DOCUMENT RESUME

ED 216 209 CE 032 563

AUTHOR Starr, Harold; And Others
TITLE Using Labor Market Information in Vocational Planning. R & D Series No. 228.
INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.
SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE 82
CONTRACT 300-78-0032
NOTE 108p.
AVAILABLE FROM The National Center for Research in Vocational Education, National Center Publications, Box F, 1960 Kenny Rd., Columbus, OH 43210 (RD 228, $8.75; quantity discounts available--write for information).

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Cooperative Planning; Educational Needs; *Educational Planning; Information Utilization; *Labor Market; Labor Needs; Labor Supply; *Long Range Planning; *Policy Formation; Postsecondary Education; *Program Development; Program Evaluation; Program Improvement; Secondary Education; Statewide Planning; *Vocational Education

ABSTRACT

Research findings point up the need by vocational educators for better ways to apply labor market information in doing program planning and evaluation. This report describes a procedure that state and local education agencies can use to develop a long-range program plan for vocational education, and special emphasis is given to the many ways in which labor market information can contribute both to the development and to the periodic evaluation of such a plan. The report contains three main sections. It begins by listing five research-based reasons for assuming that better ways are needed to incorporate labor market information in the process of vocational education program planning and evaluation. A structure or framework for developing and revising a long-range program plan for vocational education is described next. The planning and evaluation framework consists of 10 sequential and interrelated planning and evaluation steps or tasks and a set of components for each task. The tasks respond to five general questions that must be addressed in any comprehensive plan. Using these tasks and questions in a matrix format to produce a plan is illustrated by case examples from a booming resort town and a depressed rural area. The last part of the report describes a variety of agencies that can be valuable sources of labor market information for vocational education program planning and details a number of ways in which interagency coordination and collaboration can be implemented to make the best use of labor market information in developing effective vocational education program plans. (KC)

R & D Series No. 228

USING LABOR MARKET INFORMATION IN VOCATIONAL PLANNING

Harold Starr
Harold Merz
Gale Zahniser

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

1982

FUNDING INFORMATION

Project Title:	National Center for Research in Vocational Education, Evaluation and Policy Function
Contract Number:	300780032
Project Number:	051MH10012
Educational Act Under Which the Funds Were Administered:	Education Amendments of 1976, P.L. 94-482
Source of Contract:	U.S. Department of Education Office of Vocational and Adult Education Washington, D.C.
Contractor:	The National Center for Research in Vocational Education The Ohio State University Columbus, Ohio 43210
Executive Director:	Robert E. Taylor
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FOREWORD

There continues to be a compelling need for better ways to incorporate labor market information into the process of planning and evaluating vocational education so that training will be more closely related to the kinds of jobs that are available and appropriate for those whom the vocational education system is intended to serve. This report is a resource of ideas and suggestions for ways in which labor market information can be useful for, and used in, developing long-range plans for vocational education.

The National Center is indebted to Harold Starr, Gale Zahniser, Harold Merz, and Stephen Franchak who served as the project staff. Ann Nunez was a staff member during the early stages of the project.

Special appreciation is extended to Fred Hiestand, Assistant Director for Planning and Administration, Wisconsin Board of Vocational, Technical, and Adult Education; Matthew A. Kessler, Supervisory Management Analyst, U.S. Department of Labor, Employment and Training Administration, Washington, D.C.; Harold Sullivan, Associate Director, Administration and Planning, Bureau of Vocational, Technical, and Adult Education, West Virginia; Alan Wiant, Research Specialist, and N. L. McCaslin, Associate Director of the Evaluation and Policy Division at the National Center, for their expert review of the contents of this report.

We would also like to thank Mary Lovell, project monitor, U.S. Department of Education, Office of Vocational and Adult Education; and Richard Dempsey, the National Occupational Information Coordinating Committee, for their advice and suggestions. Editorial review of the document was provided under the direction of Janet Kiplinger of the National Center.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

Research findings point up the need by vocational educators for better ways to apply labor market information in doing program planning and evaluation. This report describes a procedure that state and local education agencies can use to develop a long-range program plan for vocational education; and special emphasis is given to the many ways in which labor market information can contribute both to the development and to the periodic evaluation of such a plan.

The report begins by listing five research-based reasons for assuming that better ways are needed to incorporate labor market information in the process of vocational education program planning and evaluation. These reasons are as follows:

- When labor market information is used in making decisions about program implementation or redirection, such information often seems to be used to further justify program decisions that have already been made on the basis of other kinds of information.
- Many vocational education administrators and planners distrust the labor market information that is made available to them.
- Although labor market information is plentiful, there is a need for that information to be packaged in ways that are meaningful to users. There is little agreement as to how this should be done and who should take responsibility for doing it.
- It is difficult to know if labor market information used in vocational education planning and evaluation is indeed the best available.
- Federal legislative mandates for vocational education (and other training programs) reflect a continuing national desire for better methods of using labor market information in planning and evaluating these programs.

A structure or framework for developing and subsequently revising or redeveloping a long-range program plan for vocational education is described next. The planning and evaluation framework consists of ten sequential and interrelated planning and evaluation steps or tasks and a set of components for each task. These tasks respond to five general questions that must be addressed in any plan, if the plan is to be regarded as being comprehensive. These general planning questions include: (1) where are we? (2) where are we going? (3) how will we get there? (4) how will we know we got there? and, (5) who do we involve along the way?

The planning and evaluation tasks include the following:

- Describe the context and needs for vocational education
- Describe the mission for vocational education
- Describe program needs, goals, and objectives
- Describe desired outcomes and benefits for vocational education
- Describe procedures for interagency coordination and collaboration
- Reassess the context
- Reassess the mission
- Reassess program needs, goals, and objectives
- Assess the outcomes and benefits for vocational education
- Assess coordination and collaboration procedures

The reader is provided with both a pictorial view of the framework and a table which describes a cross-walk between the five planning questions and the ten planning and evaluation tasks and their components. For example, the question "where are we?" requires an education agency to describe and periodically reassess its context for vocational education. The description of the context for vocational education includes five components: (1) the context for employment, (2) the needs of employers for trained workers, (3) the needs of individuals for job skills, (4) the capacity of the education system to respond with vocational education, and (5) the need for vocational education.

The use of labor market information is indispensible for doing seven of the ten planning and evaluation tasks, and is important but less critical in three of the ten tasks. The remainder of the report describes, in some detail, both the planning and evaluation tasks and their components that comprise a comprehensive program plan for vocational education, and ways in which labor market information can be applied in order to carry out the planning and evaluation tasks.

A long-range plan for vocational education begins with a description of the context and needs for vocational education. There are no prescriptions to enable an education agency to establish what specific labor market and other information would be "best" for developing its particular labor market context description. However, the present report provides the reader with two kinds of assistance in this regard.

In the first instance, two hypothetical cases are presented in the report to highlight the kinds of labor market (and other) information that can be used to systematically develop a description of the labor market context for vocational education. Resort City, Resort SMSA is described as expanding economically and in population, whereas Ruraltown is portrayed as economically depressed and demographically static. The two case descriptions include the kinds of labor market information that are useful for understanding the context for employment. The labor market information is described in the narrative and in tables that accompany the narrative. The reader also is provided with the sources for the kinds of data that are presented in the two cases.

In the second instance, the report contains an Appendix, *Labor Market Information Data Bases and Sources*. This Appendix is organized in the following way. For each of the components of a context description, one or more information elements are listed. For example, in the case of the context for employment, the elements are geography, population characteristics, economic status, and industrial base. Then for each information element, one or more questions are asked. Next, the purpose for asking or answering the question is explained. And finally, specific publications and agencies that can assist a planner, administrator, or evaluator in answering the questions are cited.

Given the labor market context for vocational education for Resort City and Ruraltown, the report examines how information and value judgments influence decisions about the needs for implementing vocational education programs.

The mission statement for vocational education and its components are described next. A number of examples are provided of ways in which labor market information influences: (1) the labor market intents for vocational education (i.e., improving equity, increasing efficiencies in labor market operations) and constraints to their implementation, (2) the populations who are eligible to enroll in vocational education, and the specific groups that will receive priority for training, and (3) the instructional purposes (i.e., employment, improve employability skills) for the vocational education programs that are to be offered.

A program plan for vocational education requires the formulation and description of program growth and quality needs, and program goals and objectives. The concepts of program needs, goals, and objectives are explained and ways in which labor market information contributes to a description of program needs are also reported.

A long-range program plan for vocational education should include a description of the specific programs that will be offered by an education agency. The program planning problem is to determine what occupations should serve as a basis for determining which vocational programs to implement, maintain, or modify. The present report describes and illustrates, by way of a case example involving displaced workers, a four-step procedure for selecting occupations for program planning. The procedure that is presented includes a description (with examples of their use) of two kinds of evaluation methodologies that can be used solely, or in combination, to define occupations that are most appropriate for program planning purposes. These two methodologies are the fatal flaw analysis method and the feature analysis method.

An education agency's plan for vocational education would be incomplete without a statement of the kinds of benefits and outcomes it desires for former students, employers, and the community-at-large. The present report explains the concepts of benefits and outcomes as they apply to vocational education. The uses of labor market information to assess the achievements of benefits and outcomes are also described.

The last part of the report describes a variety of agencies that can be valuable sources of labor market information for vocational education program planning purposes and details a number of ways in which interagency coordination and collaboration can be implemented to make the best use of labor market information in developing effective vocational education program plans.

Chapter I
INTRODUCTION

The Problem

The demand for vocational education, reduced to the simplest form, is a function of two variables: society's demand for labor and the public's demand for training. One purpose of the planning role is to determine the optimum mix of instructional programs and enrollments to satisfy this dual constraint. It is neither efficient nor fair to train individuals for jobs unless there is a sufficiently high probability that appropriate employment can be obtained in a reasonable amount of time.[1]

Education agencies engage in numerous planning and evaluation activities to provide and improve vocational education so that it meets both society's demands for labor and the public's demands for training. The need to use labor market information in planning and evaluating vocational education to satisfy these dual constraints seems to be essentially uncontested by vocational education administrators, planners, and evaluators. It is true, however, that many of these persons experience difficulties when trying to make the best use of the labor market information that is available to them for planning and evaluation.

During the past decade, research findings and legislative mandates suggest that there continues to be a compelling need for better ways to incorporate labor market information into the process of planning and evaluating vocational education if training is to be more closely related to the kinds of jobs that are available and more useful to those whom this system is intended to serve. Some of these research findings and legislative mandates are summarized in the next section.

RESEARCH FINDINGS

Finding: When labor market information is used in making decisions about program implementation or redirection, such information often seems to be used to further justify decisions that have already been made on the basis of other kinds of information.

A report by the General Accounting Office found that "local vocational officials . . . do not regularly survey their communities to determine the nature and extent of the need for vocational

[1] Harold Starr, Clyde Maurice, Michael S. Black, and Paula Keller, *Selecting, Analyzing, and Displaying Planning Information* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1979), p. 11.

education." Informants stated that "their contacts with the business community were informal and infrequent—usually occurring when a school had to justify starting a particular course."[2]

Drewes and Katz found that states make extensive use of labor market information in decisions concerning expansion or contraction of ongoing programs. However, one respondent in their study indicated that the "primary determinant for program approval. . . . is political," and that program continuation is "frequently more dependent upon enrollment than upon manpower demand."[3] The predominant perspective of operational personnel in many state agencies, as reported by Drewes and Katz, "appeared to be that of faith in follow-up and placement figures rather than in projections of labor market demand."[4]

Benson and Hoachlander provide a different perspective in explaining why many vocational education agencies seemingly do not use labor market information as the primary basis for planning training programs. These authors comment that education agencies offering vocational education:

> aim to spend money in accordance with projections of future labor market needs, eliminating or constricting programs, imparting skills for which there is little demand and expanding those where shortages are more severe. Although a sensible objective in the abstract, this country has thus far eschewed the kind of national economic planning and centralized education system that might make such an aim attainable. Lacking any control over the contraction and expansion of various sectors of the economy, as well as over hiring and dismissing teachers at the local level, states prepare thick documents of detailed figures on labor market supply and demand that are largely ignored by all concerned.[5]

Finding: Many vocational education administrators and planners distrust the labor market information that is made available to them.

The General Accounting Office report already referred to indicated that all states that were visited had a federally approved state plan for vocational education as required by law; this plan included at least some labor demand and supply projections. However, state education officials reported that "available projections of labor demand and supply were unrealiable and were included in the state plans only to comply with OE requirements."[6]

Drewes and Katz report "a discernible tendency of vocational education professionals to distrust manpower data, not only that supplied by ES (Employment Security) agencies and BLS (Bureau of Labor Statistics, U.S. Department of Labor) but that supplied by the educators themselves."[7]

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[2]Comptroller General of the United States, *What is the Role of Federal Assistance for Vocational Education? — Report to the Congress* (Washington, DC: Office of Education, U.S. Department of Health, Education, and Welfare, 1974), p. 25.

[3]D. W. Drewes and D. S. Katz, *Manpower Data and Vocational Education* (Raleigh, NC: Center for Occupational Education, North Carolina State University, 1975), p. 19.

[4]Ibid., p. 21.

[5]Charles S. Benson and E. Gareth Hoachlander, *Reauthorization of the Federal Vocational Education Act: Possible Directions—Draft Version.* Project on National Vocational Education Resources (Berkeley, CA: College of Education, University of California, 1980), p. 5.

[6]*What is the Role of Federal Assistance,* p. 73.

[7]Drewes and Katz, *Manpower Data and Vocational Planning,* p. 22.

Further evidence of the lack of confidence in labor market information by educational personnel also was reported by Starr et al. in their study of coordination in vocational education planning. These authors found that "many of those placed in the role of data consumers (e.g., school administrators) often doubted the accuracy and/or the usefulness of the employment data that was provided to them by data suppliers."[8]

Finding: Although labor market information is plentiful, there is a need for that information to be packaged in ways that are meaningful to users. There is little agreement as to how this should be done and who should take responsibility for doing it.

Dunham, in a discussion of the need to get adequate data for program planning and evaluation purposes, speaks to the above problem thus:

> Even if we get all that [data] into place: good national data system, supply/demand information, enrollment and results information, and career/education/occupational information; we still have the nagging problem of getting all those data synthesized, analyzed, and coordinated so we can use them for planning and improvement.[9]

Starr et al. describe differing viewpoints with regard to labor market information available for use in vocational education planning. Specific viewpoints on employment data expressed by consumers of such data included the following:

> There is a lack of correspondence between available employment data breakdowns and local needs. There are differences in the usability of available employment data between urban and rural areas. And, there are contradictions between the data that are available to local schools and experiences of vocational education graduates in the labor market.[10]

Drewes and Katz report the following general problems related to organizing, analyzing, and formatting labor market information:

> There are problems associated with lack of comprehensiveness and specificity of manpower data with regard to occupational coverage . . . classification of manpower data by industrial categories diminishes the utility of manpower data for vocational education planning . . . geographic coverage of manpower data was a frequently encountered problem. . . . Problems with the format of data were occasionally encountered.[11]

The need to aggregate available labor market information and package the information in ways that are more user-oriented is also clearly reflected by state vocational education agency staff persons in the Drewes and Katz report:

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[8] Harold Starr, Clyde Maurice, Harold Merz, and Gale Zahniser, *Coordination in Vocational Education Planning: Barriers and Facilitators* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1980), p. 23.

[9] Daniel B. Dunham, *Vocational Education: Policies, Issues, and Politics in the 1980s* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1980), p. 7.

[10] Harold Starr et al., *Coordination in Vocational Education Planning*, p. 22.

[11] Drewes and Katz, *Manpower Data and Vocational Education*, pp. 24-26.

> ... we can't go to the (ES) and say, "Now look! How many welders are we going to need next year in the way of replacement due to death and retirement and so on?" They do not break it out that way. They're on Standard Industrial Classification. Somebody's got to make that transposition.[12]
>
> ... the local administrator is inundated in administrative problems, and for him to take time to go through large, voluminous amounts of labor market statistics is impossible ... it was suggested that state and local administrators do not have the staff or the expertise to interpret labor market data in the format which is currently presented.[13]

Finding: It is difficult to know if labor market information used in vocational education planning and evaluation is indeed the best available.

Starr et al. found the following:

> There is little consensus between data suppliers and data consumers about the meaning of "best" in the term "best because it is available," not because it is targeted to the specific needs of data consumers. On the other hand, data suppliers expressed the view that data consumers did not appreciate the time constraints and technical difficulties inherent in reformatting or reinterpreting employment data that were originally prepared for purposes other than vocational education planning.[14]

State and local agencies operate in different kinds of social, organizational, economic, legal, and demographic environments. In addition, these agencies operate with different missions for vocational education programs. As a result, what may be the best labor market information for doing program planning and evaluation in one agency may be less appropriate for another agency.

Project staff reviewed a number of state plans for vocational education, local planning documents, and local applications developed for program approval and funding purposes. Staff found that it is difficult to discern clear linkages between: (1) agencies' context conditions, missions, and intended benefits for vocational education; and (2) the labor market information used as a basis for program decisions and the decisions themselves.

Finding: Federal legislative mandates for vocational education (and human resource training programs) reflect a continuing national desire for better methods of using labor market information in planning and evaluating these programs.

Over the past two decades, many federal laws affecting vocational education and other human resource training programs have included requirements and procedures for using labor market information for planning and evaluating these programs. This legislation includes the following:

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[12] Ibid., p. 24.

[13] Ibid., p. 26.

[14] Starr et al., *Coordination in Vocational Education Planning,* p. 23.

- Area Redevelopment and Training Act of 1961
- Manpower Development and Training Act of 1961
- Vocational Education Act of 1963
- Economic Opportunity Act of 1964
- Civil Rights Act of 1964
- Appalachian Regional Development Act of 1965
- Vocational Education Amendments of 1968
- Education Amendments of 1976
- Comprehensive Employment and Training Act of 1977
- Youth Employment and Demonstration Project Act of 1977

The latest vocational education legislation contained in the Education Amendments of 1976 (Title II) mandates a set of requirements and procedures for the use of labor market information in preparing local applications for federal vocational education funds and in developing state plans for vocational education. The mandates require the following:

- The use of local advisory committees as a basis for determining the availability of jobs when preparing local applications for vocational education funds.
- The use by state vocational education agencies of the best available employment data to formulate and update program goals.
- The establishment of a National Occupational Information Coordinating Committee, which is charged with responsibilities for implementing occupational information systems that will meet common needs for planning and operations of vocational education programs and of administrating agencies under the Comprehensive Employment and Training Act.

An additional reflection of congressional intent for using labor market information to achieve a better match between training programs and demands for labor is found in Section 171 (a) (2) F of Title II of the Education Amendments of 1976. This section of the law requires that the National Center for Research in Vocational Education . . .

> . . . work with states, local education agencies, and other public agencies in developing methods of evaluating programs . . . so that these agencies can offer job training programs which are more closely related to the types of jobs available in their communities, regions, and states.

FOCUS AND LIMITATIONS OF THE REPORT

This report describes a procedure for developing a long-range plan for vocational education and points up many of the ways that labor market information can be used in the planning and evaluation tasks that are associated with producing such a plan. However, the information should be regarded as ideas and suggestions, rather than as a definitive guide or prescription.

