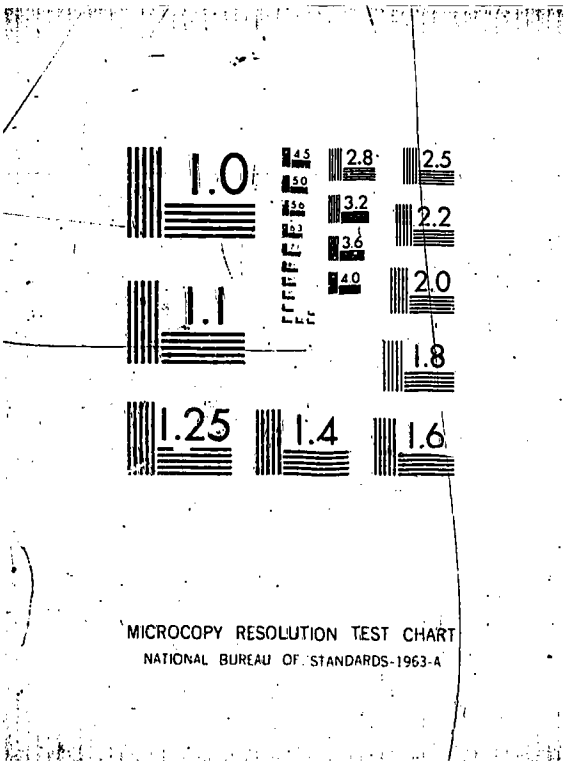
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ABSTRACT

This study was the second year of a project that attempted to formulate criteria for project evaluation and funding decisions. Activities were designed to produce measures of project impact for vocational education projects. The second year's work focused on refinement of impact variables, and a survey of directors of vocational education concerning their priorities for impact variables. Local education agencies (LEAs) in New York State were asked their opinions about whether the impact variables were valid and whether it would be feasible for them to collect the data required. Six project impact variables were considered the most valid. (1) Students trained have positive attitudes toward work. (2) Training increases student employment options. (3) Employers are satisfied with graduates of the program. (4) Graduates are working in occupations for which they are trained. (5) Project objectives are fulfilled. (6) Training objectives are met in the most cost-effective manner. The LEAs queried indicated that collection of necessary data would be feasible but that they could use support with data collection in several areas. The next steps required are a review of the impact rating forms and development of additional related rating forms and the preparation of a funding and evaluation handbook for LEAs. (Author/JM)

A STUDY OF THE VALIDITY AND FEASIBILITY OF IMPACT RATINGS FOR USE IN FUNDING AND EVALUATION

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ABSTRACT

During 1977-1978 the Department of Occupational Education Supervision funded the second year of a study to develop definitions of project "Impact" and to relate these definitions to funding decisions made by DOES. The definitions and priorities for high impact projects in vocational education are important for both funding, that is the allocations of money to individual projects, and to evaluation--providing guidance to local education agencies in determining important outcomes for evaluation. Focusing on the same set of variables in funding decision making and in evaluation will assist both state decision makers and local directors of vocational education to have similar priorities.

During the first year of the project, the research related to decision making and priorities was reviewed, an annotated bibliography was compiled, and a pilot study was conducted with DOES staff to test out the method of examining priorities. The current year's work focused on further refinement of the "impact" variables to relate them to the 1976 Amendments (PL 94-482) and a survey of Directors of Vocational Education to determine their priorities for impact variables, as well as DOES staff priorities. Interviews with several directors assisted IRDOE staff to refine draft questionnaires designed: 1) to obtain priorities for impact variables; and 2) to obtain sample distribution data for the predictive and outcome impact variables. Also, LEA opinions on the availability of data were collected. Responses to the questionnaires provide one indication of validity (the relationship between DOES and LEA priorities) and feasibility (extent to which data are currently available or can be made available).

FOREWORD

As a downstate outreach of the New York State Education Department's Research Coordinating Unit, the Institute for Research and Development in Occupational Education (IRDOE) has attempted to identify problems or areas of concern in occupational education and configure ways and means of ameliorating or eradicating them. One such area of concern was the application of "risk money" to proposals submitted to the Office of Occupational and Continuing Education for funding. Another, parallel, concern was the basis upon which projects, once funded and completed, were evaluated.

In both cases, although personnel engaged in the tasks were conscientiously applying their understandings of the terms to the processes, it seemed that there were considerable variances in definition of terms and criteria. Accordingly, in FY '75, IRDOE undertook an in-house review of literature and informal assessment of practices and, when satisfied that a need existed to standardize practices, developed a proposal in FY '76 for a study in depth.

This document reflects a two-year effort designed to, first, develop definitions and criteria applicable to funding decisions and, secondly, to test parallel criteria in the assessment of projects funded and completed. That the report is timely is evidenced by the DHEW's Office of Education (OE) publishing, at this writing, RFP 78-67, "Development of Criteria to Measure the Effectiveness and Implementation of Demonstrations in Vocational Education." It is hoped that the materials herein will contribute significantly to the OE thrust as well as that of the New York State Education Department.

Leo Cohen, Ph.D.
Director, IRDOE

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1. Introduction

Overview

This study of the validity and feasibility of impact ratings is the second year of a project concerned with linking evaluation and funding decision making. During the first year of the project, the research related to funding decision making was reviewed and the process was identified by which evaluation data and data requested for funding decisions could be linked. The pilot work in the first year suggested that raters could reach consensus on the major outcomes that could be included in the evaluation of vocational education programs and also consensus on the "predictive" impact variables for which information could be provided at the time of funding. The consensus expressed by those concerned with decision making in funding general grants under Subpart 2 of the VEA legislation suggested that the second year of the project should be devoted to developing a final set of both predictive and outcome variables for funding and evaluation respectively, and to examining 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 second year of the project, then, has carried out a series of activities designed to result in a final list of variables with priority in evaluation and funding decision making. The activities included the development of a series of questionnaires designed to assess the priorities of two major groups concerned with evaluation and decision making--the Department of Occupational Education Supervision Staff and the Local Education Authority (LEA) vocational education staff who receive funding under the basic grants section of the VEA of 1976. One questionnaire was

designed which would permit each group to express their rank order of importance and rating for a set of variables which could be known at the time of funding (predictive impact variables). A second set (outcome impact variables) could be included in evaluation of VEA grant programs. The rank orders and ratings permitted the development of two sets of data. The first set was concerned with the consensus among LEA raters in different regions and large cities of the state, and the agreement of the LEA staff overall with the DOES staff. The second set of data is the weights or the degree of importance attached to the variables receiving the highest priority among the sets of raters surveyed in the study.

In addition to determining the priority and criterion weights for major predictive and outcome variables, two additional questionnaires were designed to provide estimates of the categories on which projects might be described for each of the impact scales. That is, for a variable determined to be a major priority and given a high weighting, such as number of local jobs available in the area of the training program, some index is needed to relate the availability of employment to potential number of graduates of the program. One way of providing a "score" for a project on the priority variables is to categorize each project into one of three categories, strong, average and weak, on each impact variable. In order to categorize projects, some idea of the values for each of the categories needs to be available through data or subjective estimates (or a combination of data and DOES/LEA staff estimates.)

The second two questionnaires designed for the study were then aimed at collecting data related to the need to provide rater categories. These two questionnaires had several purposes. They examined the amount of data

readily available at LEAs, and they also provided for LEA staff to suggest that the data would be available if given advanced notice or would be very difficult to collect. The questionnaires served the further purpose of beginning a dialogue between DOES and LEA staffs on the importance of providing data for funding decision making and evaluation of VEA-funded programs.

In summary, the first year of the project examined the methods currently available to DOES staff in establishing priorities for VEA outcomes and the relationship between specifying important variables for funding decisions as they related to evaluation of projects. The second year has determined one aspect of the validity of the major variables for funding and evaluation, that is the relationship between the priorities established by LEA and DOES staff, and secondly, has provided some estimate of the distribution (different values projects may have on the impact variables) with a view toward establishing rating categories for funding decision making and outcome evaluation. The procedures and results of the study are presented in Chapters 2, 3, and 4. Chapter 5 provides an overall summary and recommendations for next steps. The second part of this introduction describes a recently-conducted study for community colleges which is similar to the work being developed at the high school level by DOES.

Recent Studies

The review of the research literature presented in the final report of the first year of the project, An Exploratory Study of the Impact of Vocational Education: Implications for Funding, described two areas of research related to the current project. The first area is the early

work in decision making which provides several ways to estimate the utilities or values attached to particular variables or outcomes of decisions and the second was a beginning area of research in linking studies of decision making to funding decision making. Two studies have appeared in the past year which merit description in terms of their relationship to the current project. The first is a review and set of studies by Einhorn and Hogarth (1978, in press) which examines the confidence that judges have in their decision making. They examined the contradiction between demonstrated evidence on the fallibility of human judgment and the "seemingly unshakeable confidence people exhibit in their judgmental ability." They stressed three key variables in the judgment process. The first is the structure of the judgment task, the second is the extent to which people can observe the outcomes of their judgments. As they note, most studies have simply correlated judgments with criteria. How individuals or judges then decide the action to take has been neglected. As they point out, in real world situations, judgments are made for the purpose of choosing between actions. This means that outcome information, such as evaluation data, which is available only after the actions or funding decisions are made, is frequently the only source of feedback with which to compare judgment. Their thesis is that in order to better understand judgmental ability, it is necessary to consider the judgment, the actions taken, and the outcome feedback together. Their argument provides a further rationale for the current projects efforts to link the outcome and predictive impact statements so that evaluation data can "feed-back" to modify future judgments.

Einhorn and Hogarth also point to a research problem in strictly correlating judgments of the impact or success of projects and the judges' initial rating of projects. Research problems are that one can only look at accepted projects to see if they have been successful, since unsuccessful applicants are not funded. The ideal validity study for judgments would include funding both projects judged to be of high impact and a smaller subset of those judged to be of low potential, and then to observe the success rate. However, for practical and ethical reasons this type of study is never carried out. The result of this research design problem is that the "treatment" of receiving a grant is completely confounded with judgmental accuracy. That is, giving a LEA a grant may give them time and resources to do more and better work as opposed to applicants who are not funded.

The limitations of correlating judges' ratings of high impact projects with criterion or independent judges ratings of high impact projects has implications for the present project. The current project has, therefore, taken a somewhat different first approach to validation, and that is to examine the relationship between LEA staff rankings and weightings of the priority of impact variables with those of DOES staff.

The second study which is related to the work of the current project was conducted by Ory, Harris, and Clark (1978) and also reported in a second paper by Ory, Harris, Dueitt, and Clark (1978). This study developed and field tested a vocational education evaluation model for programs at the community college level. The metropolitan community colleges of Kansas City, Missouri were involved in the study. An advisory group of 163 state and local educators, legislators, college trustees, and businessmen were asked to rate six criteria for vocational education program eval-

uation. These six criteria were:

1. The program's relationship to the job market profile
2. The program's success in meeting vocational aspirations of clientele
3. The program's success in terms of student support
4. The program's level of community support
5. The program's cost-effectiveness
6. The program's success in reaching the handicapped and disadvantaged

These six criterion statements were rated, each statement paired against every other statement (in the paired comparison procedure), and 100 usable responses were available from the survey. These responses were used to develop the criterion weights. The three statements weighted most highly were: the programs's relationship to the job market profile; the program's success in meeting vocational aspirations of clientele; and the program's success in terms of student performance.

The weights are used to emphasize the important criteria for evaluating programs. A series of assessment instruments were developed so that the vocational programs were assigned a quality rating of strong, adequate, or weak (3, 2, or 1 points) on each of the six criterion measures. The criterion quality points are then multiplied by their respective weights and summed to provide a program's aggregated criterion score. The comparisons based on aggregated criterion scores as indicators of program quality are intended to be useful in the decisions of maintaining, modifying, or terminating a vocational program.

