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ABSTRACT

The vocational program planning guidelines presented in this document are divided into three parts: a program planning check sheet, a vocational program planning guide, and a guide to vocational course curriculum planning. The check sheet presents a listing of areas to be considered in vocational program planning and refers the reader to specific pages in the body of the report which deal with each particular subject. Five areas of planning consideration described in the second section--the program planning guide--are (1) manpower data, including demand, supply, and placement; (2) school district considerations; (3) student needs; (4) community considerations; and (5) cost-value. The third section presents four essential steps to curriculum planning: (1) identify course goals and objectives, which includes occupational/task analyses, competency analysis, performance indicators, and performance evaluation; (2) plan the instructional methodology, including staff selection, availability of facilities, community resources available, cost constraints, and selection of materials; (3) plan the instructional delivery system, which includes identifying supplies and equipment, facilities, and support services; and (4) implement program, evaluate, review, and revise. A sixteen-page appendix presents sample forms and graphic illustrations. (BL)

GUIDELINES FOR OBTAINING & USING DATA IN VOCATIONAL PROGRAM PLANNING *

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FOREWORD

This publication is prepared to guide educators in their planning of vocational programs. It includes a number of suggested steps, planning resources, and implementation strategies, but it is in no way intended to be used as a formula for perfect decision-making. It might better be considered as a guide to the thought process which, when applied, should result in better planning, although it is strongly recommended that each step in the planning process be applied to local planning situations.

The vocational program planner must consider a number of factors that make his school or school district planning problem unique. Each organization has its unique organizational structure and unique personalities employed in various positions of decision-making. Each school has, or should have its own philosophy of education, and although it may be similar to other prevailing educational points of view, it is the subtle philosophical differences that are reflected in the planning approach. Other areas of consideration are community attitudes, current and projected human, physical, and financial resources that are available to a school, and, of course, the goals of students. Here we must consider the quality of the goal or the degree of commitment toward an occupational choice. As career exploratory experiences are extended, sophistication of student vocational choice should increase.

The thoughts and suggestions in this paper, then, are to be applied to local planning situations, and must be tempered with those factors that are unique to each school or school district. Much of the planning process will require subjective judgments, but the writer believes if those judgments are based on objective data, the resulting program decisions will be satisfactory and defensible.

THE NEED FOR PLANNING

Costs of educational programs are increasing rapidly, and there is increasing evidence that our program outputs will be reviewed more and critically by funding agencies, school boards, and tax payers. Because costs of vocational programs are normally higher than general or college preparatory programs, it may be assumed that they will undergo particularly critical examination. Although the planning of vocational programs is not an exact science, more care in gathering planning input is necessary in an attempt to identify levels of cost effectiveness. To do so we must understand our budget capabilities and how we can apply scarce capital resources to program decisions. The result will be greater justification of selected programs.

Of equal importance is the need to review vocational program curriculum in order to maintain program quality. A greater understanding of the competencies required of entry level workers must be obtained, and that understanding must further be translated into specific educational program objectives, activities, and outcomes that will result in satisfactory quality of preparation. To do so we need to better understand the needs of business and industry, the interests and goals of our students, aspirations of the parents for their children, and the capabilities of our school system. All of these factors are interdependent, and it is necessary to pursue all in a systematic approach to planning.

A specific area where justification for program cost and quality review may be considered is in the realm of manpower data. No attempt to plan vocational programs can get far without the application of employment needs, supply data, and a variety of demographic information about employment.

Population trends, including residential and employment patterns, population growth rates, and community attitudes and values about education and employment must be understood. Program output should approach a match with placement. It must be remembered, however, that this data is inexact and influenced greatly by economic trends. We must examine the quality and frequency of placement; we must look at the instructional costs of preparing individuals for placement; and related to these, we must consider the curriculum in terms of the changing requirements of business and industry.

This view of planning must be applied if there is to be any correlation between program offerings, student preparations, and employment needs. Every school district must correspondingly look at its decision-making structure, reexamine its need for information upon which decisions are made, and sufficiently modify its decision-making process so that vocational program offerings are justified in terms of employment demand data, program costs, placement statistics, and school, community, and student needs.