The procedure described in this report is intended to complement the extensive efforts being undertaken by the U.S. Department of Labor, the National Occupational Information Coordinating Committee, State Occupational Information Coordinating Committees, State Employment Services Agencies, and other groups and agencies in developing and communicating a better understanding of

the use of labor market information in vocational education planning and evaluation. However, the procedure does not deal directly with technical issues, underlying assumptions, or limitations of published labor market data bases. For detailed discussions of these matters, the reader can refer to the *Occupational Information System Handbook* issued by the National Occupational Information Coordinating Committee, Washington, D.C.

AUDIENCES FOR THIS REPORT

This report is addressed to two groups—

- The first, and primary, audience is comprised of local and state level education agency administrators, planners, and evaluators who are concerned with making more effective use of labor market information in vocational education planning and evaluation.
- The second audience is comprised of those persons representing business, industry, labor, and governmental agencies, who function as sources or developers of labor market information for use in vocational education planning and evaluation.

The authors are aware that the persons who comprise the two audiences for whom the report was written represent highly diverse backgrounds of understanding, expertise, experience, and responsibility with regard to vocational education administration, planning, evaluation, and the use of labor market information. With this fact in mind, the content of the report was written to reflect ideas and suggestions for using labor market information that would have applicability to the widest range of persons in both groups.

Chapter II
A FRAMEWORK FOR DEVELOPING A LONG-RANGE PLAN

The Framework

A suggested framework for developing and subsequently revising or redeveloping a long-range plan for vocational education is described in this chapter. This framework shows the relationship between five general questions that must be addressed in any plan if it is to be regarded as comprehensive, and the ten planning and evaluation tasks that are the substantive focus of a long-range planning and evaluation process for vocational education.

The four general questions that must be considered are—

- Where are we?
- Where are we going?
- How will we get there?
- How will we know we got there?
- Who do we involve along the way?

The ten planning and evaluation tasks are as follows:

- Describe the context and needs for vocational education
- Describe the mission for vocational education
- Describe program needs, goals, and objectives
- Describe desired outcomes and benefits for vocational education
- Describe procedures for interagency coordination and collaboration
- Reassess the context
- Reassess the mission
- Reassess program needs, goals, and objectives
- Assess the outcomes and benefits for vocational education
- Assess coordination and collaboration procedures

Figure 1 shows the relationship of these questions and tasks in the process of completing the plan, implementing the plan, and revising the plan. Table 1 further explains the five planning questions and ten planning and evaluation tasks by suggesting components for each task.

A FRAMEWORK

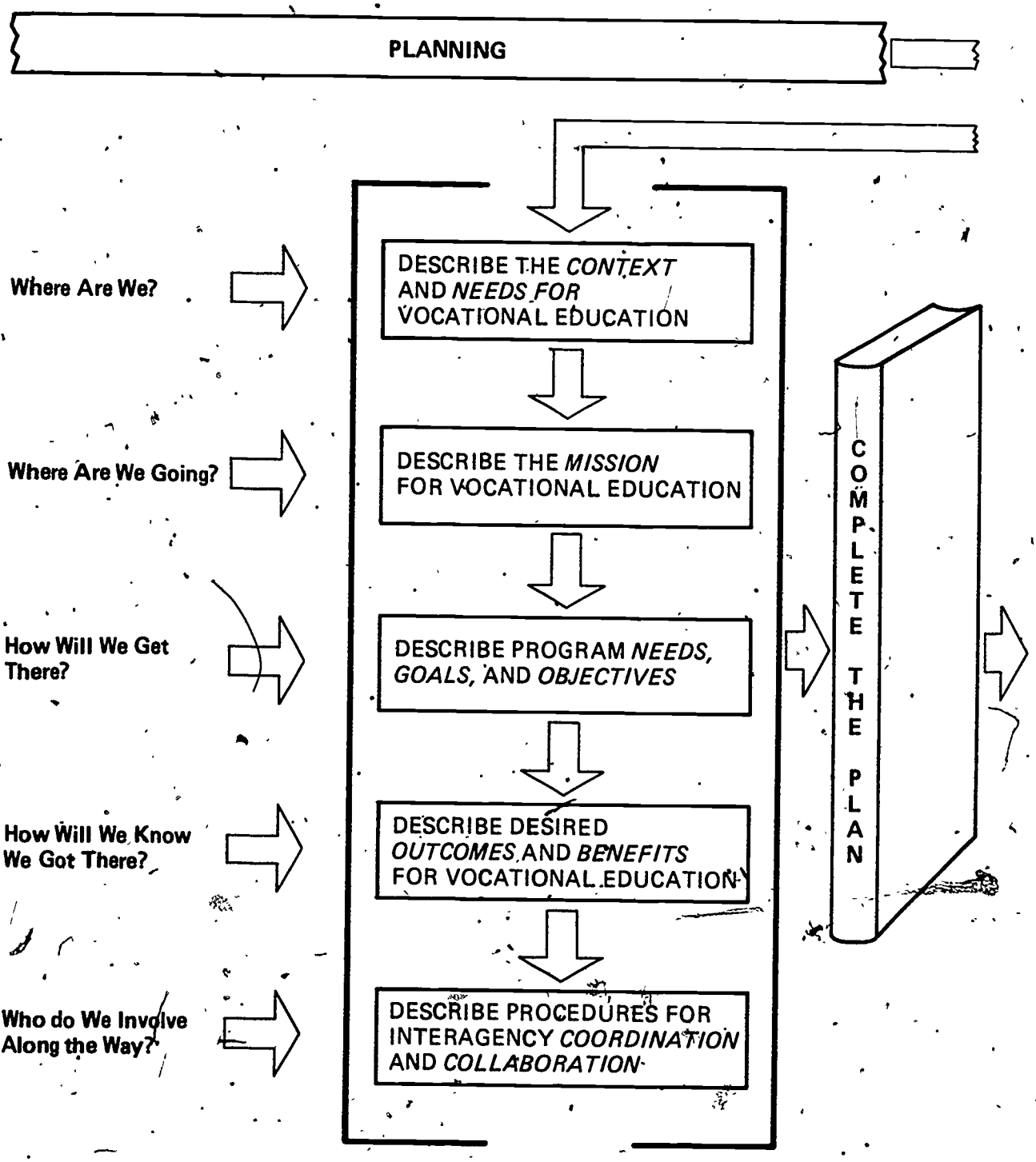

PLANNING
Where Are We?
DESCRIBE THE *CONTEXT* AND *NEEDS FOR* VOCATIONAL EDUCATION
Where Are We Going?
DESCRIBE THE *MISSION* FOR VOCATIONAL EDUCATION
How Will We Get There?
DESCRIBE PROGRAM *NEEDS, GOALS,* AND *OBJECTIVES*
How Will We Know We Got There?
DESCRIBE DESIRED *OUTCOMES* AND *BENEFITS* FOR VOCATIONAL EDUCATION
Who do We Involve Along the Way?
DESCRIBE PROCEDURES FOR INTERAGENCY *COORDINATION* AND *COLLABORATION*
COMPLETE THE PLAN

Figure 1
FOR DEVELOPING A LONG-RANGE PLAN

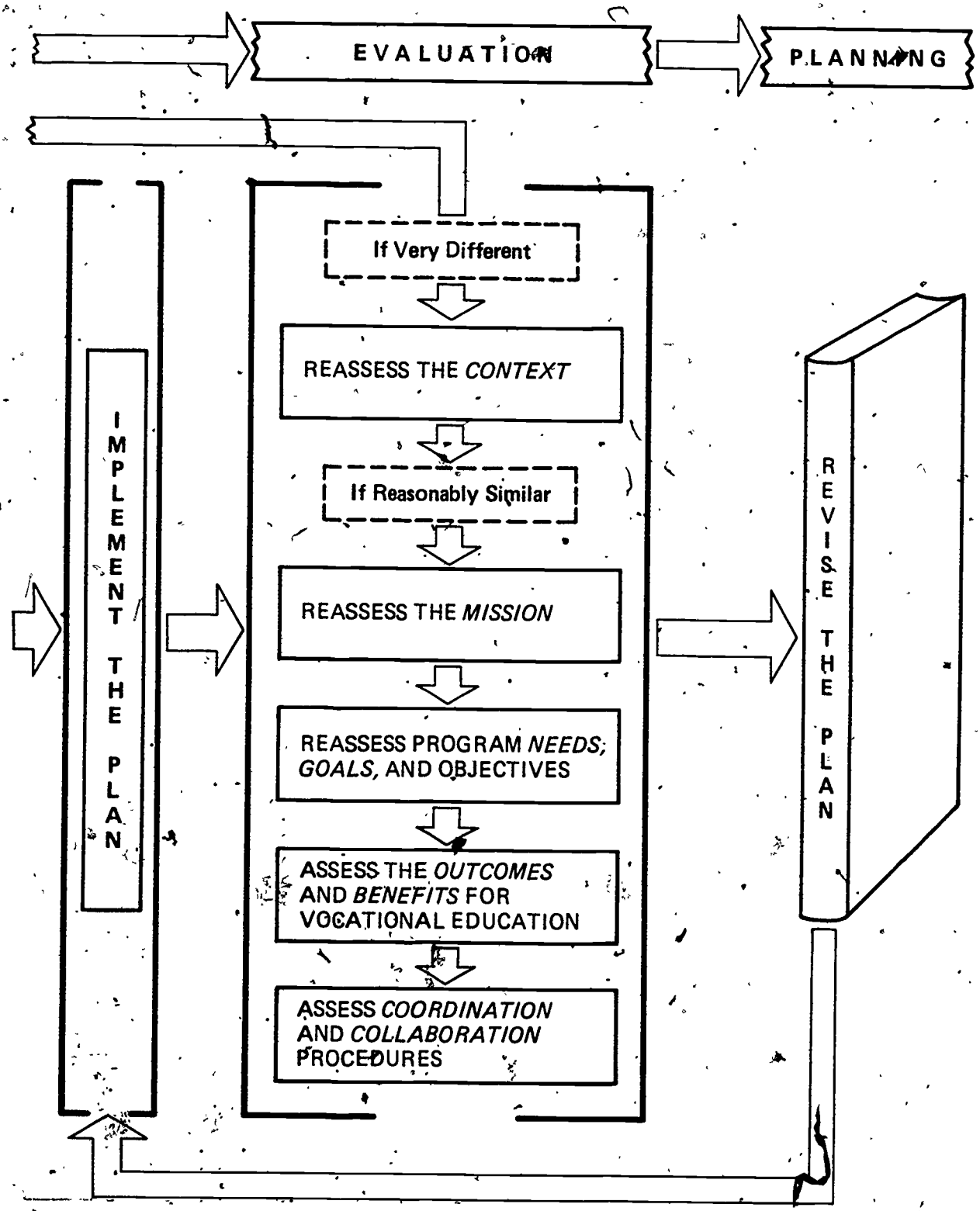


TABLE 1

Planning Questions, Planning Tasks, and Task Components

PLANNING QUESTION NO. 1:

- *Where are we?*

PLANNING TASK:

- *Describe and periodically reassess the context for vocational education.*

  What is the labor market *context* within which vocational education is, or is to be, provided? That is, what are the pertinent economic, social, educational, employment, and demographic conditions (as well as constraints) that define a need for vocational education?

PLANNING COMPONENTS:

The description of the context for vocational education includes an analysis of the following:

- Context for employment
- Needs of employers for trained workers
- Needs of individuals for job skills
- Capacity of the education system to respond to the needs of employers and persons who can profit from vocational education
- Needs of the community or region for vocational education

PLANNING QUESTION NO. 2:

- *Where are we going?*

PLANNING TASK:

- *Describe and periodically reassess the mission for vocational education.*

  What is the *mission* for vocational education? That is, what are the overall instructional purposes and labor market intents for vocational education, and who is to receive training?

PLANNING COMPONENTS:

The description of the mission for vocational education includes an analysis of the following:

- Instructional purposes of vocational education (e.g., employment vs. employability; job-specific training vs. occupational awareness)
- Labor market intents for vocational education (e.g., worker productivity and equity and their balance or emphasis) and the constraints to their achievement
- Populations to be served and the groups that will receive priority in access to vocational education

TABLE 1, continued

PLANNING QUESTION NO. 3:

- *How (and when) will we get there?*

PLANNING TASK:

- *Describe and periodically reassess program needs, goals, and objectives.*

  What program needs and related program *goals* and *objectives* have to be considered if the mission for vocational education is to be fulfilled? That is, what kinds of instructional programs, services, resources, and time lines are needed to achieve the mission and to deal with program needs?

PLANNING COMPONENTS:

Description of program needs, goals, and objectives includes an analysis of the following:

- Program growth, quality, and support needs
- Training goals and objectives that are proposed for dealing with identified program needs
- Resources that are required and time lines that are necessary for achieving the training goals and objectives

PLANNING QUESTION NO. 4:

- *How will we know we got there?*

PLANNING TASK:

- *Describe and periodically reassess desired outcomes and benefits for vocational education.*

  What kinds of *outcomes* and *benefits* will serve as a basis for evaluating the success of the plan and provide a basis for redirecting the plan? What kinds of information will serve as a credible basis for evaluating outcomes and benefits of vocational education?

PLANNING COMPONENTS:

The description of desired outcomes and benefits for vocational education includes an analysis of the following:

- Alternative outcomes and benefits of vocational education that are desirable, and the rationale for the ones that are ultimately selected for the plan
- How (procedurally) the findings about outcomes and benefits will be used to redirect the plan

TABLE 1, continued

PLANNING QUESTION NO. 5:

- *Who do we involve along the way?*

PLANNING TASK:

- *Describe and periodically reassess procedures for interagency coordination and collaboration.*

What groups, agencies, and individuals should be involved in developing a long-range plan for vocational education so as to ensure that planning is broadly based and responsive to the range of constituencies affected by the plan?

PLANNING COMPONENTS:

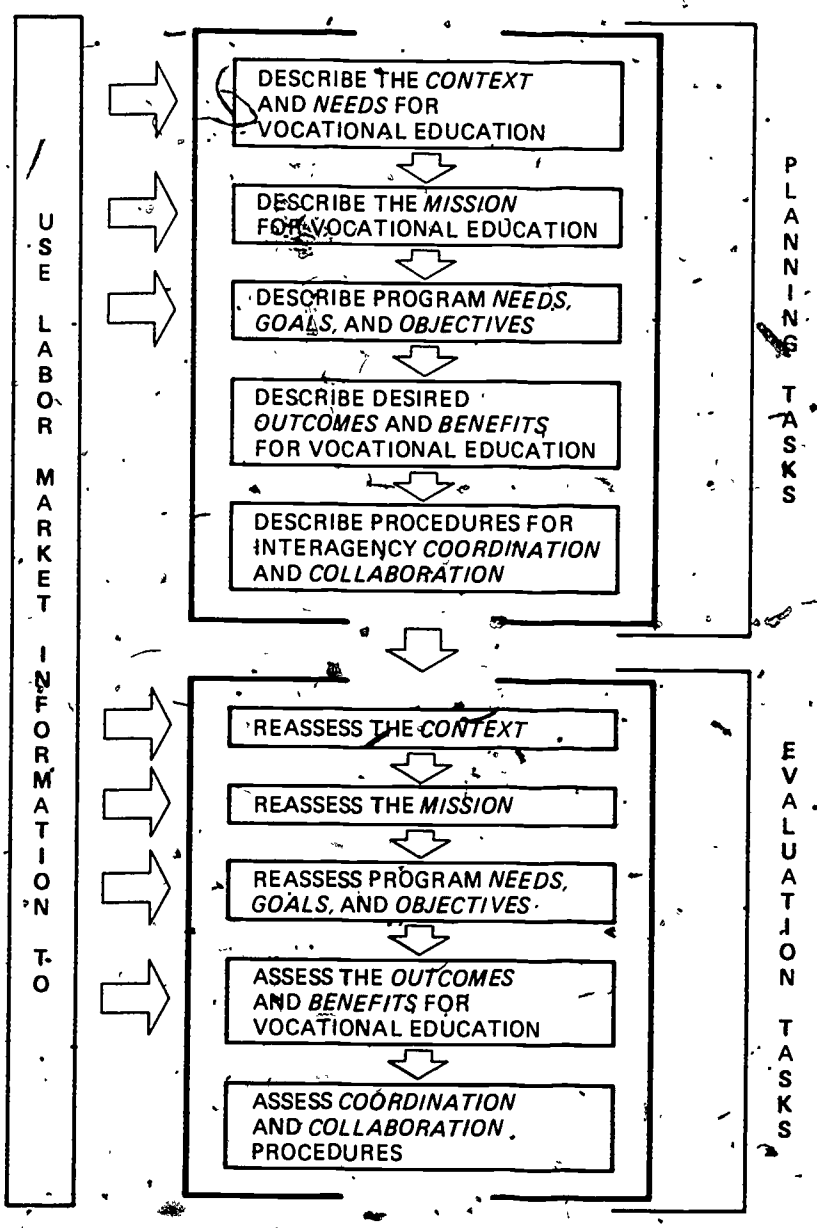
The description of procedures for interagency coordination and collaboration includes an analysis of the following:

- Roles and contributions of various groups, agencies, and individuals assisting in the development and reassessment of the long-range plan
- Procedures for making the best use of all resources available for vocational education and training

USING LABOR MARKET INFORMATION TO DO THE TASKS

The use of labor market information is indispensible in at least seven of the ten planning and evaluation tasks. These seven planning and evaluation tasks are depicted below.

Figure 2
USING LABOR MARKET INFORMATION IN THE FRAMEWORK



Chapter III

USING LABOR MARKET INFORMATION DEVELOP A VOCATIONAL EDUCATION PLAN

This chapter discusses more fully the framework (tasks and components) for the development of a long-range plan for vocational education and the uses of, and procedures for, using labor market information in developing such a plan.

WHERE ARE WE?

Part I — The Labor Market Context for Vocational Education

A description of the labor market context within which vocational education operates is the first step in developing a long-range plan for vocational education. A labor market context for vocational education is comprised of many conditions that are both internal and external to the education agency offering vocational education. A labor market context for vocational education can be described in economic, social, demographic, employment, educational, political, and legal terms.

Unfortunately, there is no ready-made formula that an agency can use to develop an adequate and useful labor market context description for vocational education. As an aid to persons who are unfamiliar with the process of developing a context description, it is suggested that they consider organizing such a description so that it addresses these four topics:

- Defining the context for the employment of the vocational education completers
- Assessing needs of employers for trained workers
- Assessing needs of people for job skills
- Assessing system capacity to meet needs of employers and students

For each of the four topical areas, it is necessary to define the kinds of labor market and educational information that can be synthesized to provide a basis for: (1) determining if there is a need for offering vocational education and (2) subsequently developing a vocational education plan if, in fact, a need has been established.

Unfortunately, there are no rules or criteria to enable an education agency to establish what specific labor market and educational information would be "best" for developing its particular labor market context description. However, a sample of labor market and educational information that is applicable to each of the four suggested topical areas for a context description is found in Appendix A.