Of particular interest to the current project was the definition of sub-criteria within each of the major criterion areas. Figure 1 shows

Figure 1. Evaluation Score Sheet
(Ory, Harris, Dueitt, and Clark, 1978, p.10)

Sub-Criteria	Sub-Criteria Wt.		Attainment Ratings (circle) Strong	Adequate	Weak	No Att.		
Criterion I. Local Job Market Needs								
A	32	x	3	(2)	1	0	= 64	The occupational community's expressed need for graduates
B	29	x	(3)	2	1	0	= 87	Program graduates' need for employment (% finding jobs)
C	28	x	3	(2)	1	0	= 56	The occupational community's expressed need for the type of education offered by the program
D	11	x	3	(2)	1	0	= 22	Projected employment needs reported by the N.C. Manpower Report
Total 229 X .30 = 68.7 Weighted Criterion 1 Score								
Criterion II. Past and Present Student Needs								
A	21	x	(3)	2	1	0	= 63	Employed graduate satisfaction with the program's job preparation
B	19	x	3	(2)	1	0	= 38	Employed graduate satisfaction with the knowledge offered
C	17	x	3	(2)	1	0	= 34	Employed graduate satisfaction with the skills training offered
D	16	x	(3)	2	1	0	= 48	Employed graduate ratings of the program's quality
E	10	x	3	(2)	1	0	= 20	Current student satisfaction with the skills training offered
F	9	x	3	(2)	1	0	= 18	Current student satisfaction with the knowledge offered
G	8	x	(3)	2	1	0	= 24	Current student ratings of the program's quality
Total 245 X .26 = 63.7 Weighted Criterion 2 Score								
Criterion III. Graduate Job Performance								
A	42	x	3	(2)	1	0	= 84	Employer satisfaction with the graduate's overall performance
B	38	x	3	(2)	1	0	= 76	Employer ratings of the quality of the graduate's overall performance
C	13	x	3	(2)	1	0	= 26	Employer reports of spending less, equal or more time on entry training
D	17	x	3	(2)	1	0	= 14	Employer reports of saving, breaking even, or losing money on entry training
Total 200 X .24 = 48 Weighted Criterion 3 Score								
Criterion IV. Occupational Community Support								
A	28	x	(3)	2	1	0	= 84	Employer (of graduates) willingness to hire another graduate
B	26	x	(3)	2	1	0	= 78	Occupational Community willingness to hire program graduates
C	22	x	3	(2)	1	0	= 44	Employer (of graduates) ratings of program quality
D	14	x	3	(2)	1	0	= 28	Occupational Community ratings of program quality
E	10	x	(3)	2	1	0	= 30	Occupational Community awareness of the program's existence
Total 264 X .08 = 21.1 Weighted Criterion 4 Score								
Criterion V. Cost Effectiveness								
A	54	x	(3)	2	1	0	= 162	Cost per Credit Hours
B	46	x	(3)	2	1	0	= 138	Cost per Contact Hours
Total 300 X .07 = 21 Weighted Criterion 5 Score								
Criterion VI. Success in Reaching Handicapped & Disadvantaged								
A	41	x	(3)	2	1	0	= 123	Handicapped and disadvantaged student satisfaction with program
B	28	x	3	2	(1)	0	= 28	Availability of support services (i.e., tutoring, financial aid)
C	19	x	3	(2)	1	0	= 38	Facility construction and/or alternation to meet special needs
D	12	x	3	2	(1)	0	= 12	Evidence of program's recruitment efforts
Total 201 X .05 = 10.1 Weighted Criterion 6 Score								

Composite Score = 211.6 (Sum of all six weighted criterion scores)

Figure 1. Evaluation Score Sheet

an example of an evaluation score sheet (Ory, Harris, Dueitt, and Clark, 1978). Each of the major criteria has sub-criteria, sub-criteria weights, and a rating of strong, adequate, weak, or no data. For example, criterion 1 on local job market needs has four sub-criteria: the occupational community's expressed need for graduates; the program graduates' need for employment (% finding jobs); the occupational community's expressed need for the type of education offered by the program; and projected employment needs reported by the Kansas City Manpower Report. These data were collected from employer and student surveys in order to provide individual program ratings of strong, adequate or weak.

The project established the rating categories in conjunction with administrative decision makers. For example, in order for a program to be rated STRONG on sub-criterion 1, "program graduates' success in finding employment," Ory et al report that at least 90% of the graduates needed to be employed in training-related fields. At least 75% needed to be employed for a rating of ADEQUATE, and below 75% programs received a rating of WEAK. The proficiency levels of 90%, 75%, and less than 75% were used to assign the attainment ratings of STRONG, ADEQUATE, OR WEAK, respectively, to that particular sub-criterion. The unique set of proficiency levels were based, as mentioned earlier, on the standards of quality desired by the individual college's administration.

In the present project, in contrast, a first step has been to construct questionnaires to go to LEAs to collect information on the distribution of major variables. One difference between the present study and the Ory et al study, is that the latter collected data on completed programs. One of the major problems, as reported later, is that the

funding decisions made by DOES are not always directly program-linked. For example, some grants may cover equipment for several programs. The "entity" being funded is not as well defined as the program being evaluated in the community college study.

In order to collect data to evaluate ten vocational programs of the Kansas City metropolitan community colleges, over 16,000 questionnaires were sent to various data sources, including current students, graduates, stop-outs, local business persons, employers, and program chairpersons. Among the questionnaires were evaluation checklists for facilities (to determine accessability for the physically handicapped), a program chairperson's checklist for level of program participation offered to handicapped and disadvantaged students, and a cost-evaluation form used by evaluation personnel.

Ory et al reported that criterion scores across all ten programs range from 0 to 300, while composite (weighted) scores had a range from 92 to 258. Of the ten programs used for field testing, three averaged criterion ratings of STRONG, six averaged ADEQUATE ratings and required modifications (in areas suggested by the program criterion ratings), and one program was rated WEAK. According to the authors, these ratings supported subjective judgments by administrative personnel prior to the evaluation and informal data collected with the questionnaire.

In summary, the two recent studies described here suggest the importance of linking outcome data to data that can be known at the time of funding, and further suggest the need for providing both evaluation and funding decision makers with categories that can be quantitatively defined, either on the basis of judgments by local administrators and evaluators or by sample data reported in the present project.

II. Development of Questionnaires 1977-1978

Rating procedures in use at SED 1977-78

In line with the new regulations for the VEA of 1976, project proposals for fiscal year 1979 have followed a different series of procedures in the department. Each project application is first examined on a series of screening criteria. The initial screening criteria are in two areas. The first is initial project screening criteria, comprised of six items which are checked yes or no. The six items are as follows:

1. The agency was involved in regional planning for occupational education.
2. There is written documentation of local advisory council involvement in developing the proposal.
3. The agency has maintained effort (aggregate or per capita expenditures) from the previous year.
4. The proposed activities are allowable under the legislation (use statement of allowable activities).
5. The proposed expenditures are allowable under the legislation (use statement of allowable expenditures).
6. The agency has a policy on sex bias, stereotyping and discrimination on file and proposed activities are consistent with the policy.

The second set of screening criteria are on economic and manpower needs documentation. There are four statements in the economic/manpower needs screening criteria and they are rated on a scale going from high, medium high, medium low, to low, and receiving respectively, 4,3,2, or 1 points. The four screening criteria statements in this area are:

1. The project serves an area of high economic need as evidenced by high rates of unemployment, concentrations of low income families and other economic indicators.
2. Information on labor market needs deals specifically with needs of the region or area served by the educational agency (regional data preferable for schools serving regional labor market: statewide data acceptable in cases where agency has area-wide or statewide area of placement).
3. Information on labor market needs is based on objective data (not limited to opinions, personal knowledge or testimonials) and is corroborated by at least two data sources.
4. Information on labor market needs is directly related to the specific program (instructional or support services) seeking funding under VEA.

The projects need to receive a score of 8 or greater to continue in the review process. Figures 2, 3, and 4 show the general flow charts for the review and approval decision making process for each of the three main population categories under the VEA legislation - general population, handicapped and disadvantaged, and adult population As shown in the flow charts, the present procedure goes from the screening statements, including regulatory issues and economic/manpower needs, to the ratings of instructional program quality and program management quality. Program management quality and instructional program quality scales are shown in Appendix A. The management criteria include ratings from 1 low to 4 high in the area of statement of needs, objectives, activities, costs, continuation, evaluation, articulation, and agency experience/ past performance. The instructional project quality

Figure 2

Flow Chart of VEA Review and Approval Decision Making Process:

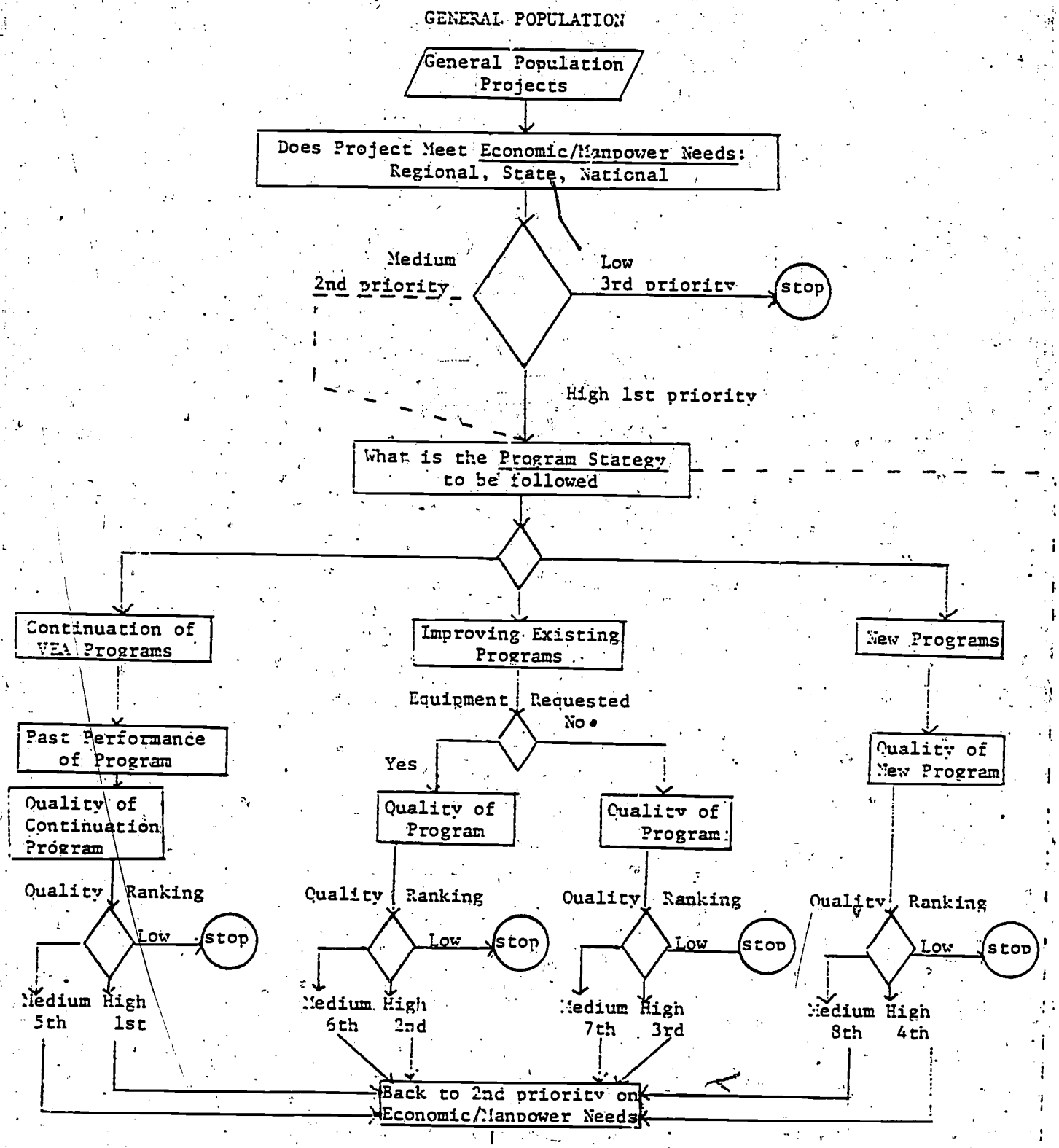


Figure 3

Flow Chart of VEA Review and Approval Decision Making Process:

Handicapped & Disadvantaged Populations

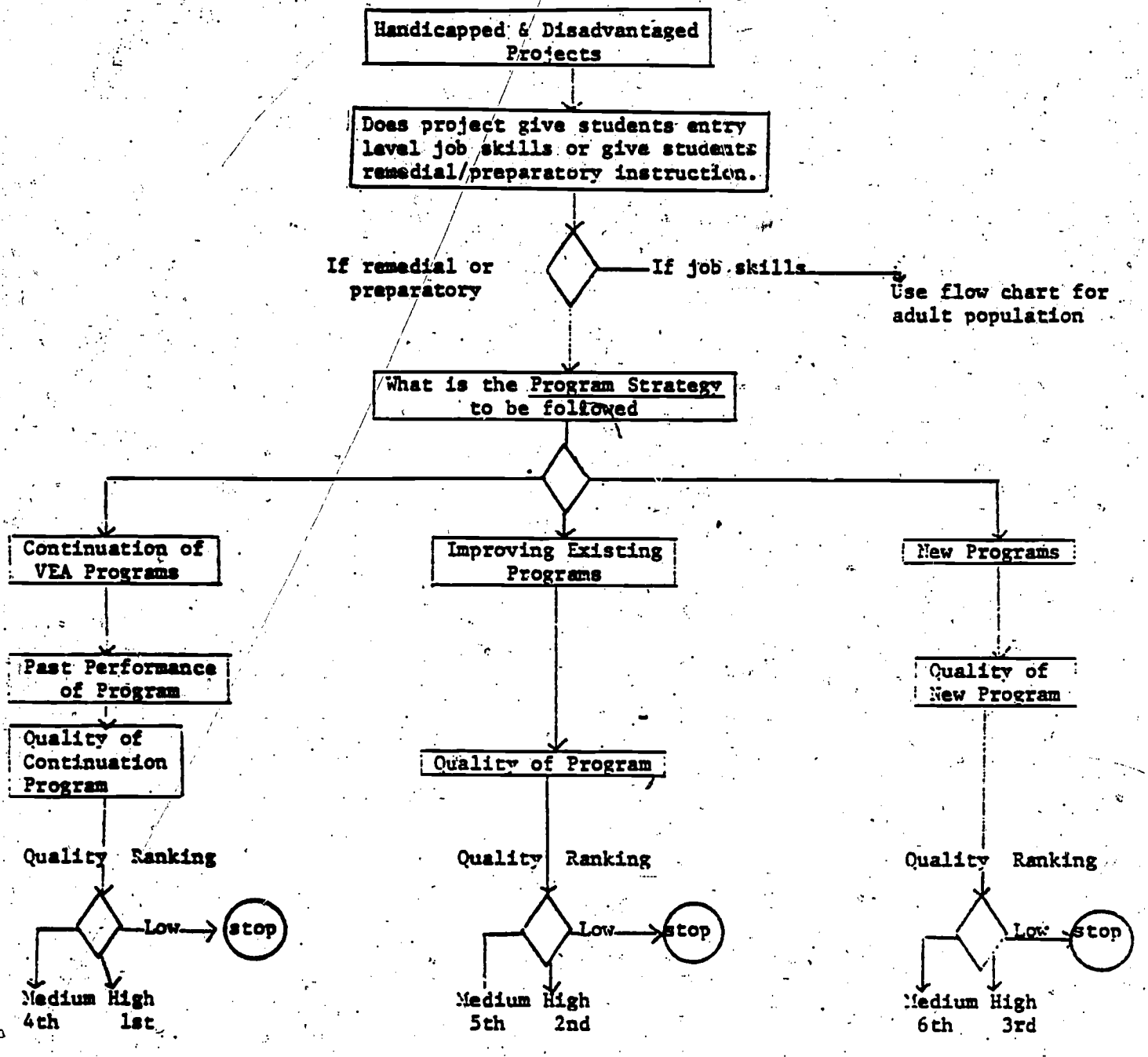
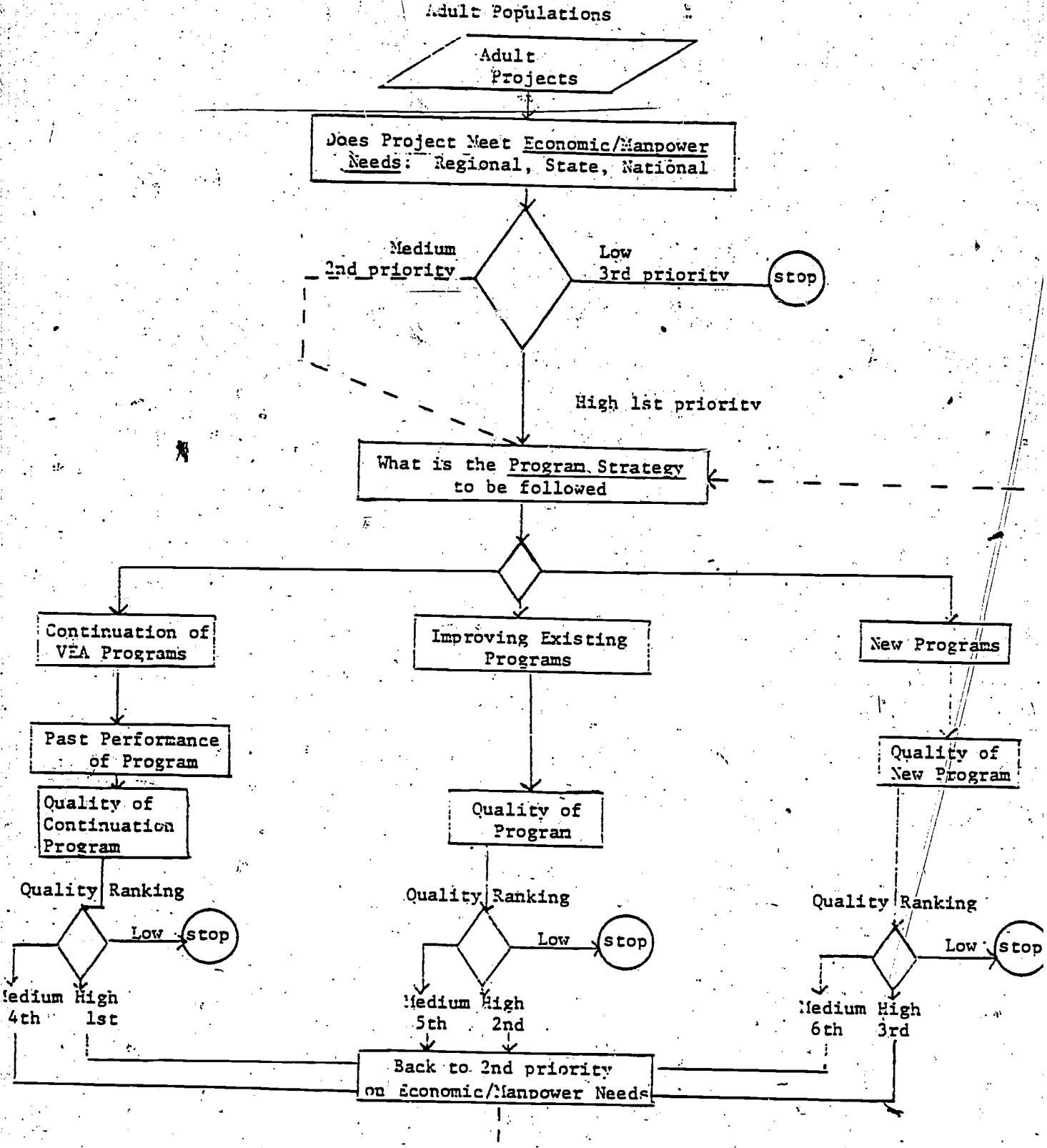


Figure 4

Flow Chart of VEA Review and Approval Decision Making Process:



criteria include ratings on needs, objectives, activities, staffing, equipment, facilities, costs, and agency experience/past performance.

The state rating scales for program management and instructional quality develop sub-categories for each of these areas and provide four-point rating scales. These procedures may be contrasted with those reported by Ory et al, where there was a joint effort by administrators and evaluators to set category definitions, and with the effort in the present project to provide some estimates of values for the categories based on project questionnaires. The next section describes the rationale and the questionnaires for the present project.

Rationale and major sections of study questionnaires.

Following the outcomes of the 1976-1977 study, a summary of outcome and predictive impact statements were developed for discussion with the staff of DOES. These summaries are presented in Tables 1 and 2. IRDOE and DOES staff met on January 16, 1978, to review the previous year's work and to develop the revised impact statements based on the 1976 VEA amendments. At the meeting it was decided that LEAs should also rank order the impact statements. Because of this decision, some of the impact statements that previously had low ranks were left in the set.

On the basis of the discussion at the meeting, three questionnaires were developed. Questionnaire 1 provided for ranking and rating of predictive and outcome impact statements. Questionnaire 2 provided for the collection of data related to each predictive impact statement, to ascertain the data which are readily available to LEAs, data that could be collected given advance notice, and data that LEAs considered impossible to collect. Similarly, Questionnaire 3 provided for the collection

Table 1. OUTCOME IMPACT STATEMENTS - January 1978

Statements that received the highest ratings and rankings:

(A) Training objectives are met with minimal cost per student.

(C) Program graduates are working in occupations for which they were trained.

(E) Vocational education needs of special groups are met.

(G) Training increases student employment options.

(J) Employers are satisfied with graduates of program.

(K) Job satisfaction of students trained is increased.

(L) Students trained have a more positive attitude toward work.

Statements that received low ratings and rankings, but should be reconsidered (Parallel forms were ranked high among predictive statements):

(F) Students are trained for occupations traditionally dominated by the opposite sex.

(H) Students learn career planning.

(D) Program can be replicated in other settings.

Statements that received low ratings and might be deleted:

(B) Large numbers of students are trained.

(I) Students trained continue their education.

Table 2. PREDICTIVE IMPACT STATEMENTS - January 1978

Statements that received the highest ratings and rankings:

(A) Training objectives will be met with minimal cost per student.

(C) Students will be trained for occupations where jobs are available.

(D) Program will be replicable in other settings.

(E) Vocational needs of special groups wi l be met.

(F) Students will be trained for occupations traditionally dominated by the opposite sex.

(G) Training will be provided to increase students' employment options.

(H) Students will learn career planning

New statements that should be considered (Parallel statements were ranked high among outcome statements):

(J) Students will be prepared to meet job requirements as specified by prospective employers. (e.g., employer's ratings of program performance objectives in terms of job requirements)

(K) Training will increase students' job satisfaction. (e.g., prospective students will rate course goals/curriculum in relation to being able to do their work well)

Statements that received low ratings and ranking and might be deleted.

(B) Large numbers of students will be trained.

(I) New program will serve students' interests (even though jobs are not available locally)

of data for each of the outcome impact statements. The procedures for developing these questionnaires were to identify the data required for each impact statement, to develop an index or single number as a basis for grouping or categorizing projects on a rating scale on that statement, and to then reduce the amount of data actually asked for in the questionnaire to the bare minimum. This latter undertaking was assisted in large measure by the cooperation generously given by three LEAs. Draft questionnaires were reviewed by Mr. Thomas Castelli, by Dr. Donna Santa and her staff, and by Dr. Howard Friedman and his staff. On the basis of their comments IRDOE staff simplified the questionnaires still further for the survey.

The three questionnaires used in the study are given in Appendices B, C, and D. The survey procedures are described below.

III. Sample Survey

Procedures

IRDOE staff identified one completed project from FY 1976, and one project application for FY 1979, for each BOCES to serve as the basis for completing Questionnaires 2 and 3 in the survey. For the majority of BOCES and large cities, there was no sample project selection, since there were few projects listed and the selection criterion was to draw on a general population, secondary level project as the first preference. In a few cases, adult or special population projects were used.

A separate procedure was followed for New York City for FY 1976 and FY 1979 project selection. In cooperation with Dr. Howard Friedman, of the Board of Education Center for Career and Occupational Education, individual projects were selected for New York City.[1] Ten were selected for the predictive and ten for the outcome questionnaires. The basis for selection was to include a range in terms of the dollar amount allocated to the grants and a range in terms of the type of occupation covered by the grant.

During April and early May, questionnaires were mailed to LEA and large city directors of vocational education or, for New York City, to individual project directors. The majority of questionnaires were sent out with a letter requesting cooperation from Dale M. Post, Director of the Division of Occupational Education Supervision. The New York City

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[1] "Umbrella" grants including a number of individual project are often used for New York City. The most comparable data would be for individual projects with the "umbrella" grant, so these were identified for the survey.

questionnaires went out under the cover letter by George R. Quarles, Chief Administrator for the Board of Education of the Center for Career and Occupational Education. Following the Directors' letters, a letter from the Institute for Research and Development in Occupational Education requested cooperation also, explained the purpose of the survey in more detail, and identified the VEA numbers and project titles on the questionnaires. Also, the review process was described asking respondents to include data where they were available but where data were not available to mark each question as to whether: the data could be supplied if given advanced notice; the data were not accessible without considerable effort; or the data were impossible to collect.

Returns:

LEAs were requested to call if there were questions about the survey and to return the surveys within approximately three weeks. Questionnaires were returned during May and June. Two telephone follow-up calls were made for non-respondents and the final number of questionnaires returned were as follows: 45 BOCES questionnaires were mailed and 39 returned, for a response rate of 87%. For the large cities, 63 questionnaires were mailed out and 42 questionnaires were returned, for a response of 67%. All three questionnaires were sent to each BOCES.

All of the cities' programs received a Questionnaire 1 and either a Questionnaire 2 or 3 depending on whether that program was funded in FY 76 or FY 79. Out of the 29 Questionnaire 2's that were sent out, 20 (69%) were returned and 22 (65%) out of 34 Questionnaire 3's were returned. In cases where it was obvious that the same person filled out more than one copy of Questionnaire 1, only one copy (selected at random) was used in the data analysis. Therefore, although 42 Questionnaire 1's were returned, only 33 unique copies were used for the analysis reported in Part III.

IV. Results

A. Ratings and Rankings of Impact Statements (Questionnaire 1)

Three groups responded to Questionnaire 1, providing rankings and ratings of importance of predictive and outcome impact statements. The first group is comprised of directors or project directors in BOCES (n=38), the second group consists of respondents from the five large cities in the state (n=33), and the third group includes individuals who are supervisors in DOES (n=5). The data from the rank ordering of the importance of the predictive and outcome statements are given in Tables 3 and 5. The tables show the overall rank based on the mean ranks given each statement by each of the three groups and the total group. Tables 4 and 6 provide the means and standard deviations for the rating of importance for each statement. The ratings were originally given on a scale from one (low) to twenty (high), but were transformed to a mean of 50 and a standard deviation of 10. The transformation was used to place each rater's set of ratings on the same scale, so that comparable numbers could be used for summary purposes.

The amount of agreement between raters was estimated for the DOES staff ratings. Kendall's Coefficient of Concordance (W) was computed for the ranks given by DOES staff to the predictive and outcome impact statements. W had a value of .638 for the Predictive impact statement ranks ($X^2 = 28.7$ $p < .001$) and $W = .689$ for the Outcome impact statements ($X^2 = 30.9$ $p < .001$). These values show a highly significant amount of agreement among the set of DOES staff judges. (W can take a value from 0 to +1, and is defined as the ratio of the obtained variance to the maximum variance possible.)

Table 3. 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. See Appendix F.

$\underline{W} = .896$

X^2W (9 df) = 24.18 $.01 < p < .001$

Table 4. Ratings of Predictive Impact Statements by BOCES, Large City, and DOES Staffs: Mean and Standard Deviation of Standardized (T) Scores.

Predictive Impact Statements	BOCES (N=38)		Cities (N=33)		Supervisors (N=5)		All (N=76)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1. Students will be trained for occupations where jobs are available.	53.35	7.12	56.93	7.10	60.03	3.31	55.34	7.19
2. Project objectives are stated in measurable terms.	51.36	7.77	51.87	8.85	53.82	2.66	51.74	8.00
3. No sex discrimination will be made in recruiting and placing students in vocational programs	48.31	6.47	47.09	7.27	51.48	9.79	47.99	7.04
4. Training objectives will be met in the most cost effective manner	52.75	5.92	48.22	6.17	51.91	8.98	50.72	6.54
5. Large numbers of students will be trained	39.35	6.03	40.74	7.56	36.95	3.27	39.80	6.63
6. Training will be provided to increase students' employment options	59.80	5.32	53.83	7.03	53.01	5.32	56.76	6.78
7. Students will be prepared to meet entry level skill requirements as specified by prospective employers	56.90	5.93	57.26	7.42	59.01	3.84	57.19	6.47
8. Program will serve students' interests	55.35	6.83	53.38	7.49	54.12	3.43	54.41	6.97
9. Program is articulated with local post secondary institutions	43.53	5.33	43.88	5.66	42.45	6.95	43.61	5.46
10. Program will be replicable in other LEAs	36.50	4.49	37.28	6.11	37.23	7.46	36.89	5.38

Table 5. 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. See Appendix F.

$\underline{W} = .809$

X^2_W (9 df) = 21.84 $.01 < p < .001$

Table 6. Ratings of Outcome Impact Statements by BOCES, Large City, and DOES Staffs: Mean and Standard Deviation of Standardized (T) Scores.