GUIDELINES FOR OBTAINING AND USING DATA IN VOCATIONAL PROGRAM PLANNING

Organization of the Guide

The Vocational Program Planning Guide is divided into three parts: the Program Planning Check Sheet, the Vocational Program Planning Guide, and the Guide to Vocational Course Curriculum Planning. Some planners might need only to refer to the Check Sheet in order to review the several important planning steps. For those who need some explanation of the steps and more information about the planning process, they are referred to section two, the body of the planning guide. The third section discusses the steps that might be taken in planning vocational course curriculum, discusses some curriculum resources, and addresses the place of career and vocational guidance within the secondary school.

Suggestions for Utilization

The three sections of the guide have been prepared to be used independently or as a single planning aid. How they will be used will be determined by the nature of the planning problem, the expertise of the planner, and the availability and suitability of other planning resources. It is recommended that the process be applied to all new vocational programs under consideration, and that periodic reviews (using the steps outlined in the guide) be applied to ongoing programs. The decisions that will result from such a planning/review process should be more educationally, economically and politically defensible that those resulting from less systematic planning.

GLOSSARY OF TERMS

Advisory Group. Any formal or informal group of interested persons such as students, parents, or representatives of vocations who meet for the purpose of advising on curriculum matters.

Career Information System (CIS). A library of continuously updated occupational and educational information easily accessed from a computer through in-school teletypes.

Career Program Planning System (CPPS). A computerized system for collecting, storing, and retrieving a variety of occupational manpower information including employment estimates, and projected employment growth.

Cluster Program. A group of related vocational courses directed at preparing learners with competencies necessary for job entry.

Competency. A level of achievement against which task proficiency can be measured.

Curriculum. The course content and instructional methodology utilized in a particular course or program.

Manpower Demand. The projected number of individuals expected to be employed in a specific occupation or group of occupations (cluster) at a given time, within a specific population.

Manpower Supply. The projected number of individuals available to enter the labor force in a specific occupation or group of occupations (cluster). Estimates are based on program completion figures, follow-up studies and other formal and informal sources.

Secondary Education Report of Vocational Enrollment (SERVE). An annual report of vocational enrollment and completions prepared by secondary schools for the Oregon Department of Education. Data is used to determine payments to schools and may also be used in program review and planning.

Student Follow-Up. A systematic process of gathering information from graduates. Information is used in planning, reviewing, and revising school programs.

Student Needs Assessment. A systematic process of asking a variety of questions of students to determine their educational goals, career goals, needs for assistance, and other information.

Task Analysis. The process of identifying duties and skills a worker must perform in order to hold a particular job.

PROGRAM PLANNING CHECK SHEET

Planning Element	Notes
MANPOWER COMPONENT (demand) Pages 5-12	
CPPS indicates state demand to be:	
CPPS indicates local demand to be:	
CIS projects employment outlook to be:	
Trade unions/professional associations predict demand to be:	
US Bureau of Labor Statistics show demand to be:	
Current local employer hiring practices indicate:	
MANPOWER COMPONENT (supply) Pages 12-18	
SERVE report indicates enrollment and completions to be:	
ECC indicates post secondary enrollments and completions to be:	
State Employment Service unemployment data indicate:	
National unemployment data indicate:	
SCHOOL DISTRICT CONSIDERATIONS Pages 20-21	
Probable effect on existing programs will be:	
Probable effect on staff will be:	
Probable effect on student enrollment will be:	
Requirements for space will be:	
Appropriate personnel have been involved in planning.	
STUDENT NEEDS Pages 21-22	
Student needs assessments indicate:	
Student interviews indicate:	
Forecasting and enrollment data indicate:	
Follow-up surveys indicate:	
COMMUNITY CONSIDERATIONS Pages 22-25	
Community attitude surveys indicate:	
Occupational characteristics of community are:	
Advisory committee recommendations are:	
Community demographic characteristics:	
COST-VALUE Pages 25-27	
Start-up cost estimates:	
Operational budget estimates:	
Costs of similar programs:	
Current available resources:	
Funding sources:	
Results of similar programs (including placement):	

VOCATIONAL PROGRAM PLANNING GUIDE

THE VOCATIONAL PROGRAM PLANNING PROCESS

The steps toward systematic, orderly, vocational program planning are essentially those that should be taken in planning any school program. They are the specific areas of consideration that should result in logical, defensible program decision. These same process parts are those that must be periodically reviewed in order to insure program quality. They are, then, steps in a thought process or a problem solving process rather than an exact formula for planning. It should be pointed out here, and it will be emphasized again, that no planned decision can result by overlooking or circumventing the organizational structure of a school district. All those who have responsibilities for vocational program decisions should be involved from beginning to end in the process. It is the process that will vary slightly from school to school much as schools and school districts will vary in administrative structure and educational philosophy.