An additional aid to understanding the nature of a labor market context description is the two hypothetical context descriptions presented in this chapter. These are not meant to be exemplary context descriptions but are presented to highlight some of the kinds of information that are applicable to the four topical areas. Resort City and Ruraltown are the two hypothetical communities used in this discussion. Resort City is portrayed as expanding economically and in population, whereas Ruraltown is portrayed as economically depressed and demographically static.

RESORT CITY, RESORT SMSA

Context for Employment

Resort City, a community of 164,000 persons, is the county seat of Resort County. Resort County and the two adjacent counties of Franklin and Washington form the Resort Standard Metropolitan Statistical Area (SMSA). Resort SMSA has a population of approximately 315,000. Franklin and Washington Counties are primarily residential in nature; Resort County (and especially Resort City) is the site of the majority of jobs in the SMSA.

Between 1970 and 1980, the population in the SMSA expanded rapidly. It is estimated that the population in the SMSA grew at an average rate of 4.5 percent per year over the past decade as compared to an average rate of 3.3 percent for the state and 1.9 percent for the nation as a whole. This growth in the population of the SMSA is attributed primarily to the fact that many out-of-state persons moved into the area. It is believed that this expansion in population will exceed an annual average of 5 percent during the next several years at least.[15]

An increasingly larger proportion of the SMSA population falls into the fifteen to twenty-four age group, resulting in more pressure on the local educational agencies. At the same time, employers are finding that there are increasing numbers of persons available to enter the work force.

The Resort SMSA work force grew at an average annual rate of 4.8 percent over the last five years. There is a noticeable migration of both workers and firms into the region. The creation of new jobs has kept pace with the increase in people seeking work and, as a result, unemployment is currently below 5 percent. This rate contrasts with the current state unemployment rate of 7.3 percent and the current national unemployment rate of 7.9 percent. Unemployment in the Resort SMSA has remained consistently below the state and national levels during most of the past decade.[16]

Labor is relatively inexpensive in the Resort SMSA. For example, the average wage of production workers in the SMSA is $7.23 per hour. This figure compares to the national average wage of $8.61 per hour and to the state average wage of $7.47 per hour for production workers. Many firms have migrated to the area to take advantage of the supply of less expensive workers. Also, the pleasant climate and recreational opportunities have made it easy for firms to attract professional, managerial, and technical employees from across the nation.[17]

Many motels, restaurants, and retail stores that cater to an expanding tourist trade are located in the Resort SMSA, especially in Resort City and its immediate surroundings. These businesses employ a major proportion of persons in the Resort SMSA work force. However, the levels of

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[15] Sources of population data include the *Annual Planning Report* published by State Employment Security Agencies and reports issued by regional planning commissions.

[16] Employment-unemployment statistics for many metropolitan areas are reported in the *Labor Market Information Newsletter* (or report) and other reports issued by a State Employment Security Agency.

[17] Current wage rates for production workers in SMSAs probably can be found in the U.S. Department of Labor publication *Employment and Earnings* and in the Bureau of Labor Statistics publication *Area Wage Surveys.*

employment in these businesses are subject to rapid fluctuations because the tourist trade is seasonal in nature. These businesses, especially the restaurants and motels, use proportionately more unskilled labor than other industries in the area.

Employment in the manufacturing sector is experiencing a steady growth. Aerospace, electronic, and glass firms employ the majority of employees in manufacturing. The growth of manufacturing in the SMSA is related to low energy costs, as well as to the availability of low-cost and reliable labor.[18]

Employers' Needs for Workers

The Resort SMSA has 367 employers who employ three or more persons. These 367 employers provide 94 percent of the jobs in the SMSA. The majority of employees are in the manufacturing, services, government, and wholesale and retail trades industries. The remainder are employed in transportation, communications, construction, finance, insurance, real estate, and agriculture. Table 2 shows the breakdown of the percentage of employment in the various industrial divisions in the Resort SMSA and contrasts this breakdown with employment in these industries, both statewide and nationally.

Concentration indices are used to compare employment in Resort SMSA with state and national employment. An index of 1.00 indicates that employment in a local industry is equal to the national or statewide proportion to which it is being compared. An index greater than 1.00 indicates a proportion that is greater than that nationally or statewide; and the converse is true if the index is less than 1.00. For example, the concentration index of 1.43 for Resort SMSA compared to the national picture for wholesale and retail trade indicates that there are 43 percent more workers in this industrial division in the SMSA than would be expected on the basis of the national pattern.

The pattern of employment by industrial division in the Resort SMSA affects the distribution of occupational groups in this labor market area. Table 3 lists ten occupational groups and indicates the distribution of employment by groups for the Resort SMSA and for the state and the nation. Concentration indices and estimates of growth and decline for each occupational grouping for the Resort SMSA by 1985 are also included.

Table 4 lists nineteen specific occupations that require less than a college degree as a prerequisite for employment and that are expected to have more than 100 job openings per year in the Resort SMSA through 1985. Estimated average annual number of openings for the period 1981–1985 also are presented in table 4.

Table 5 rank orders the twenty occupations in the Resort SMSA that are expected to have the highest rates of growth for the period 1981–1985. It should be noted that some of the occupations with high rates of growth have comparatively few average annual openings. This is understandable because relatively few persons are employed in these particular occupations. For example, although the rate of growth of opticians and lens grinders is 117 percent in the Resort SMSA, the average annual number of openings is only fourteen. This is because there are currently only 274 opticians and lens grinders in the SMSA.

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[18] Most current information about employment by industry can be found in the *Labor Market Information Newsletter* issued by State Employment Security Agencies. Greater detail may be found in *County Business Patterns*, a publication issued by the U.S. Department of Commerce; however, the information is not as current as that in the *Newsletter*.

RESORT CITY, RESORT SMSA

TABLE 2

Employment by Industrial Division, Resort SMSA

Industrial Division	Percentage of Total Employment			*Concentration Index:*	
	Local %	*Statewide %*	*National %*	*Local/State*	*Local/National*
Transportation, Communication	5	5	5	1.00	1.00
Wholesale, Retail Trade	29	27	21	1,17	1.43
Finance, Insurance, Real Estate	7	5	5	1.40	1.40
Services	29	25	22	1.16	1.32
Government	14	15	17	.93	.82
Agriculture	1	3	2	.33	.50
Mining	0.3	0.5	1	.60	.30
Manufacturing	13	14	21	.93	.62
Construction	6	6	5	1.00	1.20

NOTE: This type of information can be found in the *Annual Planning Report* and the *Labor Market Information Newsletter* issued by a State Employment Security Agency. Concentration indices can be calculated by the education agency.

RESORT CITY, RESORT SMSA

TABLE 3

Patterns of Employment by Occupational Group, Resort SMSA

Occupational Group	Percent of Total Employment			Concentration Indices		Growth Predicted to 1985
	Local %	Statewide %	National %	Local/State	Local/National	
Professional, Technical	12	14	16	.86	.75	55%
Managers, Officials, Proprietors	13	12	11	1.08	1.18	48%
Sales Workers	9	9	6	1.00	1.50	32%
Clerical Workers	20	18	18	1.11	1.11	66%
Crafts and Kindred Workers	11	10	13	1.10	.85	28%
Operatives	12	14	15	.86	.80	36%
Service Workers	18	16	14	1.12	1.29	71%
Laborers (non-farm)	4	4	4	1.00	1.00	29%
Farm Workers	1	3	3	.33	.33	-8% (45% average of all occupations)

NOTE: Patterns of employment for occupations are typically described in State Employment Security Agency publications, which report occupational employment projections, both statewide and for selected labor market areas of a state. This information is sometimes found in the *Annual Planning Report*, which is also issued by this agency. Concentration indices can be calculated by the education agency.

RESORT CITY, RESORT SMSA

TABLE 4

Average Annual Openings 1981–1985

Occupations	*Average Annual Openings*
Secretaries	1,608
Sales Workers	1,192
Waiter, Waitress	674
Cashiers	647
Bookkeepers	483
Truck Drivers	324
Typists	297
Cooks	261
Assemblers	234
Machine Operators	198
Checkers, Examiners, Mfg.	180
Carpenters, Apprentices	173
Packers, Wrappers	151
Heavy Equipment Mechanics	138
Licensed Practical Nurses	135
Guards	134
Delivery Route Workers	123
Auto Mechanics, Apprentices	119
Receptionists	107

NOTE: Average annual job openings for many occupations are presented in State Employment Security Agency publications that report occupational employment projections, both statewide and for selected labor market areas of a state. This kind of information may also be found in the *Annual Planning Report* that is issued by this agency.

TABLE 5

Top 20 Occupations in terms of Rate of Growth

Occupations	*Estimated Rate of Growth 1981-1985 (as a percentage)*	*Average Annual Openings*
Dental Hygienist	300	47
Data Processing Machine Repair	236	32
Clerical Assistant, Social Welfare	200	12
Childcare Workers	186	84
LPNs	151	135
Health Record Technician	150	*
Teacher Aides	145	96
Boarding, Lodging Housekeepers	133	22
Job, Die Setters, Metal	125	13
Animal Caretakers	123	54
Dental Assistants	120	75
Opticians, Lens Grinders	117	14
Receptionists	112	107
Nurses Aides, Orderlies	109	84
Legal Secretaries	104	68
Lodging Quarters Cleaners	103	94
Chemical Technicians	100	*
Billing Clerks	100	52
Ushers: Recreation, Amusement	100	17

NOTE: Rates of growth in the number of job openings for a number of occupations is reported in State Employment Security Agency publications that report occupational employment projections, both statewide and for selected labor market areas of a state.

* Less than ten openings per year

RESORT CITY, RESORT SMSA

Before proceeding with the context description for Resort City, Resort SMSA, it is important to point out that the employment demand data presented in tables 4 and 5 are projections of job openings that have been developed on the basis of certain assumptions. A recent publication by the U.S. Department of Labor summarizes and explains the effects of the major assumptions under which most governmental projections of employment demand are generated.

> Users of these data should be aware that the projections represent the level of employment required to produce an amount of goods and services implied by the Bureau's projections of the economy.
>
> . . . These projections are based on certain assumptions. Some of the assumptions are quantitative, such as the size of the population and the labor force, and the rate of unemployment. Others are qualitative, such as those concerning the institutional framework of the American economy; economic, social, technological, and scientific trends; and the fiscal and monetary policies of the government.
>
> . . . Some of the assumptions that have significant effects on the projections, such as how energy needs of the United States will be met . . . cannot be made with precision because of the considerable uncertainty about the availability of certain types of energy. The result will depend largely on the policies of future administrations and the actions of foreign governments. Variations between the assumptions used by BLS and actual events, of course, will result in errors in the projections, and users are advised to evaluate these assumptions in any use of these projections.
>
> It should be noted that the estimates of average annual openings do not include occupational transfers. When workers change occupations, they create openings in their old occupation and increase the supply of workers in the new one. Research has shown that occupational transfers are a larger source of job openings than economic growth and replacement needs combined. As a result of the omission of occupational transfers, the estimates of annual openings may underestimate the demand among the various occupations—particularly in some occupations with a high level of occupational transfers.
>
> Estimates of future occupational demand comprise only half the information needed to evaluate employment prospects. To get the complete picture, individuals must know not only how many jobs will be available, but also how many people will seek those jobs. For each occupation, supply estimates should include (1) the number of persons completing training specifically designed to prepare them for work in that occupation, (2) the number completing related training, (3) the proportion completing training who will seek jobs in the occupation, (4) the number of persons currently not in the labor force who are qualified and who will seek jobs, (5) the number of immigrants who are qualified, and (6) the effect that changes in relative wages may have on each of the above categories.
>
> The reliability of supply estimates varies among occupations. In general, the best data are available for occupations requiring specific training programs. The supply of physicians, for example, can be estimated with a high degree of confidence. Entry is limited to graduates of U.S. medical schools and qualified

immigrants. And virtually all graduates and qualified immigrants become physicians. However, for many occupations—even those requiring formal training—data on completions and entry rates are limited, making accurate estimates of supply impossible. . . .

Education and training officials use occupational supply and demand information in planning and evaluating programs. In fact, Congress has specified in legislation that government training programs and vocational education should be planned on the basis of information on employment prospects. Because the data in this bulletin reflect the national situation, it cannot be the sole basis for state and local area planning. Nevertheless, persons responsible for evaluating training programs cannot ignore national projections in a nation where workers frequently move from one area to another. Because of this mobility, the National Commission on Employment and Unemployment Statistics questioned the desirability of planning vocational education solely on the basis of the job prospects in a single community.

To meet the need for local data, the Bureau of Labor Statistics, in cooperation with the Employment and Training Administration and State Employment Security Agencies, conducts the Occupational Employment Statistics program. Under this program, occupational projections are prepared by state agencies, using procedures developed by BLS.[19]

Part V in this chapter discusses the importance of *planned* interagency coordination and collaboration as a means to (1) acquire, interpret, and apply the best available employment supply and demand information and (2) assess the contribution and effectiveness of vocational education programs in providing training that relates to the kinds of jobs that are available.

Peoples' Needs for Job Skills

There is little information available about what kinds of training are desired by the population of the Resort SMSA. On the other hand, there is information that suggests that certain groups in the community have not shared in its economic growth. For example, about 13 percent of all persons in Resort are considered to be living at or below the poverty level. Approximately two-thirds of these persons are nonwhites. The active file of the local state employment service office indicates that of those persons in this group who are seeking employment, 75 percent are on welfare. In addition, few applicants from this group of persons seem to find continuous substantial gainful employment even if they are referred to an employer. The facts indicate that the poor in the area are much more likely to be chronically unemployed, and they are in need of skills that will qualify them, or increase their ability to compete, for stable employment.[20]

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[19] U.S. Department of Labor, Bureau of Labor Statistics, *Occupational Projections and Training Data, 1980 Edition, Bulletin 2052* (Washington, DC: Government Printing Office, 1980), pp. 1–3. This publication contains detailed statistics of future demand for nearly 240 occupations. These data were developed during the research for the *1980–81 Occupational Outlook Handbook* published by the Bureau of Labor Statistics.

[20] Statistics about economically disadvantaged persons can be found in table 91 of the Employment Security Automated Reporting System, which is available on request from the State Employment Security Agency. Such statistics can also be derived from caseload information from county welfare offices.

RESORT CITY, RESORT SMSA

The cost of living has skyrocketed in the Resort SMSA. As a result, many families are required to have more than one wage earner. Although statistics are difficult to come by, the local office of the State Employment Security Agency estimates that about 225 homemakers will be displaced and will be entering the Resort SMSA work force. That office also estimates that nearly 200 of these persons will be without significant job skills.[21]

During the past twelve months, fourteen employers serving on vocational education advisory and craft committees have indicated an interest in upgrading skills of many of their present employees because of technological changes in their businesses or industries. The specific kinds of training desired by employers and the number of employees who might be interested in upgrading their skills are not fully known at this time.

System Capacity to Meet Needs for Training

At the secondary level, there is a total of nine comprehensive high schools in Resort, Franklin, and Washington Counties. At the postsecondary level, there is Resort City Community College. Adult vocational education programs are offered by Resort City public schools.

Compared to the state averages, the percentage of persons who are enrolled in vocational programs in grades nine through twelve and in the community college is quite low. This is due to two factors: (1) the relative affluence of the SMSA has historically been associated with a large percentage of high school students making plans for college, rather than for employment directly from school, and (2) the rapid expansion of the school-age population has put a continuing construction and financial burden on the school systems in all three counties, especially in Resort County.

At the present time, it does not appear that there are many occupations for which an excessive number of students are being trained. Table 6 lists the scope of specific occupational education programs in the Resort SMSA and compares the number of completers with the estimated number of job openings in the area.

Training-related placement rates for vocational education programs are relatively high at the Community College.[22] About 75 percent of those completing training and seeking employment find training-related employment. The lowest rate is 62 percent for the drafters program; the highest rate is 94 percent for the secretarial science program. The training-related placement rate for all program completers at the secondary level is 63 percent.

The various local advisory committees for vocational education in the SMSA have indicated that vocational education programming should be expanded. There seems to be sufficient employer demand and student interest to double or triple enrollments in some of the programs. Currently there are long lists of people waiting to enroll in quantity food production programs at the high schools and in the hospitality management course at Resort Community College. However, a lack of

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[21] In addition to data from the State Employment Security Agency, various state agencies having women's bureaus may be sources of information about displaced homemakers. Also, other local agencies such as CETA and social service agencies may have data about displaced homemakers.

[22] Data about training-related placements of program completers can be obtained from local education agencies if they collect such data. Statewide and sometimes regional placement data are available from state divisions of vocational education. Statewide data are also found in the Vocational Education Data (and Reporting) System (VEDS) operated by the National Center for Education Statistics.

RESORT CITY, RESORT SMSA

TABLE 6

Vocational Education Programs in Resort City SMSA

Program	*Location**	*Completers/ Year*	*Average Annual Job Openings/Year in Field*
Production Agriculture	R,F	42	56 (farmer, farm worker)
Ornamental Horticulture	W,CC	38	88 (gardener, grounds keeper)
General Merchandise	R,F,W	53	820 (cashier, buyer, route worker)
Hospitality Management	CC	14	78 (restaurant, cafe, bar)
Secretarial/Business Office Occupations	R,F,W	73	1,869 (secretary, typist, and related)
Accounting and Computer	R,W,CC	58	483 (bookkeeper)
Filing/Office Machines	R	17	137 (file clerks, billing)
Computer Programmer	CC	15	48 (computer programmer)
Nurse's Aide/Orderly	R	18	84 (nurse's aide, orderly)
Auto Mechanic	R,F	37	119 (auto mechanics and apprentices)
Heating & Air Conditioning	R	21	72 (air conditioning, heating, refrigeration mechanic)
Supervision, Management Level	CC	17	89 (blue-collar worker supervisors)
Construction Trades	F	14	55 (construction laborers)
Carpentry	W	19	173 (carpenters and apprentices)
Quantity Food Production	R,W	37	251 (cooks, except private)
Welding & Cutting	R	16	88 (welders, flame cutters)
Drafting	W,CC	39	92 (drafters)

NOTE: Data in columns one through three are from educational agencies. The last column dealing with average annual job openings is available for many labor market areas in occupational employment projections reports issued by State Employment Security Agencies.

* R = Resort County—secondary level programs only
F = Franklin County—secondary level programs only
W = Washington County—secondary level programs only
CC = Resort Community College—postsecondary programs

money will limit the extent to which existing programs can be expanded or new programs started in the near future. The rapid growth in the elementary school age population over the last few years has caused most of the school systems in the SMSA to give their highest priority for funding to building and remodeling elementary school buildings. The tax base has expanded but the rise of population growth and inflation leaves most of the school systems in the SMSA with continuing financial difficulties.

RURALTOWN, JONES COUNTY

Context for Employment

Ruraltown is a town of 6,900 persons and the only incorporated community in Jones County, population 20,000. The nearest metropolitan area is Junction City, 175 miles to the west. The population of Ruraltown has declined about 8 percent since 1970. The population of fifteen- to nineteen-year-olds remains approximately stable whereas the population of twenty- to sixty-five-year-olds has been slowly decreasing.