Outcome Impact Statements	BOCES (N=38)		Cities (N=33)		Supervisors (N=5)		All (N=76)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1. Program graduates are workin in occupations for which they are trained	51.06	7.12	54.87	8.21	57.64	6.14	53.15	7.79
2. Project objectives are fulfilled	52.02	8.17	56.05	9.41	51.15	5.49	53.71	8.75
3. No sex discrimination occurred in student selection, training, and job placement	47.14	6.62	46.13	6.96	49.80	9.33	46.88	6.91
4. Training objectives are met in the most cost effective manner	52.94	5.70	48.24	6.18	57.07	1.62	51.17	6.34
5. Large numbers of students are trained	38.95	5.97	40.23	7.70	35.44	1.27	39.27	6.67
6. Training increases student employment options	58.77	5.79	52.83	7.08	57.23	3.79	56.09	6.86
7. Employers are satisfied with graduates of program	57.03	4.95	53.96	7.25	57.66	3.19	55.74	6.12
8. Students trained have positive attitudes toward work	58.16	5.86	54.73	6.03	54.23	6.31	56.41	6.14
9. Students trained continue their education	44.00	6.20	45.96	8.46	41.69	7.89	44.70	7.37
10. Program can be replicated in other LEAs	37.13	4.13	37.46	5.39	38.10	3.60	37.35	4.64

Similarly, W was computed for the ranks given by the three sets of judges: the BOCES, Large City, and DOES staffs. The degree of agreement among the overall rank order given by the three groups was high. For the predictive impact statements $W = .896$ ($X^2 = 24.18$, $.01 < p < .001$), and for the outcome impact statements $W = .809$ ($X^2 = 21.84$, $.01 < p < .001$). The high W coefficients are reflected also in the similarity in the rankings and ratings for the predictive impact statements, and similar agreement for the outcome impact statements.

The six highest statements in the predictive rankings and ratings were (in overall order of priority):

Students will be prepared to meet entry level skill requirements as specified by prospective employers.

Training will be provided to increase students' employment options.

Students will be trained for occupations where jobs are available

Program will serve students' interests

Project objectives are stated in measurable terms

Training objectives will be met in the most cost effective manner

Less priority was given to the other four statements that were concerned with sex discrimination, the number of students trained, articulation with local post secondary institutions, and program replicability in other LEAs. These four statements all received ratings below the mean of the scale, when the ratings were averaged across all 76 raters (i.e., a mean rating of less than 50).

The six outcome impact statements that received the highest rank order and ratings were:

Students trained have positive attitudes toward work

Training increases student employment options

Employers are satisfied with graduates of program

Program graduates are working in occupations for which they were trained

Project objectives are fulfilled

Training objectives are met in the most cost effective manner

Again, lower priorities were given to the four statements that were concerned with sex discrimination, training large numbers of students, students continuing their education, and program replicability in other LEAs.

The significant agreement both between the raters in each set of predictive and outcome impact statements, and the agreement between the priority given the statements in the ranking and rating tasks, indicates that the further effort to develop more objective or quantative indicators for the high priority statements is worthwhile. Similarly, the extent of agreement between the six statements that were highest in the predictive set and the six highest in the outcome set are encouraging. The BOCES, the large cities, and the DOES staff can work further to develop a system for funding decisions and for evaluation that will provide data for decision making that should be satisfactory to all groups concerned.

The focus in these six statements is somewhat different from the set of six statements used by Dueitt et al (1977). The six statements used in that study of community colleges described earlier, were the program's relation to the job market, meeting vocational aspirations

of students, program positively supported by students, program's level of community support, cost effectiveness, and success in reaching the disadvantaged and handicapped. The two sets of six statements differ in the emphasis on student and community support of the program and in serving the special populations of disadvantaged and handicapped. The statements in the present study had only one statement concerned with special needs--that of sex discrimination--and that statement was not ranked highly nor given average ratings of importance above the average for the scale used. With the exception of meeting the needs of special groups, the six statements in the present project seem more directly related to the VEA funding regulations, as is suitable in view of the purpose of the project and its focus on programs and projects receiving federal funding.

The next section examines the problem of developing categories for placing project applicants on a scale (STRONG, AVERAGE, and WEAK) for each of the impact statements used in the study. The LEA ratings of availability of data for each statement are also reported.

B. Predictive Impact Statements (Questionnaire 2)

Questionnaires 2 and 3 were designed to obtain information in two areas. The first area was the feasibility of collecting data on each impact statement, predictive or outcome. The second was the development of preliminary distribution data for each index to provide a first approximation to scale categories of STRONG, AVERAGE, and WEAK that can be used in funding and evaluation decision making. These two areas provide the first step toward development of a rating scheme for projects that will have objectively assigned rating categories and can serve to provide a total score for each project application or evaluation that indicates the degree of impact (high or average or low) of the project. The data on feasibility and distributions for categories can be used by DOES in two ways. The first is to provide the basis for further discussion of the implementation of data collection by LEAs on each impact statement. The second is to provide an initial set of categories for scales that can be adjusted on the basis of data collected on actual project applications and evaluations over the next few years. Both judgment and distribution data should be used in developing scale categories that are accepted and realistic to DOES and LEAs.

The data on feasibility and indices for each predictive impact statement are presented below. The indices have been grouped into three categories for the impact statement where possible, given the distribution of the data on the respective indices. There are moderate to severe limitations to the data reported below. The use of questionnaires to collect the distribution data has an inherent limitation in terms of communication with the respondent and interpretation of the request for for data. Some respondents clearly provided inappropriate data, and

data which did not meet a test of "reasonableness" were not used for the index distribution involved. Also, the amount of data available varied greatly from impact statement to impact statement. Rather than impose an undue (and likely to be unmet) burden, respondents were instructed to indicate the availability of data where it could not be quickly provided. A letter of instruction to LEAs requested that the following process be used to review and provide data for the impact statements:

a. fill out the questionnaire using the appropriate project as listed;

b. for items requesting data that are not readily available using the fiscal and program reports, do not attempt to complete the item. But, WHERE YOU OMIT DATA, PLEASE MARK EACH ITEM IN THIS MANNER:

   OK if the data could be supplied given advance notice or

   NA if the data are not accessible without considerable effort or

   IM if the data are impossible to collect.

Respondents were requested to mark an OK, NA, or IM for each item left blank. Thus, in examining the data which follow, considerable caution should be used. Although the number of respondents for BOCES is high, the tables on data availability will usually indicate that considerably fewer BOCES (and large cities) supplied particular data. Also, the particular LEAs supplying data varies from question to question. With these caveats in mind, the following data provide a basis for a provisional rating form, as summarized in Part V. of this report.

Predictive Impact Statements

1. Students will be trained for occupations where jobs are available.

Table 7 shows that a majority of BOCES and large cities could either supply the data on job openings or indicated that the data could be supplied. Five Boces and five large cities indicated the data were not

Table 7. Data available on Job Openings

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	24	4	5	[illegible]	5	39
CITIES	8	7	5	-	-	20

accessible without considerable effort, and one indicated the data on job openings were impossible to supply. Since the predictive impact statements asked for data on a FY 1979 grant application, there is an apparent lack for some LEAs in the basic data that are needed to support a VEA application.

The index developed for this impact statement consisted of the ratio

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

This index was computed for each of the 32 LEAs that supplied data and three categories were established based on the ratio above. The numbers of BOCES and Large Cities falling in each category are shown below:

Scale Category	No. of Jobs / No. of Students	BOCES	CITIES
Weak	< 1	9	1
Average	$\geq 1 < 2$	7	2
Strong	≥ 2	8	5

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 one for whom at least one job and less than 2 is available. Stronger applicants provide data that more than two jobs are available in the local area for each trainee in the occupational program. These three categories can provide the basis for WEAK, AVERAGE, and STRONG program ratings on this impact statement. The acceptability of these categories can be checked with LEAs and the feasibility of supplying data is very high. Data from succeeding years can be examined to see whether changes in the labor market warrant adjusting the category definitions.

2. Project objectives are stated in measurable terms.

Table 8 shows that a majority of BOCES and large cities can provide a count of the number of objectives they have and the number that are stated in "measurable" terms.

Table 8. Data available on project objectives.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	24	1	2	1	11	39
CITIES	18	-	-	-	2	20

The index computed was the ratio:

$$\frac{\text{Number of measurable objectives}}{\text{Total number of objectives}}$$

The distribution of the index is shown below:

Scale Category	No. Meas / Total No.	BOCES	CITIES
Weak	0	2	2
Average	>0<1	8	4
Strong	1	14	12

This objective relies upon the judgment of the DOES staff to define measurability. The definition of measurability used in the FY 1979

funding process can be used here: "two people can agree on what constitutes achievement of the objective." Projects which do not provide measurable objectives would be considered WEAK on this impact statement, those where the ratio was between zero and one (i.e., some, but not all, objectives are considered measurable) would be categorized as an AVERAGE project, and those where all objectives were measurable would be rated STRONG on this particular impact statement.

3. No sex discrimination will be made in recruiting and placing students in vocational programs.

The data requested for this statement are checks of the activities in vocational education programs that will assist in sex equity. These activities are listed below, along with the percent of BOCES (N = 39) and large cities (N = 20) checking each activity.

Check each activity below that will be carried out prior to or during this project.

Percent checking: BOCES	CITIES	
85	100	Vocational courses are equally available to female and male students upon request.
44	45	Female and male students will be recruited in approximately equal numbers.
74	100	All course instructional material will be free of sex bias and sex role stereotyping.
28	25	Program teachers will equally represent females and males.
51	65	"Role models" of the "nontraditional" sex for the occupation will visit the program.
79	90	All career materials will be free of sex bias and sex role stereotyping.
79	95	Men and women students are provided information about their rights to equal educational and employment opportunities under the law.

Percent checking: BOCES	CITIES	
36	85	A program will be conducted for parents which will assist them to work with their daughters and sons to consider all educational and employment opportunities.
69	85	Special support services or counseling will be provided to females and males who select a nontraditional occupational program
79	75	Equal emphasis will be placed on financial support and cooperative educational placements for females and males.
69	65	Program instructional and related guidance personnel will be provided the inservice training necessary for the delivery of sex-fair instruction and counseling for students.

Table 9 shows that these are very feasible data to collect, and the

Table 9. Data available on sex discrimination checklist.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	33	1	1	-	4	39
CITIES	20	-	-	-	-	20

index that was used for this statement was:

$$\frac{\text{Number of sex discrimination items checked}}{\text{Total number of items (eleven)}}$$

The distribution of the index is shown below

Scale Category	No. items checked / 11	BOCES	CITIES
Weak	$\leq .50$	4	1
Average	$> .50 \leq .75$	14	14
Strong	$> .75$	15	5

A first approximation of three categories was devised based on the ratio above, with a weak program (as defined here) checking less than half of the possible activities to assure sex equity in recruiting and placing

students in vocational programs. An average program checked between half and three-fourths of the activities, and a strong program 75 percent or more of the activities. As indicated in the percents checking each activity, the most difficult areas of activities are: recruiting approximately equal numbers of female and male students; having "role models" of the nontraditional sex (for the occupation) visit the program; representing females and males equally as program teachers, conducting programs with parents to assist them to work with their daughters and sons to consider all educational and employment opportunities (BOCES), and providing inservice training necessary for the delivery of sex-fair instruction and counseling for students (large cities).

4. Training objectives will be met in the most cost effective manner.

Table 10 summarizes the data availability on program costs. As indicated, these data are typically available. The index for this statement was computed in two ways. The first was a direct ratio of cost to number of students, the second was a ratio of the cost per student to the percent of program cost (estimated by LEA) to be covered by the VEA grant. The scale categories developed for each of these ratios are shown below.

Table 10. Data available on program cost.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	27	1	1	-	10	39
CITIES	18	-	-	-	2	20

Scale Category	Cost per student	BOCES	CITIES
WEAK	> $1000	8	9
AVERAGE	> $200 ≤ $1000	11	8
STRONG	≤ $200	8	1

Scale Category	cost/student/% covered	BOCES*	CITIES*
WEAK	> $2500	7	4
AVERAGE	> $750 ≤ $2500	11	11
STRONG	≤ $750	6	2

*Some programs reporting costs did not estimate % covered

The cost estimates used in the ratios here include capital costs. Unless capital costs are included, a majority of BOCES grants cannot have cost per student computed. There were 29 BOCES grants reporting data on cost and number of students in the program. Fifteen of these grants were for equipment only. The proportion of large city grants for equipment only was lower: three of 18 grants for which data are reported were equipment only grants.

Adjusting the cost per student ratio by the "percent of program covered by the grant" provides a rough estimate of the total per pupil program costs, and the categories are for larger dollar amounts, as shown above. The dollar amount increases by a factor of about 2 1/2 to 3. The change in ratio resulting from the adjustment by percent of program costs covered does not affect the BOCES distributions into scale categories. There are more large city grants where a smaller proportion of the program costs are covered by VEA funds, resulting in a change toward higher per student costs, and fewer "strong" projects on the criterion of adjusted cost per student.

5. Large numbers of students will be trained.

Table 11 summarizes the data availability on numbers of students to be trained. As indicated, these data are readily available. The

Table 11. Data available on number of students

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	27	1	1	1	9	39
CITIES	17	-	-	-	3	20

index for this statement was the frequency distribution of numbers of students. Given the emphasis of the statement, the categories developed

Scale Category	Number of Students	BOCES	CITIES
WEAK	$\leq$ 100	17	7
AVERAGE	$>$ 100 - 500	5	4
STRONG	$>$ 500	5	6

here show a skewed distribution for the BOCES. As the BOCES are generally conducting smaller programs the scale categories are not as appropriate for them. However, the scale categories are shown here for illustrative purposes only and no attempt was made to change the category definitions for the BOCES. This impact statement received a low priority rating and would not be included in a rating scheme.