Program planning and review can be greatly facilitated by applying a modified six step problem solving process such as the one shown in Appendix A. It is important to write a clear, concise statement defining the problem such as: "Do we want to add a health occupations cluster in our school/school district?" Failure to take this step will complicate and prolong the planning process.

The planner must next ask what information is necessary and where he might get the information. In the case of the proposed health occupations cluster, questions about the employment needs, student interest, impact of a new program on other programs, staff, and space, initial and long-range costs, attitudes of parents, and many more might be asked.

As sources of information are identified, the information should be obtained, and then evaluated in terms of its strengths and weaknesses. As shown in Appendix A, CPPS can supply manpower demand data. Further evaluation of the data indicates that if used properly, it is reliable and provides a good indication of future employment need. In this case it indicates that the expansion and replacement need for District Two averaged about 1530 per year during 1969-75, while the average state wide need was about 2700 for the same period. Knowing that Portland's enrollment is thirty nine percent of District Two enrollment would suggest that Portland could be preparing 597 health occupations cluster graduates each year, an increase of about 226 of the number currently completing programs.

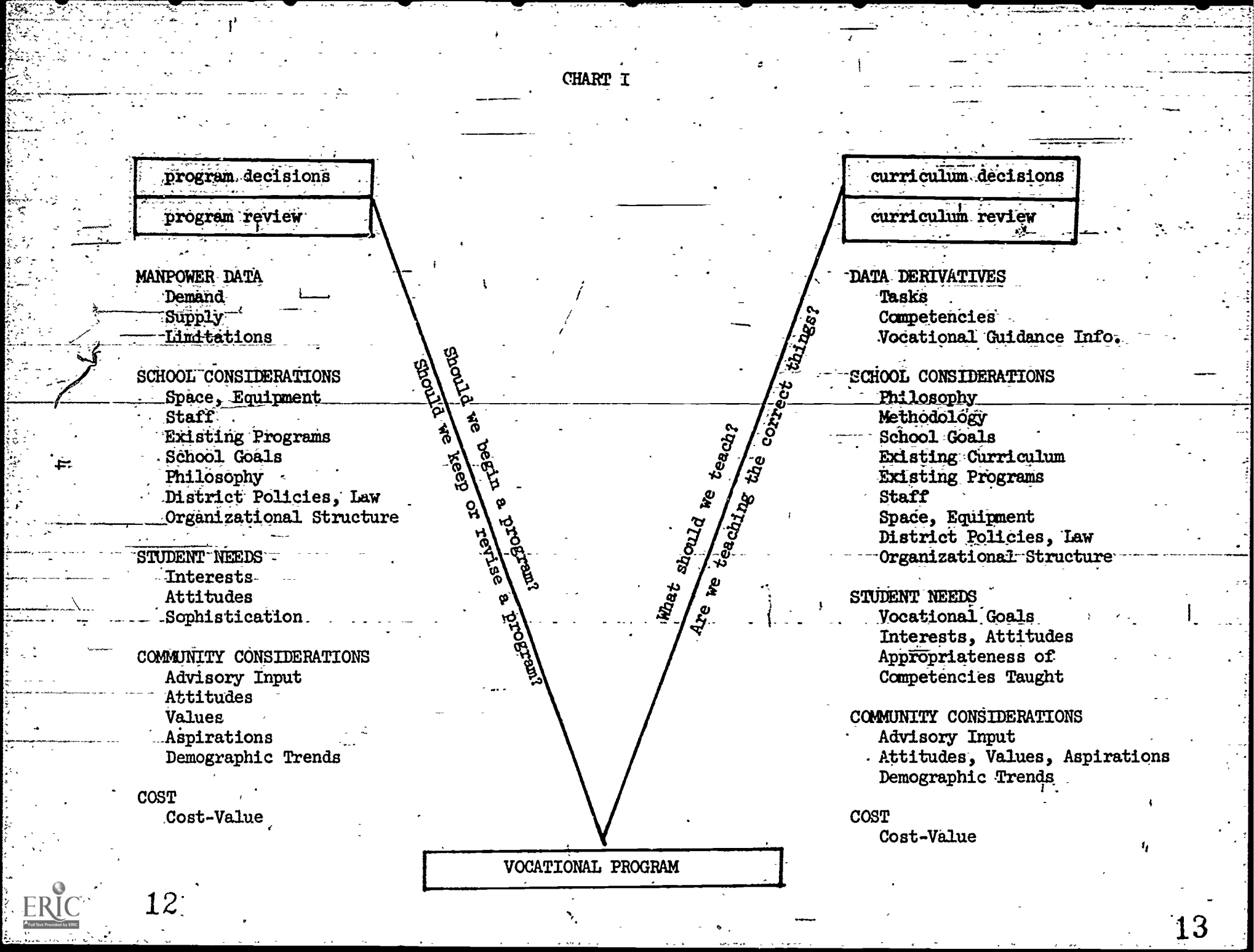
As information is gathered and evaluated that alternatives and options for program decision may be listed. They may include adding or not adding the health occupations program, planning a limited program with the possibility of future review and possible growth, or perhaps some kind of cooperative arrangement or "magnet" approach may be applied, whereby enrollment would come from throughout an entire school district.