The work force in Jones County, some 8,500 persons, has been declining and getting older since the 1960s. Young people tend to leave the area after leaving high school to take jobs in Junction City and the several other metropolitan areas of the state. The number of jobs that are available in the region has slowly decreased as the primary industry, pulpwood processing, becomes more capital intensive. The unemployment rate in Ruraltown currently stands at 11.9 percent, which is approximately 5.7 percent higher than the state average of 6.2 percent. There has typically, over the years, been a significantly higher rate of unemployment in Ruraltown than in most other areas of the state.[23]

Wages in Ruraltown for production workers average about $4.80 per hour. This rate is well below average for the state ($6.49 per hour) and is very much lower than the average for all production workers in the United States ($8.50 per hour). Low wage levels would seem to be a factor that might attract new industries into the region, but the low skill and education levels of workers in Ruraltown and the surrounding region have not been conducive to attracting prospective employers.

Employers' Need for Workers

The local economy is dominated by Johnson Paper, Inc., which employs 2,000 persons or approximately a third of the work force in the county. The next largest employers are the school system and the county government, both of which account for about 800 employees. Small retail and service businesses and home farms are the other major sources of employment in the area. Table 7 depicts the distribution of employment by industrial division for Jones County. The data in table 7 indicate that the largest number of jobs are in manufacturing. About 90 percent of the persons employed in manufacturing work for Johnson Paper and, therefore, Johnson vitally affects the economy of Ruraltown and the surrounding region.[24]

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[23] Local offices of a State Employment Security Agency (or the state office) can provide estimates of unemployment and the size of the labor force for counties.

[24] Information about wages and the distribution of employment may or may not be available or may be incomplete for areas of a state in which population density is quite low and there is little employment. Local business and trade groups, chambers of commerce, and similar sources will need to be consulted to obtain wage and employment information.

RESORT CITY, RESORT SMSA

TABLE 7

Employment by Industrial Division, Jones County

Division	*Number Employed (Rounded)*	*Percentage of Total*
Transportation/Communication	150	1.8
Wholesale, Retail Trades	1,650	19.4
Finance, Insurance, Real Estate	250	2.9
Services	1,800	21.2
Government (including education)	850	10.0
Agriculture	500	5.9
Mining	0	0.0
Manufacturing	3,100	36.5
Construction	200	2.3
TOTAL	8,500	100.0

NOTE: The *Labor Market Information Newsletter* published by the State Employment Security Agency is one source of such information. *County Business Patterns,* a publication of the U.S. Department of Commerce, is an alternative but less up-to-date source.

Most workers in Ruraltown and the surrounding region are employed as unskilled laborers. Woodpulp processors make up the largest number of unskilled workers. The state employment security office located in Ruraltown has estimated (based on a review of job orders placed with it by employers during the past 24 months) that only five occupations will have more than twenty-five openings per year, all conditions affecting employment remaining constant. These occupations are pulpworker (seventy-five openings per year), sales clerks (sixty openings per year), school teachers (twenty-seven openings per year), typists (thirty-five openings per year), and waiter/waitress (twenty-eight openings per year).[25]

There is little evidence of any local shortages of labor. However, from the perspective of the Jones County Development Commission (which is involved in trying to interest industries in locating here), there is an obvious shortage of persons in Ruraltown and the surrounding region who are qualified to meet the needs of the industries that are showing the most rapid growth in other parts of the state. This is a real concern because the pulpwood industry is becoming less labor intensive and more automated.

At Johnson Paper the work force has dropped from 3,100 in 1973 to 2,800 today. This industry is also subject to considerable foreign competition, which raises the possibility of plant closings and periodic layoffs of workers.

Given the limited scope of employment opportunities in Ruraltown and the surrounding region, concerned citizens have expressed the opinion that young people should be made aware of the labor market needs of Junction City, to which many local people move even though it is some distance away. For this reason, some discussion of the employment opportunities in Junction City is in order here.

Junction City is the county seat of Turnbull County. Turnbull and the three surrounding counties have a total population of 150,000 and a labor force of 52,000. Junction City is a manufacturing center of some importance in the state. It has a high concentration of employers in the nonelectrical machinery industry. In fact, manufacturing accounts for about 55 percent of the jobs in the Junction City SMSA. Table 8 lists the number of occupations in the Junction City SMSA in which 500 or more persons are employed and estimates of annual numbers of job openings in these occupations.[26]

Junction City has an unemployment rate of only 5.1 percent. In addition, employment opportunities are relatively good. Shortages are developing in manufacturing occupations as very large employers from the two adjoining states lure away local employees with high wage offers. The Junction City office of the State Employment Security Agency receives frequent job orders for semiskilled manufacturing and clerical workers. To sum up, Junction City has a good potential for absorbing young people from the Ruraltown area into its labor market.

Peoples' Needs for Job Skills

About 30 percent of the Ruraltown County population is classified as economically disadvantaged on the grounds of low family income. Many families are currently receiving public assistance,

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[25] Published estimates of job openings are not likely to be available for areas like Ruraltown.

[26] *The Annual Planning Report* issued by a State Employment Security Agency is one source for SMSA labor force and demographic information.

RURALTOWN, JONES COUNTY

TABLE 8

Occupations Employing More than 500 Persons, Junction City SMSA

Occupations	*Number Employed (Rounded)*	*Est. Annual Number of Job Openings*
Managers and Officials	3,400	250
Assemblers	1,710	170
Sales Persons	1,410	120
Sales Clerks	1,220	135
Supervisors, Foremen	1,100	70
General Clerks	1,010	90
Drill Press/Boring Operators	880	90
Truck Drivers	870	105
Electrical Engineers	860	55
Secretaries	820	80
Punch Press Operators	750	85
Mechanics, Automotive	700	65
Waiters, Waitresses	650	115
Janitors, Porters, Cleaners	640	120
Cashiers	580	90
Order Fillers	550	75
Lathe/Turning Operators	500	50

NOTE: The Occupational Employment Projections reports for a state and various labor market areas of a state are published by the State Employment Security Agency and are a source for the information contained in this table.

but the situation is expected to worsen if the unemployment rate gets any higher. Most of the economically disadvantaged persons of working age in Ruraltown County are high school dropouts.[27]

System Capacity to Meet Employer and Student Needs

There is one public institution in the county that offers vocational education. Ruraltown high school offers secondary-level vocational agriculture and home economics. The nearest area vocational-technical school is forty miles and three counties away. There are no proprietary schools within seventy-five miles of Ruraltown.

Although Ruraltown has previously considered expanding its vocational education programs to serve adults, the school system cannot do so without generating more funds to support such programs. This would require increasing property taxes, and this has not been popular with homeowners or with Johnson Paper.

[27] Information about the economically disadvantaged living in sparsely populated areas can sometimes be obtained from county welfare departments and from local or regional planning commissions.

NEEDS FOR VOCATIONAL EDUCATION

Determining if there are needs for implementing or modifying the scope of existing vocational education is a necessary step in deciding if a vocational education plan should be developed or revised. The needs for implementing or modifying vocational education can be determined from an analysis of information that is derived from the answers to at least four questions:

- Are there (or will there likely be) short- and/or long-term needs for trained workers by employers in the community, region, or state; and if there are needs for trained workers, how many are needed and with what kinds of skills?
- Are there adequate numbers of persons who are likely to need, desire, and profit from vocational education to warrant continuing or implementing training programs?
- Can the community or region maintain support for quality vocational education programs that meet the needs of employers and persons who need skills?
- Is vocational education the only or the best alternative for meeting demands for labor given the economic, social, and demographic characteristics of the community or region served by the education agency?

One can use the context description as a basis for answering these four questions.

Although labor market and educational information serves as a basis for determining needs for vocational education, the interpretation of such information always involves value judgments about the importance or implications of this information. Thus, given the scenarios of Resort and Ruraltown, it is possible to come to different conclusions about the needs for vocational education in these areas.

One could conclude that there are obvious needs for expanding vocational education in Resort, given the continuing growth of the SMSA population. Evidence of increased demands for trained workers, evidence of student interest in vocational education that is not met by present training programs, and the presence of a large number of persons who are unemployed, underemployed, or receiving public assistance attest to needs for vocational education.

On the other hand, one could argue that even if all these facts are true, the supply of trained persons to meet current and future needs of employers could be more efficiently met by at least two strategies other than implementing new vocational education programs or expanding existing ones. These two strategies include (a) offering incentives (e.g., bonuses, tax breaks) to persons who have the skills needed by employers as a way of inducing them to move to the Resort area, and (b) using vocational education personnel to assist employers in operating their own training programs.

In the case of Ruraltown, the context description might lead one to conclude that because there are so few jobs available for semiskilled and skilled workers in Ruraltown and its immediate surroundings, there would be no real incentive to the population to avail themselves of vocational education. Also, because so many younger persons in the Ruraltown area are leaving for more industrialized areas of the state, planning to expand vocational education would not be practical or necessary.

On the other hand, if the Ruraltown area is to improve its economic and social conditions, new industries and small businesses must be induced to locate in the region. The availability of good vocational training facilities might provide the Jones County Development Commission with the kind of incentive that might encourage employers to locate in the region. Further, it is commonly believed that school dropouts in the region feel unprepared vocationally to risk moving to other parts of the state. If they had the kinds of skills that could assure them of employment in the Junction City SMSA or other parts of the state, they might leave Ruraltown in greater numbers. This, in turn, might reduce the levels of unemployment and poverty in the region.

WHERE ARE WE GOING?

Part II — The Mission Statement for Vocational Education

The next step in long-range vocational education planning is to develop a description of the mission for vocational education. This section describes the nature of a mission description and provides examples of ways in which labor market information strongly influences the formulation of a mission description. A mission description should contain at least five components:

1. A statement of the mandated and education agency formulated intents for vocational education, and the priorities it accords them
2. Legislative and institutional constraints to implementing intents for vocational education
3. An identification of the population or populations that are eligible to enroll in vocational education, along with a description of the population or populations that will receive priority consideration for program planning purposes
4. A statement of the instructional purposes for vocational education programs that are to be offered
5. A description of program needs, goals, and objectives

The following discussion focuses on formulating a mission description using each of these five components.

Statement of Intents and Their Constraints

Federal vocational education legislation since 1963 has promoted two national labor market intents for vocational education. Both of these intents have either been incorporated into or recognized in the planning processes of most, if not all, state and local education agencies. These two labor market intents are—

- Increasing efficiencies in labor market operations by providing training that responds to occupational skills shortages
- Improving equity in opportunities for employment by promoting greater access to quality vocational education for all persons who desire and can profit from such training

Decreasing rates of productivity, an increasing incidence of structural unemployment, and serious occupational skills shortages in a number of industries have influenced Congress to delegate a role to vocational education to increase efficiencies in labor market operations. As an expression of the federal intent that vocational education should play a role in improving efficiencies in labor market operations, the Education Amendments of 1976 require states seeking federal support for vocational education to use the best available employment data in planning and evaluating training

programs. In addition, the Education Amendments of 1976 call for the establishment of occupational information systems to meet the common needs for planning and operating vocational education programs, and of administering agencies under the Comprehensive Employment and Training Act.

Information about the labor market also served as an important basis for the federal intent that vocational education play a role in improving equity in opportunities for employment. This information indicated that there continues to be unacceptable levels of unemployment and/or underemployment among minorities, youth, women, displaced homemakers, and persons with limited English-speaking ability.

Although the two federal legislative intents for vocational education programs have existed since 1963, the priority given each of them in various pieces of legislation has shifted. The Vocational Education Act of 1963 and the 1968 Amendments to the Vocational Education Act of 1963 gave priority to equity concerns. The Education Amendments of 1976 (Title II) give a greater emphasis to the intent of increasing efficiencies in labor market operations. The shift in legislative priorities is reflected in changes of language in declarations of purpose and in the provisions for planning, evaluation, and the development of state plans in these Acts and Amendments.

Information about the labor market is a basis for the reordering of the two federal legislative labor market intents for vocational education. Concern over the fate and state of the economy and the increasing awareness of the existence of limited federal resources available for education and training purposes have also played an important role in the shifting of these priorities.

Many state and local education agencies concur with the Congress that vocational education should address the intent of increasing efficiencies in labor market operations particularly by providing training that is closely related to the kinds of jobs available in the community, region, or state in which training takes place. As a result, many state divisions of vocational education avail themselves, or assist in the preparation of, and/or disseminate projections of job openings (employment demand) in occupations that are appropriate for vocational education. Evidence of employment demand usually functions as an important factor to be considered in the program approval and funding processes of many state divisions of vocational education.

State and local education agencies that want to improve equity in opportunities for employment must also consider employment demand data when planning vocational education programs. However, in implementing the intent to improve equity in opportunities for employment, it is especially important for education agencies to obtain information about the labor market experiences of disadvantaged and handicapped persons. Such information can be obtained from employers, unions, handicapped persons themselves, and others.

The results of follow-up studies about the labor market experiences of former vocational education students can sometimes reveal some unintended consequences of training directed to improving equity and can suggest the need for reconsidering or redirecting present programming. An example of this situation is provided by Baldwin, who points out that there are:

> occupations for which employment projections are stable, but which are large sources of job openings because of replacement needs. Important among these jobs, both in terms of employment as well as instances of vocational programs, are the office clerical occupations disproportionately filled by women. The annual availability of new workers graduating from programs helps keep pay and status of these jobs low, which encourages exit after a few years. Preparation for office clerical work through vocational programs may be viewed as a "defensive"

strategy by young women who anticipate intermittent labor force participation. The extent of occupational stereotyping and direction of girls into office clerical programs has been of particular concern to the Commission [National Commission for Employment Policy] in its study of disadvantaged women.[28]

Constraints to Implementing Labor Market Intents

The ability of an education agency to plan effectively to implement its stated labor market intents for vocational education is usually constrained by one or more conditions, either internal or external or both. Some common conditions include the following:

- *Community norms and expectations for vocational education can go counter to an education agency's stated intents for vocational education.* Community norms and expectations translate into funding and policy support (or lack of it) for vocational education programs. For example, there are communities that are unwilling or resistant to changing their existing patterns of social and economic inequities with respect to minorities or women. These communities are not likely to actively support an education agency that promotes equity in employment by encouraging greater access of such groups into quality vocational education programs.
- *Funding provisions in vocational education legislation sometimes act as disincentives to an education agency's labor market intents for vocational education.* Set-aside provisions in the 1968 Amendments to the Vocational Education Act of 1963 and in the Education Amendments of 1976 (Title II) have been effective as incentives to consciousness-raising among educational agencies in promoting the federal intent for improving equity. On the other hand, the provisions for state and local matching (or overmatching) of federal funds for this intent have served, in many instances, as effective disincentives to the implementation of the equity intent.

Documenting what are perceived to be constraints that are likely to adversely affect the implementation of an education agency's labor market intents for vocational education can be helpful when the time comes to evaluate the effectiveness of planning and to redirect a long-range plan.

Populations to be Served

Education agencies provide vocational education in order to meet the needs of employers for trained workers and the needs of people for job skills. Planning instructional programs to meet these two needs is not, however, a simple matter. In order to determine which populations will be given what priorities in vocational education planning, it will be necessary first to deal with a paradox. If the needs of employers for skilled workers are given a priority in the vocational education planning process, this priority will, to some extent, influence which groups will be served. On the other hand, if the needs of various groups for job skills are given a priority in the vocational education planning process, this priority will have some influence on which employers or occupations will be served.

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[28] Stephen E. Baldwin, *Occupational Projections for Vocational Education, Briefing Paper* (Washington, DC: National Commission for Employment Policy, 1981), p. 4. Also see, National Commission for Employment Policy, *Increasing the Earnings of Disadvantaged Women*, Report No. 11 (Washington, DC: Government Printing Office, 1981).

Planning to deal with this paradox is likely to be complicated by the presence of a number of value-laden issues. Some examples of such issues are the following:

- Should everyone who wants to participate in vocational education have an opportunity to do so?
- Should certain groups receive preferential treatment in vocational education because of their success, or lack of it, in the labor market?
- Should vocational education programs strive to operate "high-quality" programs by selecting for enrollment those persons who are most likely to do well and meet employers' expectations?

In formulating a statement of populations to be served, an education agency might consider the inclusion of the following topics:

- A general description of the populations that could be served by vocational education programs
- A summary statement of the needs of people in the community or region for job skills and the needs of various employers for trained workers, and the sources of information upon which the summary statement is based
- An identification of specified groups that require job skills and their vocationally relevant characteristics, and the rationale for including the specified groups in the statement of populations to be served
- The labor market intents to be served by providing these populations with vocational education, and the rationale for doing so
- The practices by which these populations will be enrolled in vocational education programs, and the rationale for these practices

The description of populations to be served by vocational education provides a basis for understanding how an education agency strives to accommodate the needs of people for job skills, the needs of employers for trained workers, and the education agency's professed labor market intents for vocational education. An education agency might elect, for example, to stress equal access to all persons who are at least eighteen years of age and who reside in specific counties of the state. The agency might choose to stress equal access on the assumption that, by doing so, a sort of parity is, or will be, reached between the achievement of economic equity for students while meeting employers' needs for workers. The education agency might elect, on the other hand, to stress limited access to vocational education by restricting enrollments by using testing procedures or by prescribing levels of educational achievement. In this case, the agency may feel that limiting access to "the most appropriate" students can ultimately be more beneficial to future employers because they would receive a "better" product. Such a program sets a higher priority on achieving efficiencies than on the intent for equity.

An explicit statement of the populations to be served and the labor market intents for serving them is also important as a basis for selecting and interpreting labor market information in the planning and evaluation processes. For example, employment demand data must be complemented by other labor market data about employer hiring practices and locations of available job opportunities if an agency is promoting equity for economically disadvantaged minority youth. The statement of the populations to be served also helps to focus on particular kinds of context conditions that need to be examined in planning which occupations will be considered for training purposes.

For example, if an education agency decides to provide vocational education to inner-city disadvantaged persons, it is helpful to have information about the locations of potential employers and the existence (and costs) of public transportation between the inner city and places of potential employment. There are instances where demands for trained workers exist and trained disadvantaged persons are available to fill job vacancies. However, lack of public transportation or its costs have made it difficult if not impossible for them to acquire employment.

The reader can refer to the brief descriptions of Resort and Ruraltown to get some idea about how contexts, needs, and intents for vocational education (and the labor market information used in formulating these statements) can influence the choices of populations to be served.

Labor market information plays an important role in helping education agency planners and administrators describe and provide a rationale for the populations to be served by vocational education. The descriptions of populations and the rationale for serving them can be derived from a review of an agency's context description, needs for, and labor market intents—if such statements exist or are reasonably up-to-date. If this is not the case, the agency can still use available published and judgmental information about the needs of employers for trained workers and of people for job skills to formulate a less systematically derived statement and rationale for populations to be served.

Statement of Program Purposes

When developing a long-range plan for vocational education, there is a need to distinguish between (1) a statement of purposes for vocational education as a kind of education and (2) a description of the instructional purposes for different voational education programs. It is appropriate to develop a statement of purposes for vocational education if the objective is to distinguish vocational education from general education. This statement serves as the philosophical basis for justifying the value of, and need for, a particular kind of educational programming. On the other hand, if the objective is to explain the relationship between employment ends for instruction and the organization of curricula as a means to that end, it is appropriate to develop a statement of the instructional purposes for vocational education programs.