6. Training will be provided to increase students' employment options.

Table 12 summarizes the data availability on employment options provided by the vocational education program. The variable was defined by this instruction:

> Use the OE code to list the number and titles of occupational areas for which graduates of this project are prepared (e.g., 07.0904 Medical Assistant, 07.0906 Health Aide.)

As shown in Table 12, over half of the BOCES were able to provide this information, as well as over three-quarters of the large cities.

Table 12. Data available on employment options.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	21	6	3	-	9	39
CITIES	17	1	1	-	1	20

The distribution of number of employment options is shown below, and

Scale Category	Number of options	BOCES	CITIES
WEAK	1	8	4
AVERAGE	$> 1 < 5$	8	9
STRONG	> 5	5	4

indicates for this criterion of impact that there were a number of BOCES and cities (8 and 4, respectively) who provide only 1 occupational title for which graduates of their program are prepared. As is true of all the scale categories reported here, the range for the average and strong categories may be too wide or too narrow. The categories should be re-examined in light of the general expectations of the number of employment options that it is reasonable for a program to attain. And, it is well to consider that this impact statement is only one of six or seven that might appear on a final version of a rating form. Programs that appeared in a weak category here might well appear in strong categories on other statements.

7. Students will be prepared to meet entry level skill requirements as specified by prospective employers. (e.g. employer's ratings of performance objectives in terms of job requirements).

Table 13 presents the summary of data that are available for this impact statement. Slightly less than half of the BOCES could either supply these data or could supply them with advance notice. Half of the

large city respondents either had or could supply the data.

Table 13. Data available on employers' skill requirements.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	12	4	7	3	13	39
CITIES	7	3	8	-	2	20

The index used to establish scale categories was:

$$\frac{\text{Number of entry level skills checked by employers}}{\text{Number of entry level skills listed by school}}$$

The scale categories could range from zero, none of the entry level skills checked by employers, to one (1), the same number of entry level skills checked by employers as provided by the school.

Scale Category	No. checked by employers / No. listed by schools	BOCES	CITIES
WEAK	$< .70$	0	0
AVERAGE	$\geq .70 < 1$	2	0
STRONG	1	10	7

These data must be considered very tentative, since so few respondents could supply data. Also, there was a wide range in the number of skills that BOCES particularly said had been listed for the program and/or employers. BOCES listed from 14 to well over 500 skills as entry level skills. The range for the cities appears more realistic, from 3 to 30 entry level skills. The implementation of this impact statement will apparently require more effort in defining entry level skills and contacting employers to determine the overlap between BOCES skill requirements and employer skill requirements.

8. Program will serve students' interests.

The data for this statement were to be based on a source such as

a career interest survey. Respondents were asked to indicate: 1. the total number of students surveyed; and 2. the number of students selecting this (the program) occupational area as first or second choice (of interest to them). Table 14 presents the availability of data on student interest in the program occupation.

Table 14. Data available on students' interests

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	9	9	7	2	12	39
CITIES	7	9	4	-	-	20

As the table indicates, few BOCES or large cities were able to supply these data, so no index is presented here. However, an index which can be used is:

$$\frac{\text{Number of students to be served by program}}{\text{Number of students selecting area first or second}}$$

An examination of the few grant applicants supplying these data showed that ratios obtained for BOCES programs were: 1.5, 2.6, 1, and 1.7. That is, there were at least as many interested students for enrollment as there were program places. For the large cities the following data were available: 2.4, 1, 1, 2.1, and .78. Only in the last instance, apparently, were there fewer interested students identified than program openings.

Possible scale categories are:

Scale Category	No. in program / No. interested
WEAK	≤ 1
AVERAGE	$>1 \leq 2$
STRONG	>2

Since few LEAs were able to supply data, but at least as many said data could be supplied with advance notice, it would be important to carefully define the procedures for a survey and the data being requested. While some LEAs indicated that these data were most appropriate for new programs, they may also be important to justify requests for program improvement and especially equipment grants. This appears to be important in light of the fact that a minority of grants are given for new programs for the LEA(11 of the 39 BOCES grants, 30%; and 5 of 20 large cities grants, 25%). For the program improvement grants, 23 of 25 to BOCES were grants with an equipment emphasis--equipment costs were 50% or more of the total grant cost. For the large cities, 6 of 11 program improvement grants had a similar equipment emphasis.

9. Program is articulated with local post secondary institutions.

The data available on program articulation requested were the numbers of local post secondary institutions where students could continue in the same occupational field. The data availability are presented in Table 15.

Table 15. Data available on articulation

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	21	3	2	3	10	39
CITIES	18	1	-	1	-	20

Again, a majority of BOCES and large cities can supply these data.

The index that was examined for scale categories was the number of local post secondatry institutions. Tentative scale categories are given below.

Scales Categories	No. of institutions	BOCES	CITIES
WEAK	0	7	1
AVERAGE	1 - 2	5	4
STRONG	3 or more	9	13

The BOCES have more difficulty with this impact statement than the large cities. Seven BOCES reported no articulation with a post secondary institution, while only 1 large city reported no articulation. However, this is one of the impact statements that received a low priority, so the disparity and possible inequity because of the location of particular LEAs will not be of concern if this statement is not used as part of a funding rating scheme.

10. Program will be replicable in other LEAs.

The information requested in this statement was a check of the "items" in a program that could be reproduced and sent to another school. The items checked and the percent checking each item were:

Percent checking: BOCES	CITIES	Item
77	95	course outline
46	50	lesson plans
13	55	project-developed student workbook/ student instructional materials
62	90	student assessment forms (tests or rating forms)
21	25	project developed slides/AV materials/ films
72	100	list of recommended equipment/textbooks/ AV materials
67	90	list of suppliers and vendors
33	55	teacher program guide
77	100	project proposal
62	90	program evaluation report--data and sample forms

The items for replicability that were least frequently available were: lesson plans, project-developed student workbook/student instructional materials, slides/AV/films, and teacher program guides. The numbers of programs reporting this information is given in Table 16.

Table 16. Data available on replicability.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	31	1	-	-	6	39
CITIES	20	-	-	-	-	20

All of the large cities and a majority of BOCES could readily supply the information.

The index for which scale categories were developed is:

$$\frac{\text{Number of items checked as being replicable}}{\text{Total number of items}}$$

The scale categories for the index are shown below:

Scale Category	No. of items checked / Total no. of items	BOCES	CITIES
WEAK	$\leq .5$	8	4
AVERAGE	$> .5 < .8$	13	7
STRONG	$\geq .8$	10	9

The index has a range from 0 to 1.0, and a majority of the programs reporting data would be classified as average or strong using this type of index.

In addition to developing indices for the predictive impact statements, the survey included another questionnaire, Questionnaire 3, which was intended to provide the basis for developing similar indices for the outcome impact statements. The results of this analysis are presented in the next section.

C. Outcome Impact Statements. (Questionnaire 3)

The outcome statements are evaluation data that would be submitted as part of the final project report and evaluation. The outcome and predictive impact statements are parallel in content, although differing sometimes in the exact type of information to be presented. Thus there may be the same index for the predictive and outcome statements (as in the replicability statement) or the index may be different, as in the case of the sex discrimination statement. The indexes for the outcome statements are presented below, along with the information on data availability.

Outcome Impact Statements

Program graduates are working in occupations for which they were trained.

Several of the outcome statements are based on a program graduate survey (see Appendix D, Questionnaire 3, for the form) Overall, 28 BOCES (of 39) and 14 cities (of 22) supplied some data on the form. However, the numbers showing "data supplied" will vary between impact statements since not all LEAs responding gave the same information.

Table 17 summarizes the data availability for outcome-impact statement 1. A majority of both the BOCES and large cities indicated that

Table 17. Data available on graduate employment

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	24	3	-	-	12	39
CITIES	10	2	2	2	6	22

the data were supplied or could be supplied with advance notice. The large number of "no responses" probably indicates that these LEAs do not routinely follow-up program graduates.

The index for this statement is:

$$\frac{\text{Number employed in field for which trained}}{\text{Total available for full time employment}}$$

The base for the index is the total number of program graduates available for full time employment. Excluded are those looking for part time employment and those not available for full time employment because they are attending school, are in military service, or are homemakers. The index ranges from 0 to 1, and the scale categories are shown below.

Scale Category	No. Employed / No. Available	BOCES	CITIES
WEAK	$\leq .5$	9	4
AVERAGE	$>.5 \leq .75$	11	4
STRONG	$>.75$	4	2

The scale categories shown are arbitrary, and should be considered in light of what are considered satisfactory placement and employment rates for vocational education programs. Further collection of data on placement rate experience for BOCES and large cities would be useful in establishing scale categories for this index. If the data are collected routinely, and scale categories established on the basis of experience, weaker programs can be identified and assisted to improve their program or placement efforts.

2. Project objectives are fulfilled

Table 18 summarizes the availability of data for this objective. The questionnaire asked for the number of measurable project objectives listed in the proposal and the number of measurable project objectives met. A "measurable objective" was defined as a project outcome that can be stated as a count, proportion, percentage, or another quantity. A large majority of LEAs can supply the information.

Table 18. Data available on project objectives

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	26	2	4	1	6	39
CITIES	21	1	-	-	-	22

The index for this statement is:

$$\frac{\text{Number of measurable objectives met}}{\text{Total number of measurable objectives}}$$

The scale categories are shown below, and indicate that a majority

Scale Category	No. Meas. Obj. Met / Total No. meas. obj.	BOCES	CITIES
WEAK	0	3	0
AVERAGE	$> 0 \leq 1$	3	3
STRONG	1	20	18

of LEAs can meet this outcome impact statement. One difficulty with this index is that there is no indication of the type of objective that is met or not met. However, the use of the index may help to strengthen the listing of objectives and the specificity of project planning.

3. No sex discrimination occurred in student selection, training and job placement.

The data for this objective appear on the program graduate survey form in Questionnaire 3. The data on initial enrollment, graduates, employment, and so on, are collected for females, males and total group. Somewhat fewer programs were able to supply these data than the data for statement 1. The information on data availability are in Table 19.

Table 19. Data available on sex discrimination

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	22	5	1	0	11	39
CITIES	9	2	4	1	6	22

Program Total	Program Total

IF there are both females and males in the program it is possible to compute what are labelled below as index B and index C. If there only males or only females in the program, indexes B and C are not meaningful. The scale categories for Index A are given below:

Scale Category	Index A	BOCES	CITIES
WEAK	1	13	0
AVERAGE	$< 1 \geq .25$	7	4
STRONG	$< .25$	2	0

As indicated by the values for the scale categories, an index of "1" means that the program enrolled either all males or all females. The further the index is from 1, the more equal is the numbers of females and males enrolled.

Index B consists of the following ratios:

INDEX B: $\frac{\text{Number of female graduates}}{\text{Number of females enrolled}}$ minus $\frac{\text{Number of male grad}}{\text{Number of males enr}}$

The scale categories for Index B are shown below and, as indicated, the smaller the difference between the two ratios, the less discrepancy betwe the numbers of females and males enrolled and graduated.

Scale Category	Index B	BOCES	CITIES
WEAK	$\geq .35$	4	1
AVERAGE	$< .35 \geq .10$	2	0
STRONG	$< .10$	3	3

Index C is based on the ratios of females and males employed to those available for full time employment. Index C is computed as follows:

INDEX C. $\left| \frac{\text{Number of females employed}}{\text{Number of females available}} \text{ minus } \frac{\text{Number of males employed}}{\text{Number of males available}} \right|$

The scale categories for Index C are shown below and the interpretation is similar to that for Index B: The smaller the difference between the two ratios, the greater the agreement on the proportions of females and males finding employment.

Scale Category	Index C	BOCES	CITIES
WEAK	$\geq .35$	1	1
AVERAGE	$< .35 \geq .10$	4	0
STRONG	$< .10$	3	2

The data shown in the three indexes indicates that there are successively fewer programs that can supply the data, that over half of the programs reporting data enrolled only females or males, and that there appear to be program differences in placing males and females using the scale categories devised for the indexes B and C.

4. Training objectives are met in the most cost effective manner.

This outcome statement is the same as the predictive statement, except that the outcome statement is based on the actual VEA monies expended on the grant. Table 20 summarizes the numbers of LEAs providing data.

Table 20. Data available on cost per student

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	30	2	2	-	5	39
CITIES	22	-	-	-	-	22

As indicated, these data are readily available. The Index here is the

cost per student, obtained by dividing the total grant monies expended by the number of students served by the grant. The less the amount of money spent per student, the "stronger" the program is on this criterion. The scale categories are shown below.

Scale Category	Cost per student	BOCES	CITIES
WEAK	$>$\$1000	9	2
AVERAGE	$>$\$200 $\leq$\$1000	12	11
STRONG	$\leq$ \$200	9	9

As with the predictive impact statement on cost per student, a second index has been computed. The data available for this index are shown in Table 21. The adjusted index takes into consideration the percent

Table 21: Data available on cost and percent covered.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	24	3	3	-	9	39
CITIES	20	-	-	-	2	22

of the project/program costs covered by the grant and is computed by using:

$$\frac{\text{cost per student}}{\text{percent program covered by grant}}$$

Since programs differ in the amount or percent of the costs covered by a VEA grant, the category scales are different and the project distributions shift.

Scale Category	Cost per student/ % covered by grant	BOCES	CITIES
WEAK	$>$\$2000	12	1
AVERAGE	$>$\$500 $\leq$\$2000	9	14
STRONG	$\leq$\$500	3	5

Different programs would be identified as "average" or "weak" and as

having higher program costs per student, as opposed to higher per student costs in grant monies only. It is arguable which index is preferable for evaluation data, and perhaps both should be examined.

5. Large numbers of students are trained.

The data available for this outcome statement are presented in Table 22.