Options are then evaluated, and a decision or course of action is chosen. It should be added that a system for ongoing review and evaluation will result in greater attainment of program objectives and often signal a need for program, curriculum, or instructional changes.

A similar series of planning questions can be applied to a variety of curriculum decisions that must be made after it has been determined to add a vocational program.

Five general areas of planning consideration, each with more specific considerations will be discussed. They are shown in Chart I.

CHART I


program decisions
program review
MANPOWER DATA
Demand
Supply
Limitations
SCHOOL CONSIDERATIONS
Space, Equipment
Staff
Existing Programs
School Goals
Philosophy
District Policies, Law
Organizational Structure
STUDENT NEEDS
Interests
Attitudes
Sophistication
COMMUNITY CONSIDERATIONS
Advisory Input
Attitudes
Values
Aspirations
Demographic Trends
COST
Cost-Value
Should we begin a program?
Should we keep or revise a program?
What should we teach?
Are we teaching the correct things?
curriculum decisions
curriculum review
DATA DERIVATIVES
Tasks
Competencies
Vocational Guidance Info.
SCHOOL CONSIDERATIONS
Philosophy
Methodology
School Goals
Existing Curriculum
Existing Programs
Staff
Space, Equipment
District Policies, Law
Organizational Structure
STUDENT NEEDS
Vocational Goals
Interests, Attitudes
Appropriateness of
Competencies Taught
COMMUNITY CONSIDERATIONS
Advisory Input
Attitudes, Values, Aspirations
Demographic Trends
COST
Cost-Value
VOCATIONAL PROGRAM

1. MANPOWER DATA
2. SCHOOL DISTRICT CONSIDERATIONS
3. STUDENT NEEDS
4. COMMUNITY CONSIDERATIONS
5. COST-VALUE

MANPOWER DATA

Several sources of manpower demand data are available for the program planner. One of the most comprehensive and useful sources of such information is the Career Program Planning System (CPPS), a computerized manpower retrieval system developed by the Oregon Department of Education. CPPS provides estimates of employment and job openings by occupation, arranges the data according to career clusters, within each cluster classifies the occupations by U.S. Office of Education instructional program, and within these occupational groups identifies key and related occupations. Other sources of such data include the U.S. Bureau of Census, Career Information System (CIS), Oregon Educational Coordinating Commission (OECC), local informational sources such as newspaper help wanted advertisements, employment service, and professional and trade organizations.

CAREER PROGRAM PLANNING SYSTEM

The major purpose of CPPS is to provide occupational information to improve career and vocational program planning. Primary emphasis is on projecting new programs and reviewing existing ones. Allied benefits of the system include the identification of priority occupational areas for task analysis and curriculum development activities as well as the provision of such information for student career counseling activities. Both topics will be discussed in the curriculum section of the guide.

Available data. Two types of data are available in CPPS. These are:

1. Occupational manpower demand data indicating how many people are employed in specific occupations throughout the state and how many will be needed in the next five years.
2. Occupational manpower supply data indicating how many people have been trained for specific occupations in the various training institutions throughout the state during the last school year.