For program planning purposes, it is most important to be explicit about the instructional purposes for vocational education. There are two basic instructional purposes for vocational education programs:

1. To teach nonoccupationally specific *employability* skills—basic academic, interpersonal, career awareness, and decision-making skills that are useful for securing and retaining employment
2. To teach occupationally-specific *employment* skills that are required for obtaining or retaining a job, advancing oneself in a particular occupation, or transferring to a related one

In practice, almost every vocational education program addresses both of these purposes. However, the relative emphasis given to each of the two purposes will vary from program to program, depending on the labor market intents for them and the populations to be served. The administrator and/or planner should determine the relative emphasis of each of these purposes before planning for specific instructional programs.

The reason that it is important for an education agency to define the instructional purposes for vocational education programs is that these purposes provide a rational basis for selecting and analyzing the best available labor market information for use in making decisions about what programs to implement or modify. For example, labor market data in the form of current and projected numbers of job openings in different occupations will be of greater importance for program decision making where the purpose for a program is primarily to teach occupationally specific employment skills than if the primary purpose is to teach employability skills.

HOW WILL WE GET THERE?

Part III — Program Needs, Goals, and Objectives

PROGRAM NEEDS

The program needs, goals, and objectives that put into operation an agency's mission for vocational education should be specified. There are at least three kinds of program needs that are typically addressed in planning for vocational education. These are (1) program growth needs, (2) program quality needs, and (3) program support needs.[29] Labor market information (e.g., employment information and labor market experiences of employers and former students) can play an important role in determining the nature and extent of these program needs. Some of the ways in which labor market information can be useful in formulating program growth and program quality needs are described in the next section.

Program Growth Needs

Vocational education has continued to receive reasonable financial and political support in part because it has kept its programs and enrollments tuned to the requirements of employers for trained workers and the needs of persons for job skills. There are at least three kinds of data that are useful for determining program growth needs: student interest data, student placement and follow-up data, and employment supply and demand data.

Trends in student placement data can be of great value in determining program growth needs and in validating available data about current needs for workers. Needs for workers can be presumed to exist for those occupations in which students are easily placed. In instances where trends in employment data and placement data are inconsistent (e.g., many apparent vacancies but few placements, or the reverse), additional analyses of placement and employment data need to be conducted. The purposes of these analyses are to decide whether the observed low or high placement rates are stable and represent special relationships—typical or atypical—between schools and employers, and whether program growth (e.g., new programs, expanded enrollments) is likely to adversely impact on current low or high placement rates.

Trends in student follow-up data can also be of great value in making decisions about program growth needs. Whereas employment data provide an index of the current and future needs for workers, follow-up data tell what actually has happened to former students. Follow-up data can provide information about whether students continue to remain in the occupations for which they were trained; stability of employment; employers' perceptions of training; occupational mobility of program com-

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[29] Harold Starr, Daniel Dunham, William Woolf, and James Harris, *Developing State Plans for Vocational Education* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1978), pp. 41–45.

pleters; both vertically and horizontally; economic returns; which groups of students have the most or least success in employment and in which programs; and other similar information.[30]

Needs for program growth as evidenced by current and anticipated employment data should be balanced against the experiences of students in those occupations for which they were trained. The process of balancing employment data and follow-up data is a complex one. Criteria for decisions about program growth needs that balance employment and placement follow-up data should be based, in part, on the labor market intents for vocational education to which the education agency subscribes.

Evidence of actual or potential student interest is another important source of data for determining program growth needs. Evidence of student interest for vocational education is typically secured from (a) student interest surveys; (b) student dropout data; (c) documented reports from support services personnel (e.g., counselors); and (d) applications and/or enrollment reports from public and private vocational education and training agencies and institutions.

Longitudinal data about student interest can provide one indication of the trends in student interest in vocational education.[31] The extent of the trends in student interest can influence decisions about how far to expand programs in terms of number of programs and training stations. These trends can also provide a useful index of the probability that new or expanded programs are likely to attract the numbers of students needed to meet occupational skill shortages.

Program Quality Needs

Identifying program quality needs assumes that there is a consensus as to what is meant by "quality." Often, or perhaps in most instances, this is not the case. There is not yet any general agreement about what features of programs provide quality, or improvements in quality. Also, there is still no general agreement about what kinds of program outcomes shall serve as a basis for distinguishing a quality program from one of lesser quality. The problem of defining quality is made even more complex by the fact that the characteristics that students bring to a program (e.g., socioeconomic status, intelligence, motivation, language proficiency) also influence program outcomes and affect attempts to measure quality.

In spite of the many problems that exist in defining program quality, decisions in this area must still be made. There are a number of sources that can help establish a pool of candidate program quality needs. These sources include (a) labor market data showing student satisfaction trends pertaining to the training they received; (b) employer satisfaction with the training provided by voca-

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[30] Stephen J. Franchak and Janet E. Spirer, *Evaluation Handbook Volume I: Guidelines and Practices for Follow-Up Studies of Former Vocational Students* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1978), 230 pp; idem, *Evaluation Handbook Volume II: Guidelines and Practices for Follow-Up Studies of Former Vocational Students* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1979), 273 pp; Stephen J. Franchak and Larry L. Smiley, *Evaluating Employer Satisfaction: Measurement of Satisfaction with Training and Job Performance of Former Vocational Education Students* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1981), 79 pp; Eliseo R. Ponce, Stephen J. Franchak, Robert S. Billings, *Evaluating Student Satisfaction: Measurement of Training and Job Satisfaction of Former Vocational Education Students* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1981), 123 pp.

[31] Stephen J. Franchak, Marion E. Franken, Jeannine Subisak, *Specifications for Longitudinal Studies* (Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1980), 125 pp.

tional education programs; (c) the extent of training-specific or -related placements; (d) evaluation reports and research findings by academic institutions, program supervisors, fiscal auditors, business and industry persons, the state advisory council for vocational education, and the U.S. Department of Education representatives; and (e) formal and informal comments of lay persons including students, former students, parents, and concerned citizens.

INSTRUCTIONAL PROGRAM GOALS AND OBJECTIVES

A long-range plan for vocational education should specify the education agency's best thinking about what should be done within given periods of time to deal with the program needs that have been formulated. This "best thinking" is typically reflected in a plan by a set of statements of instructional program goals and objectives.

Instructional program goals are broad statements that give direction to the resolution of program growth and quality needs. Goals prepared in this manner set the framework for the formulation of process and outcome objectives, which in turn serve as the basis for rational decisions to prioritize expenditures and determine resource allocations and activities.

Once instructional program goals have been established, process and outcome objectives need to be prepared. Program objectives operationally define the directions established by the goal statements. Each specific objective is formulated in response to the general direction of the goal to which it applies. Several objectives may be formulated for a single goal.

Process objectives are operations and activities that are carried out in support of goals. For example, a quality goal of vocational education might be to provide students with up-to-date equipment. A process objective for this goal could be conducting a survey to obtain from employers information about the kinds of equipment that can best impart the skills these employers require. An outcome objective related to this process objective might be as follows: thirty-nine business and office occupations programs will be equipped with word processing equipment in the next eighteen months.

Two interrelated problems can sometimes surface when formulating instructional goals and objectives. The first problem is to keep the number of program goals and process and outcome objectives to a manageable number. The second problem is to establish process and outcome objectives that are realistic and can be achieved.

SELECTING OCCUPATIONS FOR PROGRAM PLANNING

A long-range plan should include a description of the specific vocational education programs that will be offered. The program planning problem is to determine what occupations (and levels and kinds of skills within each occupation) should serve as the basis for determining which vocational education programs to implement, maintain, or modify.

Selecting occupations for training purposes can be systematically dealt with using the following steps:

- *Define the specific training problem.* That is, who do we want to serve to achieve what labor market intent and to achieve which program purposes (i.e., employment or employability skills)?

- *Define major training concerns.* That is, what more specific information, if any, do we need to have about the population(s) to be served, the labor market, and the education system that has not already been included in the mission and context descriptions so that appropriate factors (criteria) can be identified for selecting a set of occupations for training?

- *Choose factors* (criteria) for use in selecting among potential occupations the one(s) that is most appropriate for program planning purposes. That is, what are the most compelling or critical factors about the needs and characteristics of the population to be served, the labor market, and the educational system that need to be considered when choosing among a number of occupations in which there are demands for labor? The factors emerge from an analysis of the training problem and training concerns. There is no hard and fast rule about how many factors are enough or too many. The context description of the educational agency, in large measure, should dictate the number and type of factors to be considered.

- *Apply the factors* to the list of occupations being considered for dealing with the training problem and for selecting the most appropriate one(s) for doing program planning.

An example of this four-step program planning procedure is given in the following example.

PROGRAM PLANNING FOR DISPLACED WORKERS

Training Problem

An increasingly common problem in the American economy is the existence of involuntarily displaced workers. These are individuals who lose their jobs because of the partial or complete shutdowns of businesses in a community or through changes in industrial and occupational technology that render their present occupational skills obsolete.

Suppose that an education agency is considering developing a vocational program specifically for skilled machine trades workers who are about to become involuntarily displaced. The reason for the displacement is that the farm equipment firm that employs these machine trades workers is in the process of relocating to a distant state because the firm is presently experiencing unreasonably high energy and transportation costs. As a result, the farm equipment firm has been in a noncompetitive position to market its products. The transfer of present workers is not contemplated even though they are regarded by management as very productive and desirable employees. The education agency is concerned with providing these displaced workers with a program that can enable them to make the best use of their current machine trades skills, if at all possible.

Training Concerns

The education agency needs to identify characteristics of these involuntarily displaced workers that are considered important factors for program planning. In this case, these characteristics might include the following:

- The estimated number of displaced workers who can be expected to be retrained
- The current machine trades occupations of the displaced workers
- Age distribution of these workers

- Present distribution of wages for these workers and their probable wage expectations in seeking new employment
- "Attachment" to the labor force, including types of new jobs desired, attitudes toward more training, and attitudes about relocating to other labor market areas

Another training concern is the extent to which these workers will require employability skills training, such as job search workshops, career counseling, and placement assistance in addition to, or instead of, a specific training program. If such services are needed, to what extent is the educational agency prepared to provide or arrange for them?

The education agency must be concerned about the prospects for employment of the displaced workers. Thus, an analysis of labor market conditions, needs, and requirements for persons possessing the occupational skills of these displaced workers, and for workers in general, is called for.

Such an analysis involves a selection of industries in which employment and growth trends suggest stability. Then, occupations within these industries that offer the most significant growth and, if possible, meet the wage and employment expectations of the displaced worker population are chosen. This type of analysis should be done for the local labor market areas, as well as for other labor market areas of concentrated employment in the state and/or surrounding states. The major difference between the local and distant market analyses is that for the more distant labor market areas the industries and occupations from which the workers are displaced should also be examined. The list of other occupations and industries that is developed may not necessarily be ones for which a direct skill transfer is possible, but some may offer excellent possibilities for employment if the person is retrained.

In dealing with the displaced worker population, it is likely that these workers will be more mature and accustomed to earning wages higher than those for most entry-level jobs. Thus, when a decision is made to offer retraining services, the wage levels become an important consideration. In fact, wage levels along with placement potential are two of the most important criteria in selection of occupations to be considered in program planning. Table 9 illustrates the (a) concerns that an education agency might have if it intends to serve these displaced workers; (b) specific labor market-oriented questions that address the concerns; and (c) possible sources of labor market information and analyses to answer the questions.

Choosing Factors

Given the analysis of the labor market information that addresses training problems and concerns, let us suppose that the displacement took place in Resort City/SMSA and that table 4 indicates that there are nineteen occupations offering reasonable numbers of job openings.

Given the employment needs and the characteristics of the displaced workers and the kinds of training concerns contained in table 9, the following eight factors appear (for illustrative purposes) to be appropriate:

1. Net openings for workers in each occupation
2. Growth prospects for the occupations
3. Wage levels in the occupations
4. Placement rates of programs preparing persons to secure employment in these occupations

5. Start-up costs for training
6. Ongoing costs for training
7. Restrictive hiring practices by industries with job openings (e.g., age, internal bidding arrangements)
8. Location of potential employment opportunities

Of course fewer, other, or additional factors could have been chosen. It is desirable, therefore, to formulate a rationale to explain why certain factors were chosen and others were not.

For example, in this situation wages was selected as an important factor to consider in selecting among occupations because the displaced workers, as a group, represent experienced workers who find it economically difficult to accept minimal wages. Another factor, growth prospect, was included because it is important for displaced workers to avoid occupations in which the numbers of persons employed are declining since this situation could lead to a second traumatic displacement.

One factor sometimes considered in selecting among occupations is that of the environmental conditions of work (e.g., indoor, outdoor, noise levels, etc.). This factor was not chosen in the example because it probably would not significantly influence the acceptability of another occupational placement by most of the displaced workers.

Applying the Factors

Once the factors (criteria) against which the occupations will be rated have been chosen, there are different evaluation methods that can be used to rank or select the particular occupation(s) for planning programs. Two evaluation methods that can be used to select occupations most appropriate for inclusion in instructional program planning include the *Fatal Flaw Analysis Method*, and the *Feature Analysis Method.*

The Fatal Flaw Analysis Method

This method is useful when there is a short timeframe. It can also be used when the factors against which occupations are to be evaluated are essentially independent and have great discriminatory value. In general, implementation of the Fatal Flaw Analysis Method takes the following form:

- Establish criteria (factors in our example) [Table 10]
- Determine the discriminatory value for each criterion [Table 10]
- Establish candidates (occupations in our example) against which to apply the valued criteria [Table 11]
- Determine "winner(s)" (occupation(s) that meet all or the greatest number of valued criteria) [Table 11]

If too many "winners" exist, then either more discriminators (factors) need to be developed, or the discriminatory values assigned to each of the criteria might need to be made more stringent. If there are no "winners," the criteria and/or the discriminating values need to be made less stringent.

Tables 10 and 11 depict the application of the fatal flaw evaluation method for selecting among a number of occupations the one(s) most appropriate for displaced worker retraining. This example uses the nineteen occupations listed in table 4 for the Resort City SMSA and the eight factors (criteria) listed above.

TABLE 9

Training Concerns Related to Serving Displaced Workers

Concerns	Suggested Questions	Potential Information Sources
The nature of the community's displaced worker problem	Is the displaced worker problem due to one or two major employers closing their doors, or to a changing technology that is likely to affect employment in an occupation over time? Is this a one-time occurrence affecting workers in a number of different occupations, or is it a continuing occurrence affecting mainly workers in one or several occupations?	State Employment Security Agency local labor market analyst Local director of the industrial development commission Union representatives, craft advisory council members, employer associations
The characteristics of the community's displaced workers	How many displaced workers are there? What is the age mix of the displaced workers?	State Employment Security Agency local labor market analyst Workers themselves Union officials Plant personnel manager
The occupational and employment traits of the community's displaced workers	How long have the workers been in the labor force? How long have the workers been in their present jobs? What is the current occupation(s) in which the workers are employed? What has been the distribution of wages of the displaced workers? What specific skills do the workers use in their jobs? What are other occupations in which the workers were employed prior to their present jobs? What is the worker's training and education experience prior to current employment experience?	Workers themselves State Employment Security Agency local labor market analyst Union or employee representative Plant personnel manager

TABLE 9 (continued)

Concerns	Suggested Questions	Potential Information Sources
Displaced workers' expectations and needs	What are the displaced workers' salary expectations from a new job? Are displaced workers willing to accept employment in new occupations? Are the displaced workers willing to relocate for new jobs? Are the displaced workers willing to be trained (a) for a completely new job or career; (b) for new skills within the same occupation; (c) for an upgraded position that would build on their current skills?	Workers themselves Union or employee representative Plant personnel manager
Training needs of displaced workers	Are the displaced workers most in need of training (retraining or upgrading training), or are they most in need of job search assistance and career counseling? What are other agencies in the community doing for the displaced worker? What services are needed by the displaced worker? What is the most appropriate way for vocational education to combine its resources with other community groups (SESA, other training facilities, union representatives, and, if appropriate, management representatives) to address displaced workers' needs?	Workers themselves State Employment Security Agency local labor market analyst Union represntatives Plant personnel manager Other training institutions Other social service agencies
Industries and occupations for training and placement efforts	What industries and occupations in the local area exhibit employment growth patterns? What industries and occupations in the local area exhibit declining employment trends? Are industries that would hire these workers expected to move into the area?	Local chamber of commerce State department of industrial or economic development State Employment Security Agency Craft and advisory council members Employer associations Chambers of commerce in other areas of state

(continued)

TABLE 9 (continued)

Concerns	Suggested Questions	Potential Information Sources
Industries and occupations for training and placement efforts (continued)	Are there employment opportunities, in occupations similar to those of the displaced workers, thus creating a need for minimal (re)training? What other industrial sectors might utilize the occupational skills of these workers? What are the patterns of industrial growth and decline in other areas of this state and in surrounding states? What are the shortage occupations within stable, growing industries? Into which industries and occupations can the workers' skills most easily be transferred?	Department of industrial or economic development in nearby states State division of vocational education *Dictionary of Occupational Titles* *Occupational Outlook Handbook* *Occupational Employment Statistics Program*, State Employment Security Agency
Program planning concerns	Of the occupations offering employment opportunities, which ones have the most potential for retraining and upgrade training for displaced workers? What type of occupational training is already available from local training institutions? If displaced workers are trained for new occupations, will they displace others who are already working (i.e., can the local labor market absorb the newly trained workers)? If workers must relocate, are there training institutions that can help with their training? Can the labor market in the area of relocation absorb the newly trained workers? Which local training institutions can most effectively and efficiently offer training assistance for the displaced worker population? Are special grants available from the government or other groups to help pay for the training costs?	*Occupational Outlook Handbook* *Dictionary of Occupational Titles* Contacts with administrators of training institutions (e.g., community colleges, proprietary schools, community-based training programs, local CETA prime sponsor) in local area and, if appropriate, in area of relocation State Employment Security Agency Unions Industrial and economic development commissions in local area and, if appropriate, in area of relocation State department of industrial or economic development State division of vocational education Local employer associations; members of craft and advisory committees Curriculum planners and occupational program instructors in local training agencies

(continued)

TABLE 9 (continued)

Concerns	Suggested Questions	Potential Information Sources
Program planning concerns (continued)	How can local employers in the community be enlisted to help in the retraining and placement efforts?	
	Can the local education agency work together with another training group to meet the needs of the displaced workers?	
	Should the workers be given a special class for themselves, or should they be absorbed into existing classes with vacancies?	
	What form of training will work best for the new workers: e.g., apprenticeship, combined short-term OJT and classroom, individualized and competency-based?	