Table 22. Data available on numbers of students.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	31	2	1	5	--	39
CITIES	22	-	-	-	-	22

The index is the number of students and the scale categories are presented below:

Scale Categories	No. of Students	BOCES	CITIES
WEAK	≤ 100	23	8
AVERAGE	$> 100 \leq 300$	3	5
STRONG	> 300	5	9

As shown, the scale category distributions differ for the BOCES and large cities. There is no satisfactory way to set the scale categories in isolation from other variables, and since this statement received a low priority ranking, it should probably not be used in a rating scheme.

6. Training increases student employment options.

This statement requested the OE code numbers and titles of occupational areas for which graduates of the particular program were prepared and the statement is comparable to the predictive statement for this variable. The numbers of programs supplying data are shown in Table 23.

Table 23. Data available on OE employment codes.

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	23	4	3	-	9	39
CITIES	16	1	1	-	4	22

As shown, a majority of LEAs indicate that data are available or could be supplied. LEAs should probably be supplied with a list of the OE codes, if they do not have them. The index for the statement is the number of employment options (codes) listed. The scale categories are shown below.

Scale Category	No. of Options	BOCES	CITIES
WEAK	1	4	6
AVERAGE	$>1 \leq 3$	5	3
STRONG	>3	14	7

The scale categories defined a "weak" program on this statement as a program for which students were qualified for only one OE employment code. "Strong" programs were identified as those providing students with the option of seeking employment in three or more OE occupational codes.

7. Employers are satisfied with graduates of program.

There were few programs who supplied data on this statement and about half of the LEAs rated this request as data not easily accessible or as impossible to collect. However 13, 33% of the BOCES either supplied data or indicated it would be OK to supply the data given advance notice. The data are summarized in Table 24.

Table 24. Data available on employer survey.

	Data Supplied	OK	Not accessible	Impossible	No Response	TOTAL
BOCES	9	4	9	3	14	39
CITIES	1	1	8	3	9	22

The index for this statement was computed on the small amounts of data that were submitted. The index was:

$$\frac{\text{Number of students rated by employers as Excellent or Good}}{\text{Total number of students rated by employers}}$$

The distribution and the scale categories are shown below:

Scale Categories	Exc. or Good Ratings/No. Students	BOCES	CITIES
WEAK	$< .5$	0	0
AVERAGE	$> .5 < .9$	3	0
STRONG	$\geq .9$	6	1

These scale categories should be discussed by DOES supervisors, since so few BOCES and only 1 large city reported data for the statement.

8. Students trained have positive attitudes toward work.

The question that supplied data for this statement appeared in Questionnaire 3, the Program Graduate Survey page. The data were based on students giving ratings of job satisfaction, one indicator of positive attitudes toward work. Three categories of ratings were assumen: Excellent/Very Good; Good/Average; and Fair/Poor. The data available to look at the index categories is presented in Table 25.

Table 25. Data on student work satisfaction

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	12	6	5	-	16	39
CITIES	4	2	5	3	8	22

The index calculated for this statement was:

$$\frac{\text{Number of students rating job satisfaction as Excellent/Very Good and Good/Average}}{\text{Total number of students rating their job satisfaction}}$$

Again, a small number of BOCES and large cities were able to supply data on this statement. The scale categories based on these small numbers of LEAs are below.

Scale Categories	Job Satisfaction Index	BOCES	CITIES
WEAK	< .90	4	0
AVERAGE	> .90 < 1.00	3	1
STRONG	1.00	5	3

As indicated by the scale categories, there were few proportions below .90. Over half the proportions were either 1.0 or between .90 and 1.0. For the sample available here, most students report themselves as average or above in satisfaction with their jobs. If this information is desired as part of the final evaluation report for LEAs, effort should be devoted to developing a common follow-up form for students (and for employers, for statement 7.)

9. Students trained continue their education.

The data for this statement again appeared in the Program Graduate Survey page in Questionnaire 3. Four categories were listed for students continuing their education: Technical School-continuing in same field; and College-in different field. The data available for this statement are presented in Table 26.

Table 26. Data available on continuing education

	Data Supplied	OK	Not Accessible	Impossible	No Response	TOTAL
BOCES	15	5	2	-	17	39
CITIES	8	2	3	2	7	22

The index for this statement used two of the four categories for continuing education--technical school and college in the same field.

Number of students continuing in same field (technical school and College)
Total number of program graduates

The scale categories for this index are narrow in range; since not all program graduates continue education. The scale categories are shown below:

Scale Categories	No. Students/No. Grads:	BOCES	CITIES
WEAK	≤ .1	7	4
AVERAGE	>.1 - .4	5	3
STRONG	> .4	3	1

Although this index can be used, it did not receive a high priority rating or ranking, so it is unlikely to appear on any final rating of Project impact. However, continuing education is a legitimate VEA outcome and acknowledged in the 1976 legislation, so LEAs and states record keeping need to make provision for record keeping in this or a similar set of categories.

10. Program can be replicated in other LEAs.

The data for this statement were the number of items that the LEA checked that could be reproduced and sent to another school. The items are listed below, along with the percent of BOCES and large cities responding for each item (that it could be sent to another school).

Percent checking: BOCES	CITIES	Item
82	91	course outline
44	64	lesson plans
26	36	project-developed student workbook/ student instructional materials
77	64	student assessment forms (tests or rating forms)
23	9	project-developed slides/AV materials/ films
74	82	list of recommended equipment/textbooks/ AV/materials

Percent checking: BOCES	CITIES	Item
77	82	list of suppliers and vendors
33	41	teacher program guide
82	95	project proposal
72	77	program evaluation report-data and sample forms

The items that were least frequently available for reproduction for another school were: lesson plans; project-developed student workbook/student instructional materials; project-developed slides/AV materials/films; and teacher program guides. The numbers of LEAs reporting data availability are shown in Table 27.

Table 27. Data availability on program replication items.

	Data Supplied	OK	Not accessible	Impossible	No Response	TOTAL
BOCES	31	1	1	-	6	39
CITIES	21	-	-	-	1	22

These data are readily available from LEAs.

The index for this statement is the same as the predictive impact statement:

$$\frac{\text{Number of items checked}}{\text{Total number of items}}$$

The scale categories are shown below

Scale Categories	No. checked	BOCES	CITIES
WEAK	$\leq .5$	7	6
AVERAGE	$.5 < .8$	14	9
STRONG	$\geq .8$	10	6

As shown by the categories, well over half of the LEAs checked 5 or more of the statements, resulting in proportions of .5 or more.

The next section of this report presents a sample rating scheme that incorporates the predictive impact statements along with other DOES categories used in FY 79. Further comment on the outcome (evaluation) statements appears in the Summary.

V. Recommended Rating Form: Predictive Impact Statements

The predictive impact statements that were given the highest ranks and ratings were seven in number. A further check of the indentification of the seven highest statements was made by deriving weights for the seven variables using a method for treating rank data as though a paired comparison scaling had been carried out (Guilford, 1954). The weights were derived using the rank ordering given by the DOES supervisors, (The weights could have been derived from the total sample, but the computational time involved was not considered justified. The set of five ranks provided by the DOES supervisors was a practical compromise, since there was satisfactory agreement among all three sets of ranks provided by the BOCES, large cities, and DOES supervisors).

The actual procedures used for computing the weights for the seven predictive impact statements is given in Appendix G, along with the description of the method and the weights for the outcome impact statements. The scaled weights were approximated by using whole number weights of 3, 2, and 1. Figure 5 presents a recommended rating form for Project Quality Criteria: Impact. In Figure 5 are the seven predictive impact statements given the highest priorities, the index developed for each statement, the scale category values for the three categories of Weak, Average, and Strong, the weight for each statement, and a column to record the scale category value of 1(Weak), 2(Average), and 3(Strong) multiplied by the statement weight. The total "impact score" for a project proposal can range from 11 (ratings of weak on all impact statements) to 33 (ratings of strong on all statements multiplied by statement weights).

As part of the process of developing the impact rating form, the FY 1979 DOES screening criteria and project quality rating forms for management and instruction were also reviewed, (Appendix A). This review provided some further suggestions for consideration in any contemplated revision of the DOES rating procedures. A review of all three documents together led to these suggestions:

a. Some economic manpower information screening criteria should be placed on the checklist with the Initial Project Screening Criteria, rather than being rated:

   i. Information on labor market needs is directly related to the specific program seeking funding under VEA. (Yes ☐ or No ☐).

   ii. Information on labor market needs deals specifically with needs of the region or area served by the educational agency. (Yes ☐ or No ☐).

   iii Information on labor market needs is based on objective data and is corroborated by at least two data sources. (Yes ☐ or No ☐).

b. The first economic/manpower needs screening criteria (#1) "The project serves an area of high economic need as evidenced by high rates of unemployment, concentration of low income families,..." can appear on the proposed (see below) quality rating form for Management/Planning.

c. Some statements that appear for rating now in the management and instructional quality forms should appear in the

screening criteria or in a second level screening on management and instruction/equipment.

d. The remaining statements in the management quality and instructional quality forms should be divided into two parts:

Part 1: a checklist of items that are criteria the project should meet or be revised/rewritten to meet (e.g., instructional/curriculum objectives are achievable within the duration of the project);

Part 2: a set of rating scales that call for judgments of the quality of the item being rated (e.g., How important are the project objectives? Highly important, average in importance, of low importance? AND How qualified are the project staff? highly qualified, average in qualifications, below average in qualifications? AND What is the quality of the past performance of agency management? Excellent management, average in management skills, below average in management skills?

If the last suggestion above is examined, quality rating scales for Management/Planning and Instructional/Equipment might have the rating scales suggested in Figures 6 and 7. The division of the present forms into the checklist and quality rating scales may assist

FIGURE 5

Project Quality Criteria: 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)

FIGURE 6

Project Quality Criteria: Management/Planning

Area	Scale Categories			Rating
1. The project serves an area of high economic need as evidenced by high unemployment and high concentration of low income families.	Level of unemployment and low income Below average for region	Average for region	Above average for region	
	☐ 1	☐ 2	☐ 3	____
2. The project serves a high proportion of handicapped students among program students.	Proportion of handicapped served in relation to similar agencies Below average for region	Average for region	Above average for region	
	☐ 1	☐ 2	☐ 3	____
3. The quality of project objectives in relation to similar projects is:	Below average	Average	Above average	
	☐ 1	☐ 2	☐ 3	____
4. The management and planning activities of the project, compared to similar projects is:	Below average	Average	Above average	
	☐ 1	☐ 2	☐ 3	____
5. The quality of the management personnel for the grant is:	Below average	Average	Above average	
	☐ 1	☐ 2	☐ 3	____
6. The quality of the evaluation plan, compared to similar programs, is:	Below average	Average	Above average	
	☐ 1	☐ 2	☐ 3	
7. The quality of the agency management and planning in past performance has been:	Below average	Average	Above average	
	☐ 1	☐ 2	☐ 3	____
	Total possible (unweighted) points = 21			____

FIGURE 7

Project Quality Criteria: Instructional/Equipment

Area	Scale Categories			Rating
1. The importance of the instructional objectives of the project is:	Below average ☐ 1	Average ☐ 2	Above average ☐ 3	____
2. The quality (qualifications) of the instructional staff is:	Below average ☐ 1	Average ☐ 2	Above average ☐ 3	____
3. The quality of the curriculum for this occupational area is:	Below average ☐ 1	Average ☐ 2	Above average ☐ 3	____
4. The life expectancy of the equipment/skills the project proposes to purchase/develop is:	Below above ☐ 1	Average ☐ 2	Above average ☐ 3	____
5. The facilities available or proposed for the instructional program/ activities and student population are:	Below average ☐ 1	Average ☐ 2	Above average ☐ 3	____
6. The costs of the staff/ instructional materials/ equipment (in relation to costs for similar occupational programs) are:	Above average costs ☐ 1	Average costs ☐ 2	Lower than average costs ☐ 3	____
7. The quality of the agency's past or present instructional programs is:	Below average ☐ 1	Average ☐ 2	Above average ☐ 3	____
	Total possible (unweighted) points = 21			____

in clarifying the nature of the rating task, as well as emphasizing to LEA's that there are minimum standards suggested by the check list that must be met. In addition, project applicants will know that there are qualitative standards which will be applied to the proposal in the areas of management/planning, instructional/equipment, and "impact,"--the predicted effectiveness of the project on variables related to highly important outcome variables. If there is a decision to use Quality rating scales in the two areas suggested, then it would be possible to establish weights for the statements within each area using a method similar to the one for the impact statements (perhaps using only the group of supervisors' rankings). It may also be desirable to weight the three areas' total scores equally as can occur with the sample forms presented which contain the same number of statements for each of the three areas (7), as well as the same number of score points alloted to each scale category -- 1, 2, or 3. There only need to be weights for the statements or weights for the total scores. The summary of the project and of the recommended next steps are given in the next section.

VI. Summary and Next Steps

Summary

During 1976-77 the Department of Occupational Education Supervision funded a study to develop definitions of project "impact" and to relate these definitions to funding decisions made by DOES. Preliminary statements of impact were defined and ratings of priority assigned by DOES supervisors. In 1977-78, the second year of the project has concentrated of further refinement of the impact statements, both predictive and outcome, in line with the 1976 Amendments (PL 94-482). In addition, it was desired to collect data related to both the "validity" of the impact statements for funding decision making and evaluation of VEA funded projects, and the "feasibility" of collecting data on the impact statements.

Validity for the impact statements was defined in terms of the agreement among DOES supervisors, BOCES directors, and large cities project directors in their rankings and ratings of the importance of the predictive and outcome impact statements. Feasibility was defined by asking LEAs to complete questionnaires for two sample (but real) projects that would provide data on how readily available certain pieces of information were or how difficult it might be to provide the information. One project that had been completed in 1976 was identified for each BOCES and a minimum of five for each of the large cities (with 10 for New York City), and similarly project applications for FY 1979 funding were identified. The LEAs completed three questionnaires altogether, and the DOES

supervisors completed one--the ranking of importance of the predictive and outcome impact statements.