Source and Types of Occupational Manpower Demand Data. The initial source of occupational manpower demand data is the Oregon Employment Division. This agency provides state level occupational data and data for four of the Governor's Administrative Planning Districts and a composite for Districts nine through fourteen for each identified occupation. Prior to the placement of the data in CPPS it is reviewed by the appropriate specialists at the Oregon Department of Education, Career and Vocational Section, and an appropriate manpower advisory committee whose members are familiar with the occupation(s). At this time alternate job titles and/or employment and job opening estimates may be substituted.

For state level information employement estimates are provided for the past, present and near future. Job opening estimates are for two years into the future. Local district level information includes only present employment and job opening estimates for two years into the future.

Sources and Types of Occupational Manpower Supply Data. Occupational manpower supply information is obtained from the following agencies:

1. Oregon Department of Education. This agency provides high school and community college program completion figures and "available for placement" estimates.

2. Oregon Educational Coordinating Commission. The commission provides four-year college and university and proprietary school estimates of completions.

3. Oregon Bureau of Labor, Apprenticeship and Training Division. The division supplies completion figures for all apprenticeship programs.

Graduates of Comprehensive Employment and Training Act programs are included in the completion estimates from the community colleges and proprietary schools.

Other sources of occupational manpower supply are also available. These include estimates of individuals registered with the Oregon Employment Division who are currently available for placement and estimates of military personnel returning to the state upon discharge. This latter category, however, has not been pursued to date.

Classification of Occupations in CPPS. Statistics on some 1,150 occupations are in CPPS. These occupations are classified by several methods as previously described and may be retrieved along with desired occupational manpower demand and supply estimates. The occupational classifications system includes:

1. Oregon career cluster codes for use primarily by exploratory and high school career and vocational program planners.
2. Worker trait groups for use by awareness, exploratory, preparatory and community college program planners.
3. United States Office of Education (USOE) codes for use by specialization level planners, i.e., community college planners.
4. Occupational Employment Statistics (OES) job titles.
5. Job title and alpha description of the occupation.

Uses of the System. The foregoing data have been placed in a computer-based retrieval system utilizing the data processing facilities at Oregon State University. Programming of the system is complete and data relating to the eighteen career clusters is presently available. (See Appendix B). A total of approximately eighty percent of the number of wage and salary workers in the state are specifically identified in CPPS. The remaining twenty percent are not grouped by the eighteen career clusters but can be accessed by their specific OES title. Employment projections through 1980 are presently available. In 1977 new employment and job opening estimates will be projected for 1981.

The user, usually a program planner, can request the occupational manpower information from the Oregon Department of Education, Career and Vocational Education Section. The specialist at the Department will teletype the request to the Oregon State University and receive an information summary back usually within forty-eight hours. Allowances have been made to provide similar user access via remote terminals at any location in the state.

Two approaches are available to access the CPPS:

1. Telephone the Career and Vocational Education Section at the Oregon Department of Education and have them request the information via their terminal.
2. Arrange with the Oregon Department of Education and Oregon State University computer center to obtain your own terminal.

In order to request data you should be prepared to answer the following four questions:

1. Is state level occupational manpower data required? If yes, what type?

   a. past employment b. current employment

c. future employment d. future job openings

2. Is local administrative district data required? If yes, which districts? (Available for districts two, three, five, eight, and nine-fourteen).

3. Is occupational manpower supply data required? If yes, from which educational level?

a. high school d. apprenticeship

b. community college e. four-year colleges/universities

c. proprietary school

4. For what occupation do you require the data? (This information is supplied by cluster, USOE, worker-trait group, OES job title.)

Regarding the above occupational manpower information the program planner will be confronted with at least three concerns. Specifically, some may feel the data is highly reliable and can be used to make firm decisions about beginning, maintaining or even curtailing vocational programs. An opposite point of view is that such data lacks reliability and that it should not be used at all. A compromise position, and one this paper takes, is that the data can be of large value if it is used cautiously and appropriately along with other sources of information.

Other Sources of Data

Other sources of data include the U.S. Census Bureau, the Career Information System (CIS) and basic information obtained from newspaper help-wanted ads, employment service, and professional and trade organizations.