TABLE 10

Selecting Occupations by the Fatal Flaw Analysis Technique
— Criteria and Discriminatory Values —

Criteria	Value If:
1. Net openings for workers in each occupation	More than 50 average annual openings per year
2. Growth trends in net job openings	Positive and in top 20 in SMSA in rate of growth
3. Wages	Average or above for manufacturing occupations in SMSA
4. Placement rate	Greater than 80%
5. Start-up costs for training	Less than $16,000
6. Ongoing costs for training	Less than $4,000
7. Restrictions on hiring	No pattern based on personal attributes of job seekers
8. Location of employment	Within 35-mile radius of Resort City itself

TABLE 11

Selecting Occupations by the Fatal Flaw Analysis Technique
— Examining Candidate Occupations and Selection Winner(s) —

Occupations	Criteria								Winners
	Net Openings	Growth	Wages	Placement	Start-up Costs	Ongoing Costs	Hiring Restrictions	Location of Jobs	
Secretaries	x	x	x	x	x	x	x	x	1. Secretaries*
Sales Workers	x	—	—	—	x	x	x	x	
Waiters/Waitresses	x	—	—	—	x	x	x	x	
Cashiers	x	—	—	—	x	x	x	x	
Bookkeepers	x	—	—	—	x	x	x	—	
Truck Drivers	x	—	x	—	—	—	—	—	
Typists	x	—	—	x	x	x	x	x	
Cooks	x	—	—	—	—	x	—	—	
Assemblers (N/A)									
Machine Operators	x	—	—	—	x	x	x	—	
Checkers/Examiners (N/A)									
Packers/Wrappers (N/A)									
Heavy Equipment Mechanics		—	x	x	x	x	x	x	
LPNs	—	x	—	—	—	—	—	—	
Guards (N/A)									
Delivery Route Workers (N/A)									
Auto Mechanics	—	—	x	x	—	x	—	x	
Receptionists	—	—	—	—	x	x	x	x	
Carpenters	x	—	x	—	x	x	x	x	

*If all eight factors must be valued. If seven valued factors are acceptable, then heavy equipment operators and carpenters would also be "winners."

The Feature Analysis Method

An evaluation method that can be used by itself or in conjunction with the Fatal Flaw Analysis Method is called the Feature Analysis Method. In this method the factors are first assigned raw scores. The scores are normalized; weighting factors are applied as needed, and then the normalized scores are multiplied by any weighting factors that have been assigned. The normalized and weighted scores for each factor are finally added together to determine the occupation with the highest score. Although the Feature Analysis Method is a very appropriate one for selecting among occupations for program planning purposes, it can be quite complex and time-consuming to implement.

The Curricular Priority Matrix procedure developed by Young, Clive, and Miles is an example of the application of the Feature Analysis Method to evaluate the suitability of various occupations for program planning pruposes.[32] The Curricular Priority Matrix procedure is described in Appendix B. Table 12 depicts how the Curricular Priority Matrix might look after normalized and weighted scores for each of the eight factors are applied to the nineteen occupations listed in table 4 for Resort City SMSA.

The Fatal Flaw Analysis and Feature Analysis Evaluation Methods are useful because they provide a means to objectify (make explicit) the bases upon which occupations are selected for instructional planning purposes. Explicitly defining the factors against which occupations are ranked and rated does not, of course, guarantee that the best factors were chosen or that the measures of discrimination and weighting given to each factor were the correct ones. Nevertheless, these kinds of evaluation methods provide a rational, systematic, and defensible means for making choices among occupations.

Applying Both Methods

Using both evaluation methods, the occupation of secretary ranks as the most appropriate for providing training to the displaced machine trades workers. Heavy equipment operator was also highly ranked. If one or both of these occupations appear to be inappropriate to the agency or to the displaced workers, two conclusions can be drawn: (a) the factors or their measures need to be revised; or (b) there are no occupations that are suitable for retraining the displaced workers, and the agency might want to consider if it should focus its energies on providing job search skills training or placement assistance through its craft and advisory committee structure.

Indeed, it could be argued that the best factors were not chosen. For example, the factors of "skills transferability" and "training time" are important ones in this case but are not included in the list of eight factors. In the case of the displaced workers, it is highly important for them to enter occupations in which they can transfer their existing skills so that they can retain as closely as possible the status and economic rewards of being a skilled worker. Also, because of the economic hardships many displaced workers must endure, training time becomes a significant consideration. The shorter the training time, the sooner the displaced worker can be back at work.

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[32] Robert C. Young, William V. Clive, and Benton E. Miles, *Vocational Education Planning: Manpower, Priorities, and Dollars* (Columbus, OH: The Center for Vocational and Technical Education, The Ohio State University, 1972), 181 pp.

TABLE 12

Curriculum Analysis Matrix (Feature Analysis Method)

Occupations	Criteria										
	Net Demand	Growth	Wages	Placement Rates	Location	Start-up Costs	Ongoing Costs	Hiring Restrictions	Total Score	Rank	Top Three
Secretaries	5	5	3	5	5	4	5	4	36	1	1. Secretaries
Sales Workers	3	3	1	3	4	5	4	4	27	5*	2. Typists
Waiters/Waitresses	2	3	1	3	4	4	4	5	26	6*	3. Heavy equipment operators
Cashiers	3	2	1	2	4	4	5	5	26	6*	
Bookkeepers	2	3	4	4	4	4	4	3	28	4	
Truck Drivers	3	2	4	3	2	1	3	2	20	9	
Typists	4	2	2	5	4	4	5	5	30	2	
Cooks	2	1	2	2	2	2	3	3	17	10	
Assemblers (N/A)	—	—	—	—	—	—	—	—	—	—	
Machine Operators	3	3	4	4	3	3	3	3	26	6*	
Checkers/Examiners (N/A)	—	—	—	—	—	—	—	—	—	—	
Packers/Wrappers (N/A)	—	—	—	—	—	—	—	—	—	—	
Heavy Equipment Mechanics	4	3	5	5	4	4	2	2	29	3	
LPNs	2	5	2	3	2	3	4	2	23	8	
Guards (N/A)	—	—	—	—	—	—	—	—	—	—	
Delivery Route Workers (N/A)	—	—	—	—	—	—	—	—	—	—	
Auto Mechanics	3	3	5	5	4	4	3	2	27	5*	
Receptionists	2	2	2	3	4	4	5	2	24	7	
Carpenters	2	3	5	2	3	3	3	3	26	6*	

*Denotes tie for rank

HOW WILL WE KNOW WHEN WE GET THERE?

Part IV — Benefits and Outcomes of Vocational Education

An education agency's plan for vocational education would be incomplete without a statement about the kinds of benefits and outcomes it desires for former students, employers, and the community-at-large. The *benefits of vocational education* are ultimate or long-term *consequences* (i.e., profits or returns on the investments of such education made by the community, the education system, and students). Benefits of training can be expressed in economic, personal, social, and educational terms. The *outcomes of vocational education* are the more immediate or short-range effects of training on former students, employers, and communities. Like benefits of training, outcomes of training can be expressed in economic, personal, social, and educational terms.

Benefits and outcomes are related to each other in much the same way as learning and performance are related to each other. That is, learning is not directly measurable; rather, it is inferred from performances or behaviors that are measurable or observable. In a like manner, benefits are inferred from achievement of measurable or observable outcomes.

Highly productive workers could be an economic benefit resulting from vocational education. Outcomes that can measure the achievement of this benefit are (1) the extent to which former students meet employers' expectations of the quality and quantity of goods and services produced, and (2) the extent to which former students come to work regularly and on time. The outcomes that are chosen as indices of the achievement of a benefit should not be selected arbitrarily, but should be as appropriate as possible to the context, labor market intents, and populations to which they apply.

Returning to the example presented in Part III of this chapter, a vocational education program has been implemented specifically to train skilled machine trades workers who are about to become involuntarily displaced. The farm equipment firm that employs these workers is experiencing unreasonably high energy and transportation costs; thus, the firm is in a noncompetitive position. Therefore, the firm plans to relocate in a distant state, and the transfer of present workers is not contemplated even though they are regarded by management as very productive and reliable employees.

The local education agency is planning to offer vocational education to the displaced workers to upgrade and expand upon their current machine trades skills so they can be employed by an aircraft manufacturing firm that will soon relocate in the local labor market area. The aircraft firm will require workers who possess industry-specific machine trades skills. There is a need for a training program because workers with these skills are not available locally.

In this case, the labor market intent of vocational education is to improve efficiencies in labor market operations by supplying trained machine trades workers to the aircraft firm through upgrading the skills of displaced machine trades workers. The major benefit of training will be the availability of skilled and productive aircraft industry machine trades workers. The extent to which former students meet employers' expectations of the quality and quantity of goods produced is probably

an appropriate kind of outcome of training in this case. The extent to which former students come to work regularly and on time is probably an inappropriate kind of outcome in this situation. Given the fact that the displaced worker trainees were already considered by their farm equipment employer as highly reliable employees, the latter outcome can be inferred without spending the time and effort to measure it. It is unlikely that positive work habits would decline.

Consideration should be given to determining what kinds of benefits are sought for training (and why such benefits are sought) before, rather than after, training is started. A statement of desired benefits and outcomes provides an education agency with a basis for (a) evaluating the quality of instruction; (b) selecting occupations that are appropriate to the populations to be served and to the context, needs, and intents for vocational education; and (c) enabling those agencies and groups that invest in and support training to evaluate the advisability of such investments.

Once benefits from training have been established, outcomes can be selected that can serve as indices of the extent to which the benefits have been achieved. In interpreting the meaningfulness of outcomes of training it is important to understand those context conditions that influence the extent of observed outcomes (e.g., placement rates, wages). Context conditions that can affect outcomes of training include (1) the quality of a training program, (2) the characteristics of students in terms of levels of academic achievement, aptitudes, and interests, and (3) the context for employment for vocational education completers (e.g., level of unemployment, demands for trained workers, supply from other sources available to meet employers' needs).

It is important to describe benefits and outcomes before implementing training and not at the time training is to be evaluated. However, as training proceeds, unanticipated consequences and effects can occur; therefore, provisions should be made to document such consequences and effects and the context conditions that affect them.

WHO DO WE INVOLVE ALONG THE WAY?

Part V – Securing Labor Market Information for Developing the Plan

Securing all the labor-market and other information necessary to develop a long-range plan for vocational education will, of course, require time and effort. There are, however, some ways to reduce the amount of time needed to complete this task. For example, the State Occupational Information Coordinating Committee (SOICC) is likely to be familiar with the most current and complete sources of labor market information.

Another excellent source of labor market information, as well as technical assistance in interpreting this information, is the State Employment Service Agency (SESA) labor market analyst assigned to the area in which the education agency is located. This individual is familiar with the many and varied sources of labor market information produced by the SESA and with the major planning questions that can be addressed with such information.

A labor market analyst is usually knowledgeable about the internal dynamics of the local labor market that are sometimes not reflected in available local labor market information sources. This person is acquainted with varied analytical techniques, sampling methodologies, and pertinent technical issues that need to be considered when trying to understand data contained in labor market information documents. In addition, the analyst can also suggest ways in which labor market information can be analyzed most appropriately and can provide planners with SESA publications in which local, regional, and statewide labor market information has already been analyzed and interpreted.

There are many other individuals and groups that can assist education agencies in collecting, interpreting, and analyzing labor market information. One of these individuals is the labor market information planner on the staff of the local CETA prime sponsor. Each year, the CETA prime sponsor is required to submit a plan to the U.S. Department of Labor. One part of this plan is an analysis of the local labor market and local employment and demographic trends. Consequently, the labor market planner is quite familiar with some of the types of information needed to develop the long-range plan for vocational education. The CETA staff person could share CETA analysis reports with the educational personnel and suggest additional labor market information sources. It is also conceivable that the education agency would have data and information useful to the CETA planner.

To locate other helpful agencies and individuals, the person(s) responsible for developing the vocational education plan could consult local telephone directories, state office telephone directories, local directories of social service agencies (often a United Way agency publishes these), or a local city or county government telephone directory. A suggested list of potential agencies that can be contacted for information about labor markets includes the following:

- Private and/or public sector economists (e.g., university faculty)
- Members of an overall economic development program committee

- Chambers of commerce (research director or marketing specialist)
- Members of civic, economic, or industrial development committees or councils
- Members of relevant local professional groups (e.g., public administrators, planning groups, research economists)
- City or county planning commission (economic or principal planner)
- Industrial development commission (research director or staff economists)
- Regional planning councils (research director, demographic or economic planner, manpower planner, and community planner)
- Research firms in the local area or region (social, economic, educational)
- Community colleges (institutional planner)
- Proprietary schools (administrators or planners)
- State government planning office (research director, staff economists, or local community planner)
- Veterans Administration (local or district office)
- Welfare office
- Labor or professional associations that span several industrial sectors
- League of Women Voters (especially in larger cities)

The final selection of agencies and individuals will depend upon the amount and kind of labor market information needed, the amount of time available for such contacts, and the configuration of agencies in the local area. It should be noted, however, that contacts with these individuals and agencies can yield important supplementary judgmental information that can validate, support, and explain labor market trends and patterns that emerge from an analysis of the more quantitative data. In effect, contacts with staff in such agencies can turn into sources of information in and of themselves. If appropriate questions are asked of these individuals, their answers can provide a more in-depth and insightful understanding of various aspects of the labor market.

Another possibility that an education agency may wish to consider in the development of the vocational education plan is that of joining together with staff members of other agencies in the local area to either develop a common labor market analysis or establish a common data collection effort. Such efforts could be especially beneficial for the collection of local level employer data and information.

Data from the SESA can provide needed information about general labor market trends and activities. However, the SESA information often will not yield much information about a local internal labor market. Internal labor market information (e.g., hiring practices, staffing patterns, occupational turnover rates, etc.) is often quite useful for vocational education planning. One way to secure such information is to conduct a survey of employers.

If a local education agency elects to carry out a comprehensive employer survey on its own or as part of a consortium of agencies, there are technical assistance guides, developed for CETA prime sponsors, that provide a framework for such an effort.[33] These guides can be used, with slight alterations, by an education agency interested in conducting a survey of employer needs for workers.

[33] Mark R. Hughes, William L. McKee, and Richard C. Froesehle, *Jobs in the Private Sector: Uses of Labor Market Information* (Washington, DC: U.S. Department of Labor, 1980); Paul Harrington and Andrew Sum, *CETA Planning and Private Sector Employment and Training Needs: The Uses and Design of Local Employer Surveys* (Boston, MA: Center for Labor Market Studies, Northeastern University, 1980).

In summary, there are many avenues of assistance available to persons responsible for developing a vocational education plan; it just takes some creativity and time to locate these services. However, this assistance can reduce the amount of time needed for developing the plan.

Coordination and Collaboration in the Use of Labor Market Information

This section of part V is a brief overview of some ways in which interagency coordination and collaboration in the use of labor market information can enhance the development of a vocational education plan. Coordinated/collaborative relationships among agencies can be transitory and relatively informal in nature, or they can be highly organized, sustained, and formal. Interagency coordination and collaboration can be an instrument to encourage information sharing, or these activities can promote joint or articulated planning and evaluation efforts between two or more agencies.

Vocational education administrators and planners acknowledge the advisability of promoting coordinated/collaborative interagency relationships to achieve more responsive plans for vocational education. The vocational education provisions of the Education Amendments of 1976 emphasize the importance of coordination and collaboration to reduce unnecessary duplication of instructional programs and to make efficient use of the limited resources available for occupational skills training.

Unfortunately, in too many areas, interagency coordination and collaboration are weak or nonexistent, which results in overlapping of services and duplication of effort, as, for example, in the gathering and examination of labor market information. Too often one agency does not know that other agencies serving the same labor market area(s) are surveying the same employers to secure information about job vacancies. On a related issue, there appears to be no mechanism in many areas for agencies to share the experienced-based, judgmental information from craft and advisory committees.

Joint planning can improve the responsiveness of vocational education to its clients. However, if agencies plan totally independently, there might be certain groups of potential students or employers whose needs would not be met. For example, there might be a labor market need for certain types of workers, but not enough interested students in any single district to justify starting a program. There might be some areas of a city or region where students do not have public transportation and, therefore, do not have adequate access to programs. Only by some cooperative sharing arrangements could these needs be met.

Also at issue is the efficient uses of available funds for vocational education. Rather than locating five auto mechanics programs in five education agencies and achieving a combined job placement rate of 50 percent, it might be more efficient to use available dollars for a smaller number of programs turning out better trained students with better prospects for employment.

Agencies serving the same labor market area or region of a state should examine jointly the labor market information that each agency uses in its planning and evaluation efforts. If different sources of labor market information are used by individual agencies, or if the outcomes of these analyses do not agree, the differences must be reconciled before establishing a meaningful basis for comparing program plans or priorities.

Cooperating agencies might consider designating some person or persons to examine the labor market information used by each of the agencies to formulate plans and priorities. If this examination

reveals that there are significant differences among the coordinating/collaborating agencies in the analysis of the labor market information they are using, the designated person or persons could then try to reconcile the differences.

There might be a case, for example, where several of the agencies are concerned about updating existing information about the needs of employers in a particular labor market area or region of the state. Suppose each agency uses an advisory committee as one basis for determining employers' needs for trained workers and arrives at different findings. Or, suppose there are differences between estimates of employers' needs for workers reported by the local office of the State Employment Security Agency and the estimates obtained from local surveys of employers by the education agencies or from their advisory committees. The question is what to do about such discrepancies.

Sometimes, dialogues among the collaborating agencies, and between these agencies and their labor market information suppliers, will clear up any apparent discrepancies. Suppose, for example, the data from the State Employment Security Agency indicate eleven openings a year for welders, but a local or regional employer survey shows a need for fifty welders per year. Further investigation might reveal that employers would like to hire fifty additional welders, but will not, and have not done so in the past, for a variety of reasons. Another cause of the apparent discrepancy might be if a major employer of a large number of welders has recently moved into the area. This fact could not have been anticipated when the SESA estimates were established.

If there are apparent inconsistencies in the data obtained by the cooperating agencies, these agencies (through their designated representatives) could decide among themselves which sources of data are likely to be most accurate. If an impasse is reached, the state division of vocational education, the State Occupational Information Coordinating Committee, and other agencies could be consulted to assist the cooperating agencies in interpreting and reconciling the apparent inconsistencies in employment demand or other labor market information.

There is also another advantage for education agencies to plan jointly to collect labor market information. Such joint planning can avoid the situation in which several of the agencies independently survey, within a reasonably similar timeframe, the *same* employers or the *same* suppliers of labor market information without being aware of the duplication of efforts. Needless to say, unnecessary duplication in data collection efforts is a waste of time, money, and personnel resources and does not promote an atmosphere of cooperation between the agencies conducting the surveys and the businesses, industries, and agencies in the community.

In many states it is impractical, for a variety of reasons, for education and training agencies to consider their immediate or nearest labor market area as the only, or primary, focus of employment opportunities for program completers. There are many instances where education and training agencies will need to use a regional (intra- or interstate) or even statewide or multistate perspective for planning and evaluating their programs. In these cases it might be desirable to establish regional arrangements among the various education and training agencies for the purpose of collecting and analyzing labor market information.

As a part of an approach to coordinated collaborative local or regional planning and evaluation, it might be useful to have the cooperating agencies arrange to share information about the programs each institution is tentatively planning to implement or modify. The program decisions being considered could be explained by each agency on the basis of the best labor market information available and its particular mission with regard to vocational education or human resources development. Such a sharing of information could serve as a useful basis for reducing or eliminating unnecessary duplication of offerings.

It is highly unlikely that there will be a perfect one-to-one correspondence between the program decisions being considered by each of the collaborating agencies in terms of programs and enrollments needed to satisfy demands for labor in the labor market area(s) of concern, or for the timing of these decisions. For example, there may be several agencies that would like to implement or expand the same kinds of programs at the same time; and this might have the effect of oversupplying present or future demands for labor.