The outcome impact statements that received the highest rank order and ratings were:

Students trained have positive attitudes toward work

Training increases student employment options

Employers are satisfied with graduates of program

Program graduates are working in occupations for which they were trained

Project objectives are fulfilled

Training objectives are met in the most cost effective manner

The six predictive statements that received the highest rank order and ratings were:

Students will be prepared to meet entry level skill requirements as specified by prospective employers

Training will be provided to increase students' employment options

Students will be trained for occupations where jobs are available

Program will serve students' interests

Project objectives are stated in measurable terms

Training objectives will be met in the most cost effective manner

Questionnaires 2 and 3 provided the data on feasibility and also the sample distributions of data for the indexes developed for each of the predictive and outcome impact statements. For the outcome impact statements there were LEAs who had provided or would

be able to provide the data requested. The numbers of LEAs varied from statement to statement, but generalizations can be made for areas where DOES could provide support to LEAs. The support may take the form of sample or model forms for follow up surveys of employers and students, providing the OE codes so they are readily available for LEAs to determine the number of student employment options, and assisting LEAs to provide data on selection, training, and placement by females and males, so ratios or indexes are available to check for sex discrimination. Also, since the "attainment of project objectives" was highly rated by all groups, well-stated measurable project objectives should be identified from a wide range of projects (with different emphasis, such as instructional and equipment) to have some commonality among the objectives checked as being attained. The DOES criteria for measurable project objectives is that two staff can agree that they are measurable; the definition used in the Questionnaires for this project stated that a measurable objective was one which resulted in a count, proportion, or other quantitative summary of data. Considering sample statements provided by LEAs, there is a need to provide model statements over a wide range of project objectives.

In the summary of the results for the predictive impact statements it was also noted that several steps might be helpful in providing support to LEAs to implement the collection of information for the priority statements. The majority of LEAs were able to provide some information on local job openings, but this was variable.

It might be useful to again provide examples of the sources of data for job openings and the manner in which the data can be compiled. OE codes were sometimes available and sometimes not, and need to be provided to LEAs or they should be informed of how to obtain the codes. The two indexes for which sample forms and procedures should be developed are the employer ratings of entry level skill requirements and the surveys of student interests. Model forms and procedures would assist LEAs to collect the information to substantiate the program need in terms of student interest and up-to-dateness with respect to employer needs. Sample statements of measurable project objectives are also needed for LEAs. Many of these supporting documents and procedures can be developed by IRDOE in conjunction with DOES, and then also discussed and examined by representatives of LEAs, both BOCES and large cities. This will be especially valuable if the evaluation and funding handbook is developed, as recommended below.

The results of the analyses of data available and the distributions of indexes developed for each impact statement were used to develop a sample rating form; tentatively titled: Project Quality Criteria: Impact. The form is reproduced in this report as Figure 5, and contains seven impact statements with scale categories and weights for each each of the seven statements. The weights for the statements were derived for the ranks of the statements made by DOES supervisors (see Appendix G). The data required from LEAs are feasible given advance information on the specific pieces of information required.

In fact, LEAs could also be given the rating forms with the description of the indexes and weights to provide the information ready for summary by DOES.

A brief review of the FY 1979 DOES rating forms and screening criteria resulted in several recommendations given in Part V of this report. The main recommendation was to separate the minimum standards or screening statements in the rating forms from the implicit quality rating and to make explicit statements of the quality statements that need to be rated in the areas of Management/Planning and Instruction/Equipment. The Next Steps, discussed below, include these recommendations.

Next Steps

The next steps needed as a follow up to the ratings and weights developed for the predictive impact statements are as follows:

1. Review by DOES of the Impact rating form and weights;
2. Review by DOES of the recommendations for the screening criteria, Management and Planning Quality Ratings, and Instructional/Equipment ratings;
3. Meeting with IRDOE staff to consider procedures/rating statements if weights are desired for the Management/Planning and Instructional/Equipment ratings (revision of statements and rank order form); and
4. Development of the other quality rating forms and weights and needed revisions of the Impact rating form.

After these steps are carried out, it would be useful to review the procedures and data with groups of LEA directors or representative

directors. This step will continue the dialogue started with the questionnaires, but will also ensure further LEA input into the substantive areas of the project, informing them of the pressures for the effort to provide data for both funding decisions and evaluation (outcome) of grants awarded. At this stage it would also be useful to include discussions of the Vocational Education Data System (VEDS) and be sure that the impact data are included in a form amenable for the VEDS system also.

Following up on these discussions, a funding and evaluation handbook should be prepared for LEAs. This handbook will include sample forms and procedures for all the major data needed for the impact ratings and the VEDS system. The funding and evaluation handbook should be developed in consultation with DOES and LEAs, piloted with LEAs to obtain formative evaluation feedback on the handbook itself, and probably prepared in a loose-leaf format so that changes and additions can be made by DOES without requiring a new publication. The development of such a handbook should serve several purposes, including improving the funding decision making process, assisting LEAs to provide more accurate and useful data in both applying for grants and providing evaluation of completed grants, and further improve program quality by helping DOES to identify LEAs where special effort should be devoted to assisting them to meet VEA grant requirements.

In summary, the recommended next steps are designed to meet the evaluation requirements of PL 94-482 and, to provide the foundation

for "instructional" materials for LEAs directed toward improving the "impact" of VEA-supported programs and projects. The recommended handbook and data collection for funding and evaluation will assist DOES in supporting projects designed to meet important outcomes in vocational education and to assist LEAs to identify and improve their grant applications and evaluations.

In order to provide another form of summary and indicate the final system that would operate to review project proposals, a flow-chart of the process has been made and is given in Figure 8. The figure shows the outline of the review process as it would function with the inclusion of the predictive and outcome impact statements. The details of the review process would be those that are currently scheduled in the DOES Procedures for Reviewing VEA Applications (Appendix A). In addition to the general project review process, it was recommended that there be provision for annual review of the weights and scale categories for both the predictive and outcome impact statements. Figure 9 suggests this annual revision process, again in outline form. The process includes using weights during one fiscal year, collecting data on the impact statements after project evaluations have 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 seem appropriate or need to be "raised" or "lowered" on the basis of project attainments. As mentioned above, these processes should assist DOES and LEAs to improve programs and funding decisions on the basis of both "objective" and "subjective" information from many sources.

Figure 8

Review Process for VEA Grant Applications Using Predictive and Outcome Impact Statements

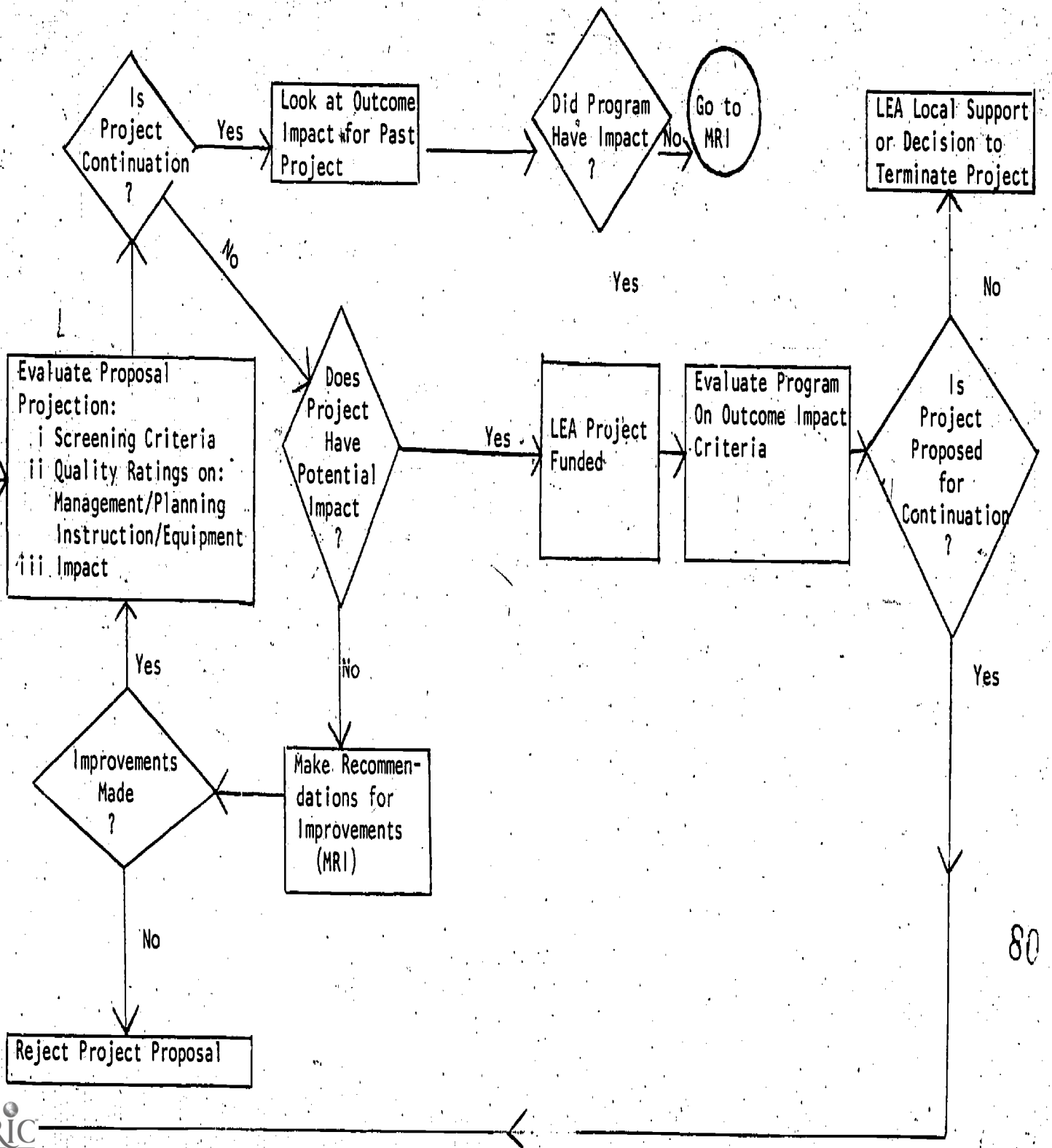
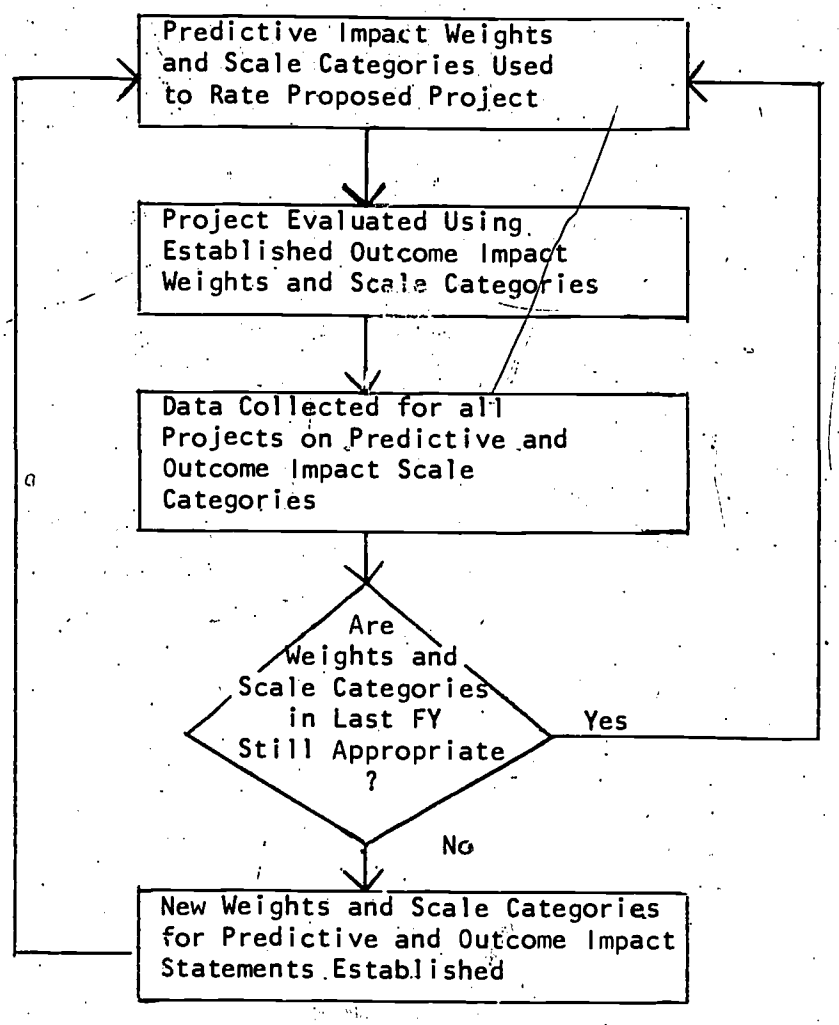


Figure 9

Annual Revision of Impact Statement Weights and Scale Categories



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APPENDICES

Procedures for Reviewing VEA Applications

1. Projects batched by planning region during intake process, distributed to review team members.

2. Review team develops a schedule for review of projects.

3. Review team reviews projects on the six initial screening criteria; projects meeting all screening criteria continue on in review process; projects not meeting these screening criteria stopped until problems are resolved.

4. Review team determines the primary target population of the project (general, adult, disadvantaged, handicapped); target population is noted on cover page of management program quality scales.

5. a. Review team rates projects for general and adult populations on the economic/manpower needs screening criteria. Disadvantaged and handicapped projects designed to give students job skills should also be rated on the economic/manpower needs screening criteria; all projects are placed in high, medium and low categories.

   b. For projects with disadvantaged and handicapped populations that are designed to give students remedial and preparatory instruction and services, the manpower needs criteria should be considered as part of the management program quality criteria (see step 9).