United States Census data are collected for all fifty states and further

classified by Regions and Divisions. Oregon, in the Western Region, shares the Pacific Division with Washington, California, Alaska, and Hawaii. Statistics are further gathered on each state, county, and other political and administrative divisions. The most usable data for local educational planners is that classified by Standard Metropolitan Statistical Area (SMSA), specifically the Portland SMSA. By definition, an SMSA is the city, county, and contiguous counties where there is an economic and social relationship. For Portland, the SMSA would include Multnomah, Washington, and Clackamas Counties, and Clark County, Washington.

The household census is taken every ten years. Economic censuses are taken every fifth year, and periodic reports covering a wide variety of topics are published quarterly and annually. Current economic data would be drawn from the 1972 Census, which covers economic activity of 1971. The next census will be taken in 1977, which will cover economic activity of 1976.

More current, data might be obtained by taking a local census-type survey at regular intervals between U.S. Censuses. Organizations such as the Population Research and Census Center at Portland State University can provide advice and assistance.

The 1972 Census included censuses of retail trade, wholesale trade, selected services industries, construction industries, manufacturing industries, mineral industries and transportation. Industries were sent questionnaires which asked questions regarding the kind of business, volume of sales and payrolls, number of employees and job titles. There is a problem with terminology, in that often two respondents will refer to two employees who do essentially the same tasks by two different job titles.

A useful publication for planners, Oregon County Business Patterns, 1973, U.S. Dept. of Commerce, Social and Economic Statistics Administration, Bureau of the Census. U.S. Government Printing Office, Washington, D.C. 20402, classifies data according to ten major industry groups:

Agriculture services, Forestry, Fisheries
Mining
Contract Construction
Manufacturing
Transportation and other public utilties
Wholesale trade
Retail trade
Finance, Insurance and Real Estate Services
Unclassified Establishments

Data are further broken down to more specific industries. ie.

Wholesale trade

Dry goods and apparel
Groceries and related products

The data gives a picture of both numbers of workers in an industry and estimates of how those workers are distributed throughout the industry group. Figures show industry placement only and do not include numbers of workers in the same occupation outside the industry. The main value to the planner is the general economic climate information found in the publication. The publication can be used as an additional source of demand data, and it can be used as a guidance resource for teachers or students.

A variety of other census publications are available. They can be obtained by writing the U.S. Government Printing Office, Washington, D.C. 20402, or from District Offices of the Department of Commerce.

CIS

The Career Information System (CIS) provides limited labor market information

on 225 major occupations. The information is updated daily, and is therefore quite current. The great availability of computer terminals in high schools make subscriptions to the service and data retrieval quick and easy.

The CIS is a useful planning supplement, but it is designed primarily as an informative system. Products of the system include a description file, program file, preparation file, and a school file of information.

Information about the CIS may be obtained from the Career Information System, 247 Hendricks Hall, University of Oregon, Eugene, Oregon 97403.

MANPOWER SUPPLY DATA

Supply data must be considered with demand data if either is going to serve a useful planning function. There are several ways supply data are collected. The Secondary Education Report of Vocational Enrollment (SERVE) is an annual report prepared by each Oregon secondary school for the Oregon Department of Education. Among other products of the system is a listing of the number of students in training in a particular vocational cluster and the number completing training and therefore theoretically available for placement each year. Community colleges, proprietary schools, and four year colleges and universities supply data on their graduates to the Educational Coordinating Commission (ECC), and the Commission makes this information available to the Oregon Department of Education. An often overlooked source of supply is in the unemployed population. As unemployment figures grow, that population represents a larger source of supply. Returning veterans and individuals who are in transition within the labor market may also be counted in supply data, but exact figures are difficult to get.

The data must be considered by planners, if program duplication, program completion shortages, or problems with placement or underemployment are to be minimized. Here it must be noted that reports of completions are often incomplete and some may lack reliability. Confusion over terms used for classification, weaknesses in reporting systems, and non-response error in collecting data all make the figures on annual completions only estimates of the number of workers ready to enter the job market.

PLACEMENT

Do vocational cluster graduates find satisfactory employment? Do they find employment in areas for which they have been prepared? Are graduates of our cluster programs finding placement at rates matching those stated in our program objectives? Is placement actually listed among our program objectives? These questions and others should be asked as student placement is considered as a planning factor. It may be argued that few if any general, college preparatory, or other vocational programs are evaluated in terms of their placement rates, but it seems to the writer that it is a logical aspect to be included in program planning and review.