To make the best use of resources available for training and to reduce the likelihood of undersupplying or oversupplying employers' needs for trained workers, the collaborating agencies could examine at least four interrelated factors—*quality, access, sponsorship,* and *timing.*

The factor of *quality* refers to the need to determine what programs in which agencies are most likely to achieve mutually agreed upon outcomes and benefits. The factor of *access* in this context refers to the need to determine which agencies are most likely to be able to enroll the largest number of students, or students from target groups now considered to be underserved. *Sponsorship* refers to the need to determine which types of facilities or levels of instruction (e.g., area school, comprehensive high school, technical institute or community college, CETA sponsor) are most likely to produce the outcomes and benefits that are intended to result from training. *Timing* refers to the question of which agencies are most likely to implement programs whose output of compelters will likely coincide with the availability of job openings.

At a minimum, interagency coordination and collaboration for planning and evaluation purposes implies the sharing of labor market information and program intentions by agencies serving a labor market area or region(s). A more intensive and complex level of coordinative/collaborative planning occurs when agencies also share their long-range plans and the bases for the contents of these plans, including the analysis of the context and needs for training to be offered and the perceived mission for vocational education. Unfortunately, and all too often, coordinated/collaborative planning remain at a minimal, superficial level.

Part of the problem impeding the establishment of more intensive levels of coordinated/collaborative planning and evaluation is the fact that many education agencies have not systematically formulated a long-range plan for vocational education. In short, they have not planned jointly in part because they have not deliberately considered their own long-term position with regard to occupational skills training.

Creating and sustaining even a minimum level of interagency coordinated/collaborative program planning and evaluation requires an organized and structured approach to such relationships; that is, a formal plan for collaboration and coordination. The real fruits of coordinated/collaborative endeavors cannot be obtained by a haphazard or piecemeal interaction. There is a tendency for looseness in interagency linkages to weaken a data-based approach to program planning and evaluation.

The successful implementation of a coordinated/collaborative approach to the use of labor market information in vocational education planning and evaluation requires give-and-take and frequent communication among agencies. Each agency will have to bear a degree of risk by submitting its planning and evaluation information to the scrutiny of other agencies. Each agency will be rewarded, however, by having access to the collective wisdom and a broader perspective that several agencies offer.

Successful interagency coordination and collaboration also bears dividends by leaving a good impression with "outsiders," such as business and industry representatives and local political interests. Vocational education will be viewed as a more useful and relevant service to the community if effective interagency coordinated/collaborative planning and evaluation occurs.

APPENDIX A

LABOR MARKET INFORMATION

—DATA BASES AND SOURCES—

Defining the Context for Employment

Assessing the Needs of Employers for Trained Workers

Assessing the Needs of People for Job Skills

Assessing System Capacity to Meet the Needs of Employers and Students

Appendix A is a guide for locating sources of labor market information for use in developing a long-range plan for vocational education. It focuses on four categories of labor market (and related) information, including information about (1) the context for employment, (2) the needs of employers for trained workers, (3) the needs of people for job skills, and (4) the capacity of the education system to meet the job skill needs of employers and individuals.

Appendix A is organized in the following way. For each of the four categories of labor market (and related) information, one or more information elements are listed. Then, for each information element, one or more questions are asked. Next, the purpose for asking or answering the question is explained. And finally (and perhaps most importantly), specific publications and agencies that can assist the planner, administrator, or evaluator in answering the questions are cited.

The format of the listing of labor market information sources is that of a "laundry-list" approach. At first glance, there may seem to be substantial duplication among the listings. However, the intention of this approach is to provide a broad array of information and agency alternatives. This approach should be especially useful for individuals at the local level who may be unfamiliar with sources of labor market information and the agencies that collect and publish it.

It should be noted that not all of the information or sources listed will be available in all geographic areas of the country. For a major urban or Standard Metropolitan Statistical Area, most, or all, of the listed information is available. In contrast, for the more rural, sparsely populated areas of the country, little of the information may be available. Because of this situation, as many alternative sources as possible have been included. When information is not available from one agency, some resourceful "detective" work on the part of the planner or administrator may uncover it at another agency. The final choice of information or data is left to the responsibility of the individual administrator, planner, or evaluator. In the end, these persons will have to rely upon the very best sources available in their local areas.

DEFINING THE CONTEXT FOR EMPLOYMENT

Information Element	Questions to be Answered	Information Purpose
Geography	What type of community (suburban, metropolitan, rural) does the agency serve?	To determine from where the institution draws its student body
	What other cities or communities are in the same region of the state?	To indicate potential places for graduates to obtain employment, even outside the community
	What are notable geographic features (e.g., proximity to SMSA, availability of public transportation) and what are the commuting patterns of workers in the area?	To determine if institutions in other communities (or other states) should be involved in joint planning or evaluation efforts
Population Characteristics	What is the trend of population and employment growth in the community or region served by the education agency?	To indicate the approximate size of the total labor force

DEFINING THE CONTEXT FOR EMPLOYMENT

Information Sources	Agencies Supplying Information
Annual Planning Report	State Employment Security Agency
Reports produced by local and regional planning commissions, or economic development agencies	Local/regional planning commissions, economic development agencies
Local CETA prime sponsor annual plans	Local CETA prime sponsors
Decennial census publications	U.S. Department of Commerce, Bureau of Census
Annual Planning Report	State Employment Security Agency
Reports produced by local and regional planning commissions, or economic development agencies	Local/regional planning commissions, economic development agencies
Annual Planning Report	State Employment Security Agency
Reports produced by local and regional planning and economic development agencies, local chambers of commerce; these same agencies in surrounding states	Local/regional planning commissions, economic development agencies, local chambers of commerce, state department of planning and/or community development; same agencies in surrounding states
Decennial census publications (place of work data)	U.S. Department of Commerce; Bureau of Census
Data from major employers—employee residences by zip code	Private local employers
Annual Planning Report	State Employment Security Agency
Current Population Report	U.S. Department of Commerce, Bureau of Census
State department of health (bureau of vital statistics), and planning or community development agencies—data and/or studies	State department of health and planning or community development
Regional and local planning commissions—annual reports	Regional and local planning commissions
Economically Disadvantaged Individuals — Table 91 of the Employment Security Automated Reporting System*	State Employment Security Agency

*This table can be prepared for one local office, a group of local offices, or the entire state. It can also be prepared for rural applicants. It is only available, however, from the state-level office and upon special request.

DEFINING THE CONTEXT FOR EMPLOYMENT

Information Element	Questions to be Answered	Information Purpose
(Population Characteristics—continued)	What has been the trend in the age groups served by this institution?	To show the potential "market" for the services of particular educational institutions
	How do the population trends compare with the averages for the state and the nation?	To give an indication of the degree to which in- or out-migration of population is affecting the community
Economic Status and Industrial Base	What have been the area trends in unemployment?	To demonstrate whether a favorable economic climate exists for absorbing new vocational graduates, and to consider effects on placement rates

DEFINING THE CONTEXT FOR EMPLOYMENT

Information Sources	Agencies Supplying Information
Annual Planning Report	State Employment Security Agency
State department of health (bureau of vital statistics)—data/data analysis	State department of health
Economically Disadvantaged Individuals – Table 91 of the Employment Security Automated Reporting System	State Employment Security Agency
Aid to Families with Dependent Children	County welfare offices
School enrollment trends	Local education agencies
Trends from social service agency administrative data	Local social service agencies
Regional and local planning commissions—annual and/or special reports	Regional and local planning commissions
Annual Planning Report	State Employment Security Agency
State department of planning and/or community development—special studies	State department of planning and/or community development
Current Population Survey	U.S. Department of Commerce
State department of health (bureau of vital statistics)—data/data analysis and special reports	State department of health
Annual Planning Report	State Employment Security Agency
Labor Market Information Newsletter	State Employment Security Agency
Affirmative Action Reports	State Employment Security Agency
Characteristics of the Insured Unemployed – ES 203 Report	State Employment Security Agency
Demographic characteristics of those eligible for Unemployment Insurance and registered with the State Employment Agency – *Table 8 of the Employment Security Automated Reporting System*	State Employment Security Agency
Characteristics of the Insured Unemployed – ES 203 Report	State Employment Security Agency
Chamber of commerce—data or special studies	Local chambers of commerce
Local and state-level economic or industrial development commissions—data and/or studies	Local and state-level economic or industrial development commissions
Industrial realtors—information and/or data	Local industrial realtors

(continued)

DEFINING THE CONTEXT FOR EMPLOYMENT

Information Element	Questions to be Answered	Information Purpose
(Economic Status and Industrial Base—continued)		
	What are the significant local industries and employers in terms of location, employment, and growth?	To plot future status of employment in the community To identify sources of nonpublished information on employment trends To identify whether potential labor market problems such as transportation exist

DEFINING THE CONTEXT FOR EMPLOYMENT

Information Sources	Agencies Supplying Information
University departments of business and/or economic research; regional, multistate councils of government and employer associations—data and special studies	Colleges and universities in the state (or surrounding states), multistate councils of government and local employer associations
Tax records, if local wage taxes are collected	Local tax offices
Annual Planning Report	State Employment Security Agency
County Business Patterns	U.S. Department of Commerce
Labor Market Information Newsletter	State Employment Security Agency
State department of industrial development—*Directory of Major Manufacturers*	State department of industrial development
Local chambers of commerce and regional and local planning commissions—data or special studies and employer directories	Local chambers of commerce and regional and local planning commissions
State and area projections from the Occupational Employment Statistics Program	State Employment Security Agency
Employment Service 202 Report	State Employment Security Agency

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Element	Questions to be Answered	Information Purpose
Demand for Trained Workers	What are the growth and decline patterns in the mix of occupations and industries?	To determine industries and occupations that are expanding and will have chronic or crucial needs for workers
	What are estimates of demand for new workers, by occupation requiring less than a bachelor's degree?	To identify the potential size of the market for vocational education

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Sources	Agencies Supplying Information
Annual Planning Report	State Employment Security Agency
Employment Service 202 Reports	State Employment Security Agency
Employment Service 790 Series — Current Employment Statistics Program	State Employment Security Agency
Labor Market Information Newsletter	State Employment Security Agency
County Business Patterns	U.S. Department of Commerce
Economic censuses	U.S. Department of Commerce, Bureau of the Census
State and area projections from the Occupational Employment Statistics Program	State Employment Security Agency
Decennial census (for states and standard metropolitan statistical areas of 250,000 or more population)	U.S. Department of Commerce, Bureau of the Census
Openings Received and Filled by Industrial Division and Occupational Category — Table 10-A of the *Employment Security Automated Reporting System*	State Employment Security Agency
Special studies about the mix of an area's occupations and industries	State and local industrial or economic development commissions, chambers of commerce, regional planning commissions, universities, and local CETA prime sponsors
State Plan for Vocational Education	State division of vocational education
Annual Planning Report	State Employment Security Agency
Table 96 of the Employment Security Automated Reporting System	State Employment Security Agency
Job bank openings summary	State Employment Security Agency
JOBFLO data	State Employment Security Agency
State Industry-Occupation Matrix from the Occupational Employment Statistics Program	State Employment Security Agency
Decennial census publications	U.S. Department of Commerce
Employer surveys	Chambers of commerce, planning commissions, CETA prime sponsors, university research projects, employer associations
Help-wanted ads	Local newspapers
Occupational Projections and Training Data, 1980 Edition	U.S. Department of Labor, Bureau of Labor Statistics (Bulletin 2052)

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Element	Questions to be Answered	Information Purpose
(Demand for Trained Workers—continued)	What has been the pattern of demand for vocational education by employers to train current employees?	To assess the potential for developing special vocational programs for upgrading or retraining workers
Supply of Trained Workers	What are estimates of training supply by occupation to meet demands for new workers?	To help identify potential avenues for providing vocational instruction

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Sources	Agencies Supplying Information
Contacts with local employers: determine current upgrading/retraining methods; training suppliers currently utilized; occupations for which training needed for current employees; satisfaction with hiring vocational education graduates	Local private employers
Contacts with state occupational licensing bureaus and other training groups to determine areas of training "shortfalls"	State bureaus of occupational licensing
Local CETA prime sponsor—job developer information; local training needs surveys	Local CETA ~~prime~~ sponsors
Contacts with employer associations and employee groups (unions) to determine upgrading and retraining needs	Local employer associations and employee groups
Table 96 of the Employment Security Automated Reporting System	State Employment Security Agency
Vocational Education Data and Reporting System (VEDS)	State division of vocational education
Higher Education General Information Survey	National Center for Education Statistics
National Center for Education Statistics: *Postsecondary Career School Survey*	National Center for Education Statistics
Local CETA prime sponsor—management information system data	Local CETA prime sponsors
Contacts with representative of state bureau of apprenticeship and training	State bureau of apprenticeship and training
Vocational Rehabilitation Management Information System	State bureau of vocational rehabilitation
Work Incentive Program Completions—Employment Security Automated Reporting System	State Employment Security Agency
Occupational Projections and Training Data, 1980 Edition	U.S. Department of Labor, Bureau of Labor Statistics (Bulletin 2052)
Job Corps centers	Local centers or U.S. Department of Labor
Contacts with and data from local proprietary schools and community or junior colleges	Local proprietary schools and community colleges; state agency responsible for community and junior colleges
Contacts with local employers (especially for information about unregistered local apprenticeship programs)	Local private employers
Employment Service 203 Report—Unemployment by Occupations for Standard Metropolitan Statistical Areas	State Employment Security Agency

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Element	Questions to be Answered	Information Purpose
(Supply of Trained Workers—continued)	What are the sources of supply in this community and region?	To account for effects of other vocational education institutions and related agencies in the community and the region
Supply–Demand Balance	What occupations have a large estimated supply–demand gap, either by numbers or by proportion?	To identify gaps that could conceivably be filled by vocational education
	What occupations have job openings for trained persons?	To provide supplementary information to assist in identification of shortfalls

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Sources	Agencies Supplying Information
Listing of proprietary schools (for locations of schools)	State agency responsible for proprietary school education and licensing
National Association of Trade and Technical Schools (location of member schools)	National Association of Trade and Technical Schools, Washington, DC
Contacts with employer associations and employee groups (locations of in-house or employer-sponsored training programs)	Local employer associations and unions
Listing of colleges and universities	State department of higher education
Contacts with state bureau of apprenticeship and training representative; state bureau of vocational rehabilitation; and bureaus of occupational licensing (location of training programs)	State bureau of apprenticeship and training, bureau of vocational rehabilitation
Local CETA prime sponsors	Local CETA prime sponsors
Local telephone directories	
Directories of local schools offering vocational education	State division of vocational education
Annual Planning Report	State Employment Security Agency
State Plans for Vocational Education	State division of vocational education
Table 96 of the Employment Security Automated Reporting System	State Employment Security Agency
Locally developed estimates based on local supply-demand matrices, along with other selected criteria	Local CETA prime sponsors, planning commissions, chambers of commerce, local education agencies, university research projects
Occupational Projections and Training Data, 1980 Edition	U.S. Department of Labor, Bureau of Labor Statistics (Bulletin 2052)
Annual Planning Report	State Employment Security Agency
Job bank openings summary	State Employment Security Agency
JOBFLO data	State Employment Security Agency
CETA Job Developers—other social service agency job developers	Local CETA prime sponsor and social service agencies
Local survey already conducted	CETA, vocational education agency, chambers of commerce, civic improvement association, employer association, junior or community college, local private employment agencies

(continued)

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Element	Questions to be Answered	Information Purpose
(Supply–Demand Balance–continued)		
	What are the apparent causes of any significant estimated or reported shortages of trained workers?	To provide supplementary information to assist in identification of shortfalls

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Sources	Agencies Supplying Information
Contacts with local advisory councils	Local CETA prime sponsors, education agencies, and community colleges
Contacts with industrial or economic development commissions	State and local economic/industrial development commissions
Contacts with state occupational licensing bureaus and other employer groups	Employer groups, state occupational licensing bureau
Help-wanted ads	Local newspapers
Private employment agencies—special survey	Local private employment agencies
Labor turnover statistics programs	State Employment Security Agency
Occupational wage rates based on data from *Table 7B of the Employment Security Automated Reporting System*, and job bank and *JOBFLO* data	State Employment Security Agency
Bureau of Labor Statistics Area Wage Surveys	U.S. Department of Labor, Bureau of Labor Statistics
Employer requirements for worker education and experience based on *JOBFLO* data	State Employment Security Agency
Employer job descriptions	Local private employers
Seasonal employment trends based on data from the Current Employment Statistics Program of the Bureau of Labor Statistics 790 Program	State Employment Security Agency
Selected employer interviews to determine working conditions, promotability within the firm, and job requirements	Local private employers
Local CETA prime sponsors, job developers, or job placement specialists from social service agencies	Local CETA prime sponsors, other social service agencies
Occupational Outlook Handbook	U.S. Department of Labor
Dictionary of Occupational Titles	U.S. Department of Labor
Occupational Projections and Training Data, 1980 Edition	U.S. Department of Labor, Bureau of Labor Statistics (Bulletin 2052)
Contacts with state occupational licensing bureaus, labor unions, and employer associations	State occupational licensing bureaus, local labor unions, and employer associations
Worker interviews with vocational education completers working in specific occupations—determine perceptions about job satisfaction and working conditions	Completers of vocational education programs
Client characteristics information from CETA, the State Employment Security Agency, educational and social service agencies	Local CETA prime sponsors, State Employment Security Agency, educational and social service agencies

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Element	Questions to be Answered	Information Purpose
Hiring Characteristics	What occupations appear to offer the largest number or proportion of job openings to fresh-graduates of vocational programs?	To reduce the possibility of producing skilled people who *won't* be hired
	How are vocational education completers perceived by employers in comparison with potential workers from other training sources?	To determine whether vocational education is seen as a viable source to help fill employment gaps

ASSESSING THE NEEDS OF EMPLOYERS FOR TRAINED WORKERS

Information Sources	Agencies Supplying Information
Placement and/or follow-up reports—graduates of CETA training programs	Local CETA prime sponsors
Contacts with local proprietary schools, community and junior colleges, and public vocational schools—placement and/or follow-up reports	Local proprietary schools, community and junior colleges, and public vocational schools
Job developers—CETA and social service agencies	Local CETA prime sponsors and other social service agencies
State divisions of vocational education	State division of vocational education
JOBFLO data	State Employment Security Agency
Help-wanted ads	Local newspapers
Local vocational schools—employer follow-up surveys to determine satisfaction with vocational graduates	Local public vocational schools, state department responsible for vocational and technical education
Survey of employer hiring patterns and preferences (i.e., where and how employers hire their employees)	Local CETA prime sponsor or other training and placement agencies
Contacts with local employers on occupational advisory and/or planning boards	Local CETA prime sponsors—employer advisory committees, vocational education employer advisory committees

