $1000 (1)	> $200 ≤ $1000 (2)	≤ $200 (3)	X 1 =	___
5. No sex discrimination will be made in recruiting and placing students in vocational programs.	No. sex discrimination items checked / Total no. of items to check				
	≤ .5 (1)	> .5 ≤ .75 (2)	> .75 (3)	X 1 =	___
6. Training will be provided to increase students' employment options.	Number of employment options (OE code)				
	1 (1)	≥ 1 ≤ 5 (2)	> 5 (3)	X 1 =	___
7. Program will serve students' interests.	Number of students to be served / No. students selecting area 1st or 2nd				
	< 1 (1)	> 1 ≤ 2 (2)	> 2 (3)	X 1 =	___

Total Impact Score: (Maximum 33) ___