A variety of philosophical positions exist. It has been suggested that placement rates should not be considered; vocational preparation is of sufficient value in itself. The other extreme might be that all programs must reach satisfactory and arbitrary levels of placement if they are to be continued. More realistic questions deal with the quality of placement. To what degree are graduates being placed in "related" employment or advanced training? What is their level of satisfaction and success in both "related" and "unrelated" employment and training? What are the implications for

methodology, guidance, and curriculum? Most educators would agree that satisfactory and successful employment of educational placement are legitimate objectives for secondary school graduates, and should have some role in program planning and evaluation. Few, however, would argue that a program decision should be based on that factor alone.

It is suggested that the planner become aware of placement characteristics, and that information should become part of the evaluation process, a kind of measurement to help determine whether or not the program is reaching its placement objectives. The State High School Follow-up Survey of graudates provides general information on placment, but a school district may want to develop a system of its own for assessing particular items of local concern. In large districts, the survey may be administered on an area basis, or by local schools, or surveys of specific program graduates may be desirable. A systematic follow-up of program graduates seems to be vitally important for program review and evaluation purposes.

Chart II shows a small sampling of placement patterns of 1974 cluster graduates who immediately entered employment. Charts III and IV show placement patterns of part time employment and part time and full time employment combined. Data was obtained through the State High School Follow-up Questionnaire. The limited numbers are partly a result of an approximate thirty-five percent return rate on questionnaires.

Of the 417 completions in the clerical cluster, 142 were placed in jobs described as clerical. The remaining number found employment in eight other cluster areas, the largest numbers (71) in both food service and secretarial. Of a total 335 graduates who found placement in clerical jobs, the largest

CLUSTER	COMPLETIONS
Agriculture	227
Marketing	153
Health	63
Food Service	119
Accounting	220
Clerical	417
Secretarial	425
Mechanical	396
Construction	225
Electricity/ Elect.	60
Metals	164
Child Care	10
Clothing	
Inst. & Home Mgt.	
Drafting	4
Graphics	21
Service	129
Forest Products	77
TOTALS	2710

	Agric.	Market	Health	Foods	Acct.	Cler. Sec.	Mech.	Const. E/E	Metal	CC	Cloth	IHM	Draft.	Graph	Ser.	FP
Agric.	(60)	30		15			15	53	8		15			8				15	8
Market		(67)	14	29		14			29										
Health			(41)			5													17
Food Service		18	10	(53)				10		18							10		
Accounting	6	17		17	(56)	39	22	6	17		6			6				6	22
Clerical		31	41	71	31	(142)	71						10					10	10
Secretarial		22	22	22	22	96	(192)	7				7	7	7	7	7	7	7	
Mechanical	38	25						(163)		44	25	38					19		44
Construction		7		40				40	(57)	17	17			7			17		23
Electricity/ Elect.								14	6	(34)									6
Metals	8			8		8		54	26		(26)							8	26
Child Care						10						◯							
Clothing													◯						
Inst. & Home Mgt.														◯					
Drafting				4											◯				
Graphics		5				5										(11)			
Service	9	9		34	9	16				16	9		9			9	◯		9
Forest Products	12	6						12	6	6									(35)
	133	237	128	293	118	335	300	359	193	116	111	7	32	22	7	37	82	200	

FULL TIME EMPLOYMENT

CHART II

CLUSTER	COMPLETIONS
Agriculture	94
Marketing	137
Health	46
Food Service	39
Accounting	200
Clerical	345
Secretarial	166
Mechanical	42
Construction	30
Electricity/ Elect.	32
Metals	20
Child Care	23
Clothing	
Inst. & Home Mgt.	6
Drafting	4
Graphics	9
Service	51
Forest Products	42
TOTALS	1286