ASSESSING THE NEEDS OF PEOPLE FOR JOB SKILLS

Information Sources	Agencies Supplying Information
Annual Planning Report	State Employment Security Agency
State department of planning and/or community development—data and reports	State department of economic or community development
Decennial census publications	U.S. Department of Commerce, Bureau of the Census
Lawrence Berkeley Laboratory Manpower Indicators	Local CETA prime sponsors or State Employment Security Agency
Annual Planning Report	State Employment Security Agency
Table 91 of the Employment Security Automated Reporting System	State Employment Security Agency
Decennial census publications	U.S. Department of Commerce, Bureau of the Census
Administrative data from social service agencies (welfare, offices of aging, bureau of vocational rehabilitation, drug and alcohol abuse centers), CETA prime sponsor client data	Local social service agencies, local CETA prime sponsors
County extension agents in rural areas	County extension agents
Affirmative Action Report	State Employment Security Agency
Regional, county, or local planning commissions—data or special reports	Regional, county, and local planning commissions
Lawrence Berkeley Laboratory Manpower Indicators	Local CETA prime sponsor or State Employment Security Agency
Annual Planning Report	State Employment Security Agency
Affirmative Action Reports	State Employment Security Agency
Table 91 of the Employment Security Automated Reporting System	State Employment Security Agency
Local CETA client characteristics data	Local CETA prime sponsors
The ES 203 Report for selected standard metropolitan statistical areas	State Employment Security Agency
Special labor force estimates; studies on youth employment	State Employment Security Agency

ASSESSING THE NEEDS OF PEOPLE FOR JOB SKILLS

Information Element	Questions to be Answered	Information Purpose
Economic Needs	What proportion of the population can be described as economically disadvantaged?	To determine what is the need for vocational education as an economic improvement program
	What groups or subpopulations are suffering economic hardship?	To evaluate whether potential programs need to be focused toward particular groups of clients
Employment Needs	What segments of the population are most affected by unemployment?	To describe the needs of individuals for skills that will enable them to obtain stable employment

ASSESSING THE NEEDS OF PEOPLE FOR JOB SKILLS

Information Element	Questions to be Answered	Information Purpose
(Employment Needs—continued)	What proportion of the population is employed in jobs that appear to be sexually or racially stereotyped?	To what extent do individuals need training to be able to move out of occupational "ghettos"?
Educational/Skill Needs	What proportion of the labor force has inadequate education levels?	To show the need for vocational education as a credential to help overcome employment barriers
	What are the needs for vocational education expressed by under-employed persons?	To ascertain potential interest of persons in programs to improve their labor market potential

ASSESSING THE NEEDS OF PEOPLE FOR JOB SKILLS

Information Sources	Agencies Supplying Information
Decennial census publications	U.S. Department of Commerce, Bureau of the Census
Placement and follow-up reports of vocational program completers from local CETA prime sponsors and other training institutions	State division of vocational education, local CETA prime sponsors, and local training institutions
Affirmative Action Reports	State Employment Security Agency
Occupational Outlook Quarterly; publications of the Women's Bureau, U.S. Department of Labor; *Handbook of Labor Statistics,* U.S. Department of Labor, Bureau of Labor Statistics	U.S. Department of Labor
Lawrence Berkeley Laboratory Manpower Indicators	Local CETA prime sponsors or State Employment Security Agency
Decennial census publications	U.S. Department of Commerce, Bureau of the Census
Social service agencies and local CETA prime sponsors—administrative data	Local social service agencies and local CETA prime sponsors
Public school dropout data	State department of education
Table 91 of the Employment Security Automated Reporting System	State Employment Security Agency
Lawrence Berkeley Laboratory Manpower Indicators	Local CETA prime sponsors or State Employment Security Agency
Local CETA prime sponsors—administrative client data (intake and assessment data)	Local CETA prime sponsors
Administrative client assessment data	Bureau of vocational rehabilitation and other social service agencies
Guidance counselor information	Local public schools

ASSESSING SYSTEM CAPACITY TO MEET THE NEEDS OF EMPLOYERS AND STUDENTS

Information Element	Questions to be Answered	Information Purpose
Institutional Description	What kinds of institutions offer programs of instruction in vocational education?	To develop an inventory of local providers of vocational education
	What types of facilities are available for the vocational program?	To assess the capacity of local education agencies in terms of space and enrollment potential

ASSESSING SYSTEM CAPACITY TO MEET THE NEEDS OF EMPLOYERS AND STUDENTS

Information Sources	Agencies Supplying Information
State directory of local education agencies offering vocational education	State division of vocational education
State directory of proprietary schools	State division of vocational education
National Association of Trade and Technical Schools—school catalogue	National Association of Trade and Technical Schools, Washington, DC
Encyclopedia of Associations	Local libraries
Local CETA prime sponsors—planning department or program developers	Local CETA prime sponsors
State bureaus of occupational licensing (locations of accredited training programs)	State bureaus of occupational licensing
Yearbook of Higher Education	Local libraries
Programs and Schools: A Supplement to the Directory of Postsecondary Schools with Occupational Programs	Local libraries
Technician Education Yearbook	Local libraries
State directories of universities, community colleges, and technical institutes	State department responsible for higher and junior college education
State representative of bureau of apprenticeship and training (locations of local, registered programs)	State bureau of apprenticeship and training
Local hospitals for specialized medical training	Local hospitals
Employer associations for employer in-house training programs	Local employer associations
Reports on enrollment capacity, spacing and equipment from local public schools, junior or community colleges, and other training institutions	Local schools, junior or community colleges, and other local training institutions
State education agencies—facilities and equipment information	State department of education, state division of vocational education
Higher Education Data Survey	State department of higher education or National Center for Education Statistics

ASSESSING SYSTEM CAPACITY TO MEET THE NEEDS OF EMPLOYERS AND STUDENTS

Information Element	Questions to be Answered	Information Purpose
*Program Description	What is the range of occupational programs offered at each institution?	To describe the total range of vocational options available in the area
	What are the employment objectives of instructional programs at each institution?	To determine which institutions are involved in specific job-preparatory instruction rather than career orientation, exploration, retraining/ upgrading, etc.
Student Body	At each institution, what are the levels of enrollment (and trends) in vocational programs?	To indicate the trends in student interest toward various types of programs

ASSESSING SYSTEM CAPACITY TO MEET THE NEEDS OF EMPLOYERS AND STUDENTS

Information Sources	Agencies Supplying Information
Catalogues from local community colleges or technical institutes	State department responsible for community colleges and technical institutes
Contacts with directors of occupational planning or institutional planning at community colleges or technical institutes	Local community colleges and technical institutes
Catalogues or brochures from proprietary schools or contacts with administrative staff	Local proprietary schools
Vocational Education Data and Reporting System (VEDS)	State division of vocational education
Directors of local Job Corps centers	Job Corps centers
Training directors—local hospitals and military installations	Local hospitals and military installations
State bureau of apprenticeship and training—listings of local programs	State bureau of apprenticeship and training
Contact with directors of sheltered workshop programs	Local sheltered workshops
Local CETA prime sponsors—planning department	Local CETA prime sponsors
Contacts with a knowledgeable person in each training institution (e.g., training directors, institutional planners, instructors, school administrators, recruitment specialists	Local training institutions
Vocational Education Data and Reporting System (VEDS)	State division of vocational education
Enrollment records	Local community and junior colleges directly responsible or state department responsible for higher education
National Center for Education Statistics—*Postsecondary Career School Survey*	National Center for Education Statistics
Enrollment records—local community and junior colleges, local proprietary schools, CETA prime sponsors (if not counted as part of other institutional programs), apprenticeship programs, local sheltered workshops, Job Corps centers, and any other local training groups	Local community and junior colleges, proprietary schools, local CETA prime sponsors, state bureau of apprenticeship and training, local sheltered workshops, local Job Corps centers (or state department of labor), and other training institutions

ASSESSING SYSTEM CAPACITY TO MEET THE NEEDS OF EMPLOYERS AND STUDENTS

Information Element	Questions to be Answered	Information Purpose
(Student Body—continued)	What are the patterns of completion of vocational programs, by occupational area?	To provide estimates of occupational supply
	What are the age, socioeconomic, and employment characteristics of students enrolled in training?	To determine what types of persons are in fact being served by local institutions
	What are typical entrance requirements to vocational education programs?	To determine how accessible programs are to persons of differing ability levels

ASSESSING SYSTEM CAPACITY TO MEET THE NEEDS OF EMPLOYERS AND STUDENTS

Information Sources	Agencies Supplying Information
Vocational Education Data and Reporting System—Follow-up component	State division of vocational education
Completion and/or follow-up reports—local CETA prime sponsors (if not included in records of vocational education programs), local community or junior colleges and proprietary schools	Local CETA prime sponsors, local community and junior colleges (or state department responsible for higher education), local proprietary schools, local sheltered workshops
Job Corps centers completion records	U.S. Department of Labor, Employment and Training Administration or local centers
Vocational Education Data and Reporting System (VEDS)	State division of vocational education
Individual school and class reports	Local schools and training instructors
Individual community and junior college institutional records and reports	Local colleges; state department of education and/or higher education
Higher Education General Information Survey	National Center for Education Statistics
Student body reports	Local proprietary schools
Job Corps centers—student body reports	Local centers
Student body reports from sheltered workshops	Local sheltered workshops
Vocational Rehabilitation Management Information System	State bureau of vocational rehabilitation
Local CETA prime sponsors—for programs sponsored by the sponsors themselves	Local CETA prime sponsors
State plans for vocational education	State division of vocational education
Contacts with local vocational school administrators, vocational guidance counselors, or individual instructors	Local vocational education agencies
Catalogues from junior and community colleges	Local community and junior colleges
Catalogues or brochures from local proprietary schools	Local proprietary schools
Contacts with state bureaus of occupational licensing	State bureaus of occupational licensing
Contacts with admissions specialists, recruiters, or counselors at community colleges, proprietary schools, and other training institutions	Local training institutions

ASSESSING SYSTEM CAPACITY TO MEET THE NEEDS OF EMPLOYERS AND STUDENTS

Information Element	Questions to be Answered	Information Purpose
Financial Status	What have been the trends in funds available for operational expense of vocational education?	To show potential for expansion of program offerings
	What is the availability of funds for capital expenses (facilities, equipment) in vocational education?	To show potential for capital and equipment expenditures

ASSESSING SYSTEM CAPACITY TO MEET THE NEEDS OF EMPLOYERS AND STUDENTS

Information Sources	Agencies Supplying Information
State plan for vocational education	State division of vocational education
CETA annual plans (money spent on classroom training)	Local CETA prime sponsors
Local school budgets and financial reports	Local schools
Higher Education General Information Survey	State department responsible for higher education; SOICC director; National Center for Education Statistics
State budget legislative reports	State agency responsible for fiscal matters
Allocations for Job Corps Training programs (if a Job Corps center is nearby)	Local Job Corps center, U.S. Department of Labor, Employment and Training Administration
Local school equipment inventory expense records	Local schools
State plans for vocational education	State division of vocational education
State education agency budget allocations for facilities and equipment	State department of education, state division of vocational education, state department responsible for higher education
Local school district budget records and reports	School district administrative offices

APPENDIX B

AN EXAMPLE OF THE CURRICULAR PRIORITY MATRIX

NOTE: Reproduced from R. C. Young, *Vocational Education Planning: Or Making Do with Imperfect Data* (Columbus, OH: The Center for Vocational and Technical Education, The Ohio State University, 1973), pp. 8-10.

CURRICULAR PRIORITY MATRIX [1]

(hypothetical, for secondary school programs) [2]

CURRICULUM-OCCUPATION:	PRIORITY CRITERIA: [3] Net Openings [4]	Student Interest [5]	Academic Performance	Entry Wages	Seniority Wage	Job Satisfaction	Entry Requirements	Curricular Cost [6]	Serving Disadvantaged (Weight = 2) [7]	CURRICULAR PRIORITY INDEX	RANK PRIORITY ORDER
Nurse, Registered	1*	1	3	3	2	3	0	1	3x2=6	(20)**	x***
Licensed Practical Nurse	1	1	2	2	1	2	3	2	2x2=4	18	4
Nurse Aide	1	0	1	1	0	0	0	3	1x2=2	(8)	x
Typist	1	1	2	2	1	2	3	3	2x2=4	19	3
Machinist: Institutional	1	1	3	2	3	2	2	0	3x2=6	(20)	x
Machinist: Coop Ed	1	1	3	2	3	2	2	3	3x2=6	23	1
Carpenter	0	1	2	3	3	2	1	1	2x2=4	(17)	x
Computer Operator	1	1	3	3	3	3	1	1	3x2=6	22	2

Footnotes to the table follow the discussion of the Calculation of Cell Scores.

*GENERAL RANKING OF CELL SCORES: [8]

0 — inappropriate for vocational education
1 — low priority score
2 — moderate priority score
3 — high priority score

**Parentheses may be used to indicate that according to one criterion or more, the program is inappropriate for vocational education.

***Scored inappropriate for secondary vocational education under one or more criteria.

CALCULATION OF CELL SCORES FOR THE CURRICULAR PRIORITY MATRIX

Net Openings

0 – Insufficient training related labor market openings to warrant a vocational education training program.
1 – Training related openings likely to be adequate to absorb at least the minimum number of graduates entering training related occupations deemed necessary before offering such a curricular program.

Student Interest

0 – Enrollment likely to be insufficient to warrant a program.
1 – Sufficient numbers of students will enroll to warrant a program.

Academic Performance

0 – Controlling for student aptitudes and attitudes, the academic skill effects of this program appear sufficiently injurious to disqualify it for financial support.
1 – The program does not impede academic skill development.
2 – Students, controlling for aptitudes and attitudes, appear to substantially improve academic performance.

Entry Wages

0 – Entry wage is below federal minimum wage.
1 – Low but acceptable entry wages.
2 – Moderate entry wages.
3 – Very good entry wages.

Ideally, these would be annual earnings from full-time–40-hour week and 50 weeks–labor force participation (not necessarily full-time employment, however) in this occupation. Earnings, wages, and income are used synonymously here. Consequently, unemployment would be reflected in lower earnings over that period. A sophisticated data system might utilize some estimate of the program's financial impact (discounted lifetime earnings net of opportunity cost) instead of this and the following criterion. Another net impact concept would be the vocational education terminee's income minus the income earned by members of the control group, say, the general education or college preparatory terminee.

Seniority Wages

0 – Earnings for graduates from this program after, say, five or ten years are insignificantly above those on non-vocational graduates of similar aptitudes (or, in the case where that data is not available, insignificantly higher than unskilled labor).
1 – Modest wages, but above untrained and unskilled.
2 – Good earnings.
3 – Very good income.

Job Satisfaction

0 – Very low job satisfaction.
1 – Moderate job satisfaction.
2 – High job satisfaction.
3 – Very high job satisfaction scores.

Entry Requirements

0 – Some entry requirements make the program inappropriate for vocational education at the secondary level (e.g., postsecondary training is required, and secondary related training is not a prerequisite for that post-secondary training; or, the program might be deemed inappropriate for vocational education financial support if there were no training requirements necessary for entry into the occupation and the untrained were as competent as the trained entrants on the job).
1 – Vocational education may be, but is not always, helpful in obtaining a job; other barriers to entry play an important role.
2 – Pre-employment training will probably be helpful in obtaining a job.
3 – Pre-employment training is critical to obtaining a job.

Curriculum Cost (per pupil)

0 – Prohibitive, much more expensive than alternative forms of training for the same occupation (e.g., on-the-job or apprenticeship training).
1 – High cost program (it would be useful not only to compare costs among vocational education programs but also between vocational education and other programs, the general and academic).
2 – Moderate costs.
3 – Very low cost (say, equal to or less than general and academic programs).

Serving Disadvantaged (Socio-economically)

0 – The program does not provide satisfactory entry-level wages or job satisfaction for the disadvantaged.
1 – The program enrolls a reasonable number of the disadvantaged but provides only modest wages and job satisfaction.
2 – The program enrolls a reasonable number of disadvantaged and provides them with good income and job satisfaction.
3 – The program enrolls a reasonable number of the disadvantaged and provides them with outstanding earnings and satisfaction in employment.

The weight of 2 under this criterion is for illustrative purposes only. The actual weight could obviously be more or less, as determined by decision makers.

NOTES TO CURRICULAR PRIORITY MATRIX:

[1] Separate matrices might be calculated for each clientele grouping—e.g., physically handicapped, retarded, very bright, etc.

The cell scores indicated do not apply to any particular geographic area: some are based on national data, some on the nature of the occupation or training, and some on the intuition or biases of the author. They are hypothetical and for illustrative purposes only. The column weights are strictly hypothetical and should be varied in accord with the community's objectives for vocational education, as the education authority is best able to interpret them. Some communities may wish to add additional columns and/or subtract others.

[2] Secondary program priority rankings may be quite different than postsecondary rankings: e.g., whereas nursing instruction is given a zero "entry" ranking for secondary programs—because one cannot go into the registered nursing profession with simply a secondary preparation—nursing would receive a high entry ranking for postsecondary programs. A similar matrix clearly could be developed for postsecondary programs using the same technique.

[3] The inclusion and exclusion of particular criteria is clearly arbitrary. For example, it could easily be argued that "occupational criticality" should also be included here, for it cannot easily be argued that wages are universal reflectors of the employee's real total contribution (monetary and non-monetary) to society. For a discussion of these and other criteria, see Young, Clive, and Miles, *Vocational Education Planning: Manpower, Priorities, and Dollars;* Chapter III.

[4] Net openings is scored as either 0 or 1 to indicate that there are or are not sufficient openings to warrant a program, the other criteria (except student interest) then being used to reflect the importance of that program relative to other programs.

[5] Student interest, like net job openings, is classified on a 0 to 1 basis, receiving a zero only if there were inadequate student interest to warrant a program.

[6] Costs may well be a function of the capacity of the program to serve effectively the needs of the disadvantaged. That is, a program which attempts to serve their needs may require special remedial or more intensive programs than those designed to serve students with average high school literary and mathematical skills. For this reason one may wish to estimate costs either on (1) the assumption that a reasonable percent of the disadvantaged will be served in all programs—this would be in accord with the recommendation of the National Advisory Council that the disadvantaged be retained in the "mainstream" rather than relegated to their own programs, or (2) the assumption that special programs for the disadvantaged will be established and their costs estimated accordingly. Per-student costs will, of course, be partially determined by enrollment (through economies of scale) as well as equipment, materials, faculty, etc. costs. (Very low course enrollments lead generally to relatively high per-student costs.)

This criterion could, like net openings and student interests, be applied in a 0–1 fashion, where programs exceeding some maximum cost simply are not funded. If the data are available, this score should also consider the relative cost of such skill development on-the-job.

[7] The specific weight to be placed on this criterion, like the others, is clearly arbitrary. In support of a somewhat greater emphasis on this criterion are the texts of the 1968 Vocational Educational Amendments (P.L. 90-567; Section 123-6B) and the U.S. Office of Education *Regulations for State Plan Programs* (Vocational Education Amendments of 1968, Section 102.51-3d).

[8] Whether absolute values of data will receive cell scores of 0, 1, 2, or 3 will, of course, depend upon the conditions of the local community. For example, an entry wage of $2.50 might be considered relatively low in a prosperous metropolis, whereas in a relatively remote depressed area it might be considered good.

One might choose to make the cell scores continuous rather than discrete. This might be done by determining the range between high and low values for that criterion, and determining the portion of the gap covered by the achievement of that curriculum.

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