6. a. For projects in high or medium categories on the economic/manpower needs screening criteria:

   (1) Review team determines program strategy assignment for the project using the following criteria:

continuation project:	those projects previously funded under VEA for which the Education Department has a moral obligation (up to 3 years)
improving existing programs:	those projects designed to improve existing occupational programs for adult, disadvantaged or handicapped populations
improving existing programs: (equipment emphasis)	those projects designed to improve existing occupational programs for general populations which have requests for equipment that amount to 50% or greater of the total project cost

improving existing programs: (staff emphasis)	those projects designed to improve existing occupational progress for general populations which have requests for equipment that amount to less than 50% of the total project cost
new programs:	those projects that propose program activities not previously offered by the local agency

(2) Review team determines technical reviewer assignment (except for general population projects which are for work study).

(3) Review team determines if a special reviewer (handicapped, adult handicapped, bilingual) is required; project assigned to the special reviewer.

b. For projects in low category on manpower needs screening criteria:

(1) Review process is stopped.

7. a. Copy of the proposal is sent to each technical reviewer assigned to the project with requested date for completion of review.

b. Copy of the proposal is sent to the special reviewer when required with requested date for completion of review.

8. a. Technical reviewer rates project using instructional program quality scales.

b. Special reviewer comments on project using the special reviewer comment sheet.

9. Review team rates project using management program quality scales (for disadvantaged and handicapped projects that are designed to give student remedial and preparatory instruction and services, the manpower needs criteria should be used as part of the management program quality scales).

10. Technical and special reviewers return proposal and review sheet to reviewer by completion date.

11. Review team meets to discuss project after all review sheets are completed.

    a. Discrepancies in ratings are discussed and resolved.

    b. Technical reviewer ratings and special reviewer comments are discussed and request made to technical and special reviewers for consultation when ratings or comments appear to be in conflict with other ratings of project.

    c. If necessary, requests made to educational agency for clarification of certain points by review team member responsible for that particular agency.

    d. If conflicts in ratings exist that cannot be reconciled, project review sheets and summary of differences are sent to the arbitration panel (D. Post and M. Van Ryn).

    e. Arbitration panel review information available and makes determination on what score the project should receive.

    f. Arbitration panel notifies review team of final rating.

12. Review team gives project an overall ranking based on program quality ratings within program strategy assignment (i.e. continuation, improving existing programs, new programs).

13. Review team ranks projects across program strategy assignment within economic/manpower needs category (i.e. high 1, 2, 3...n; medium 1, 2, 3...n)

14. Ranked projects are applied against dollar allocations for the region; summaries for region are developed.

*15. Review teams meet with D. Belton and M. Van Ryn to present summaries for regions.

*16. Budget negotiations with applicants are conducted by the member of the review team responsible for that agency; weak aspects of the proposal are revised during this time by the applicant (e.g. items receiving low ratings).

*17. Review team discusses negotiated budgets and proposal revisions; final recommendations made.

*18. Recommended projects with negotiated budgets are submitted to D. Belton (secondary) and M. Van Ryn (postsecondary) for review and approval (Belton should be carboned for postsecondary projects; Van Ryn carboned for secondary projects).

*19. Approved projects are packaged and grant award letters are prepared by respective units; packages sent to finance officer for check on fund availability.

*20. Finance officer makes check for fund availability. If funds are available, proposal and grant award letter sent to Assistant Commissioner for final approval and signature. If funds are not available, proposal and grant award letter returned to appropriate bureau.

*21. Assistant Commissioner approves project.

*22. Approved project returned to finance officer to be logged in.

*23. Grant award letter mailed to applicant; copies of letter sent to finance officer and responsible bureau chief.

* These steps occur after April 21.

Appendix B

QUESTIONNAIRE 1: RANKING AND RATING OF IMPACT STATEMENTS.

Instructions for Outcome Impact Statements. -- Rank Order

Listed below are statements dealing with the possible impact of VEA projects eligible for financing from the State's "Basic Grant" monies. Please rank these statements in the order of their importance as project outcomes.

Write a "1" in the right hand column opposite the statement that you feel describes the most important impact, a "2" opposite the second most important statement, etc. until all 10 statements have been ranked. The least important statement of impact of a project will be ranked "10."

Outcome Impact Statements	Rank Order
Program graduates are working in occupations for which they were trained.	_____
Project objectives are fulfilled.	_____
No sex discrimination occurred in student selection, training, and job placement.	_____
Training objectives are met in the most cost effective manner.	_____
Large numbers of students are trained.	_____
Training increases student employment options.	_____
Employers are satisfied with graduates of program.	_____
Students trained have positive attitudes toward work.	_____
Students trained continue their education.	_____
Program can be replicated in other LEAs.	_____

Please add any outcome statements that you feel are important and should be included, but do not rank them with the others:

_____

_____

_____

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Instructions for Rating Outcome Impact Statements.

Listed below is a set of outcome impact statements. How important is each outcome? Give each statement points on a scale from 1 to 20 where

20 represents a highly important outcome, the maximum number of points

1 represents a very unimportant outcome, the lowest number of points

Write the number of points from 1 (low rating) to 20 (highest rating) opposite each of the following impact statements according to its importance as a consideration in the funding of VEA projects.

Outcome Impact Statements	Ratings 1.....20 Lowest Highest
Program graduates are working in occupations for which they were trained.	_____
Project objectives are fulfilled.	_____
No sex discrimination occurred in student selection, training, and job placement.	_____
Training objectives are met in the most cost effective manner.	_____
Large numbers of students are trained.	_____
Training increases student employment options.	_____
Employers are satisfied with graduates of program.	_____
Students trained have positive attitudes toward work.	_____
Students trained continue their education.	_____
Program can be replicated in other LEAs.	_____

Instructions for Predictive Impact Statements -- Rank Order

Listed below are statements dealing with predictive impact, that is, outcomes which might be expected to result if proposed VEW projects were to be implemented. Please rank each of these statements in the order of their importance as possible outcomes to be considered in making funding decisions.

Write a "1" in the right-hand column opposite the statement you feel describes the most important type of predictive impact, a "2" opposite the second most important statement, etc., until all 10 statements have been ranked. The least important statement of predicted project impact will be ranked "10".

Predictive Impact Statements	Rank Order
Students will be trained for occupations where jobs are available.	_____
Project objectives are stated in measurable terms.	_____
No sex discrimination will be made in recruiting and placing students in vocational programs.	_____
Training objectives will be met in the most cost effective manner.	_____
Large number of students will be trained.	_____
Training will be provided to increase students' employment options.	_____
Students will be prepared to meet entry level skill requirements as specified by prospective employers. (e.g., employer's ratings of performance objectives in terms of job requirements).	_____
Program will serve students' interests.	_____
Program is articulated with local post secondary institutions.	_____
Program will be replicable in other LEAs.	_____

Please add any predictive impact statements that you feel are important and should be included, but do not rank them with the others.

_____

_____

_____

Instructions for Rating Predictive Impact Statements.

Listed below is a set of predictive impact statements. How important is each predictive outcome? Give each statement points on a scale from 1 to 20 where

20 represents a highly important predictive statement, the maximum number of points.

1 represents a very unimportant predictive statement, the lowest number of points.

Write the number of points from 1 (low rating) to 20 (highest rating) opposite each of the following predictive impact statements according to its importance as a consideration in the funding of VEA projects.

Predictive Impact Statements	Ratings 1.....20 Lowest Highest
Students will be trained for occupations where jobs are available.	_____
Project objectives are stated in measurable terms.	_____
No sex discrimination will be made in recruiting and placing students in vocational programs.	_____
Training objectives will be met in the most cost effective manner.	_____
Large number of students will be trained.	_____
Training will be provided to increase students' employment options.	_____
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).	_____
Program will serve students' interests.	_____
Program is articulated with local post secondary institutions.	_____
Program will be replicable in other LEAs.	_____

QUESTIONNAIRE 2: PREDICTIVE IMPACT STATEMENTS

Spring 1978 study

Please complete this page for the project proposal listed in the letter.

Project Title _____

_____

Name of Agency _____

Project VEA Number _____ Fiscal year of grant _____

The present grant covers _____% of the program's costs.

Grade level(s) of program (circle): 9 10 11 12 postsecondary adult

Student type:

General ___No. ___% Disadvantaged* ___No. ___% Handicapped ___No. ___%

This project is to be funded in the following (purpose) category(s):

General ☐ Disadvantaged* ☐ Handicapped ☐

The grant is primarily for ☐ a continuation project ☐ a new program (not previously offered by LEA)

☐ improving existing programs with ☐ staff emphasis (equipment costs less than 50% of project costs) ☐ equipment emphasis (equipment costs=50% or more of the total project cos

If a continuation project, which year is the project?

Year _____ of a 1 or 2 or 3 year project (circle one)

Project Summary: It will be helpful in interpreting your questionnaire responses to have a brief project description (a 200-300 word summary). Please attach the summary to the completed questionnaire.

*Persons (other than handicapped persons) who have academic or economic disadvantages and require special services, assistance or programs in order to enable them to succeed in vocational education programs.

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4/18/78

PREDICTIVE: Students will be trained for occupations where jobs are available.

1. How many local jobs are or will be available for students trained in this project? (Employment data collected between _____ and _____ .)
   mo./year mo./year

Number of Jobs	Data Source
_____	Newspaper ads
_____	State employment office
_____	Private employment agencies
_____	Direct contact of employers (Number of employers contacted_____)
_____	LEA Placement office
_____	Unions
_____	Other (describe source)_____
	_____
	_____
☐	Total number of jobs

2. How many jobs are or will be available in the region?

_____	State employment office
_____	Other (describe source)_____
	_____
	_____
☐	Total number of regional jobs.

PREDICTIVE: Project objectives are stated in measurable terms

Number of measurable* project objectives	☐
Total Number of project objectives	☐

*A "measurable objective" is defined as a project outcome that can be stated as a count, proportion, percentage or another quantity.

PREDICTIVE: No sex discrimination will be made in recruiting and placing students in vocational programs.

Check each activity below that will be carried out prior to or during this project.

- ☐ Vocational courses are equally available to female and male students upon request.
- ☐ Female and male students will be recruited in approximately equal numbers.
- ☐ All course instructional material will be free of sex bias and sex role stereotyping.
- ☐ Program teachers will equally represent females and males.
- ☐ "Role models" of the "nontraditional" sex for the occupation will visit the program.
- ☐ All career materials will be free of sex bias and sex role stereotyping.
- ☐ Men and women students are provided information about their rights to equal educational and employment opportunities under the law.
- ☐ A program will be conducted for parents which will assist them to work with their daughters and sons to consider all educational and employment opportunities.
- ☐ Special support services or counseling will be provided to females and males who select a nontraditional occupational program.
- ☐ Equal emphasis will be placed on financial support and cooperative educational placements for females and males.
- ☐ Program instructional and related guidance personnel will be provided the inservice training necessary for the delivery of sex-fair instruction and counseling for students.

PREDICTIVE: Training will be provided to increase student's employment options.

Use the OE code to list the number and titles of occupational areas for which graduates of this project are prepared (e.g., 07.0904 Medical Assistant, 07.0906 Health Aide).

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____

PREDICTIVE: Training objectives will be met in the most cost effective manner.

Estimated Project Costs Listed in VEA Budget

All of the following questions pertain only to the estimated costs of the program financed by the VEA grant and for the duration of the VEA grant. Use the FA-10 Budget Summary page for the totals below.

1. Current VEA Costs. Current costs are the monies from codes 200 (200-250 Instruction), 300 (Guidance), 400 (Health), 500 (Transportation), 600 (Operation), 700 (Maintenance), 830 (Rental), 900 (Food), 1000 (Co-curric.), 1100 (Comm.-H rela.), and Indirect costs. (FA -10 Summary Page)

   Total Current Costs.....$_____

2. Capital VEA Costs. Capital costs are the monies from codes 260 (Staff development), 1220.3 (Minor remod.), and 1230 (Equip.)

   Total Capital Costs.....$_____

3. Total amount of VEA grant (Grand Total = 1+2).....$_____

4. Number of students that are expected to participate in the project..... ☐

5. Number of hours of instruction that each student is to have (hours per week times number of weeks)..... ☐
   (There are the equivalent of 36 instructional weeks per school year)

6. In order to qualify for the job for which the project is preparing the students, will they have to continue training beyond the time covered by the grant (one year)?

   Yes ☐ No ☐

7. If yes, for how long?_____

PREDICTIVE: Students will be prepared to meet entry-level skill requirements as specified by prospective employers.

Agreement between number of essential entry level skills checked by occupational advisory committee of employers and union representatives and number of essential entry level skills listed by LEA.

a. Number of skills listed by school _____

b. Number of skills checked as essential entry level skills by employers (and/or advisory committee) _____

c. Number of employers (committee members) reviewing essential skills list. _____

PREDICTIVE: Program will be replicable in other LEAs.

Check each item that could be reproduced and sent to another school:

- ☐ course outline
- ☐ lesson plans
- ☐ project-developed student workbook/student instructional materials
- ☐ student assessment forms (tests or rating forms)
- ☐ project-developed slides/AV materials/films
- ☐ list of recommended equipment/textbooks/AV materials
- ☐ list of suppliers and venders
- ☐ teacher program guide
- ☐ project proposal
- ☐ program evaluation report--data and sample forms

☐ Total Number checked

Based on the items checked above, what percent of the program do you estimate will be transferable to another school? ☐ %

PREDICTIVE: Program will serve students' interests.

Data Source: A Career interest survey can be conducted to provide an estimate of the following numbers.

1. Total number of students surveyed ☐
2. Number of students selecting this occupational area as first or second choice (of interest to them). ☐

PREDICTIVE: Program is articulated with local post secondary institutions.

Number of local post secondary institutions where students could continue in the same occupational field. ☐