	Agric.	Market	Health	Foods	Acct.	Cler.	Sec.	Mech.	Const.	E/E	Metal	CC	Cloth	IHM	Draft.	Graph.	Ser.	FP
Agric.	(57)	6		11		3		11	6									
Market	11	(32)	11	50	11	22												
Health		7	(15)	11			3									3	7	
Foods	8			(21)							8	2						
Acct.	5	5	5	26	(34)	29	17		13		5	17				5	26	13
Cler.	8	53	8	77	23	(53)	61	8	8	8		23					15	
Sec.	11	17		28	11	28	(61)										5	5
Mech.	3	10		13		3		(13)										
Const.	4	9		9				4	◯									4
E/E	3	3	3	7					3	(13)								
Metal	4			4				4			(4)					4		
CC	11			3								(3)					6	
Cloth													◯					
IHM				6										◯				
Draft.				2											(2)			
Graph.				3			3									◯	3	
Ser.	6			27		6		6									(6)	
FP		5		9				5	5								9	(9)
	131	147	42	307	79	144	145	51	35	21	17	45			2	12	77	31

PART TIME EMPLOYMENT

CHART III

CLUSTER	COMPLETIONS	Agric.	Market	Health	Foods	Acct.	Cler.	Sec.	Mech.	Const.	E/E	Metal	CC	Cloth	IBM	Draft	Graph	Ser.	FP
Agriculture	321	(117)	36		26		3	15	64	14		15			8			15	8
Marketing	290	11	(99)	25	79	11	36			29									
Health	109		7	(56)	11		5	3									3	7	17
Food Service	158	8	18	10	(74)				10		18	8	2				10		
Accounting	420	11	22	5	43	(90)	68	39	6	30		11	17	6			5	32	35
Clerical	762	8	84	49	148	54	(195)	132	8	8	18		23	10				25	10
Secretarial	591	11	39	22	50	33	124	(253)	7				7	7	7	7	7	12	5
Mechanical	438	41	35		13		3		(176)	44	25	38						19	44
Construction	255	4	16		49				44	(57)	17	17			7			17	27
Electricity/ Elect.	92	3	3	3	7				14	9	(47)								6
Metals	184	12			12		8		58	26		(30)					4	8	26
Child Care	33	11			3		10						(3)					6	
Clothing														(0)					
Inst. & Home Mgt.	6				6										(0)				
Drafting	8				6											(2)			
Graphics	30		5		3		5	3									(11)	3	
Service	180	15	9		61	9	22		6		16	9		9			9	(6)	9
Forest Products	119	12	11		9				17	11	6							9	(44)
TOTALS	3996	261	384	170	600	197	479	445	410	228	137	128	52	32	22	9	49	159	231

TOTAL EMPLOYMENT (FULL TIME & PART TIME)

CHART IV

number, of course, had been trained in clerical clusters. The remaining individuals had been prepared in eight other cluster programs, the major ones being secretarial (96) and accounting (39).

The reader can doubtlessly identify some commonality of interest, aptitude patterns, and tasks which would explain why there is a tendency to cross cluster lines as graduates move from program completion to placement. Approximately twenty-nine percent of clerical placement came from students who had completed secretarial clusters. Correspondingly, approximately twenty-four percent of secretarial placement were made up of those who had completed clerical programs. Also, one must realize that the availability of employment to a large extent effects job choice. Finally, it is understandable that because of the tentative nature of student vocational interest, some degree of change in employment goals should be expected.

In the final analysis, the school philosophy, program goals, and student expectations will play a large part in determining acceptable levels student placement, but it is felt that the placement factor is one that should be included in program planning and review. Obviously, labor market trends will have a profound effect on student placement.

The planner must also be aware of the completion ratio of each program, the number of students that must be enrolled to realize one completion. A study done by Dr. Dave Fretwell and printed in the Portland Public Schools Career Cluster Study, October, 1975 indicates the following ratio of completions to enrollments in Portland. (See Chart V.) It is important to continually evaluate this ratio, so that the enrollment figures of a cluster will not be confused for "completion and available for placement" figures. To some extent,

completion ratios may be related to curriculum content, quality of instruction, instructional methodology, and adequacy of equipment, materials, and facilities. Even more likely, completion rates reflect the tentative nature of adolescent interests, choices and commitment to tasks. Young people change their goals often, however, as career exploration programs and career and vocational guidance services reach more learners, the greater knowledge, self-understanding, and awareness of alternatives should result in more sophisticated choices and higher completion ratios.

CHART V
COMPLETION-ENROLLMENT RATIOS

1.	Accounting	1:2.4	8.	Health	1:1.9
2.	Agriculture	1:2.2	9.	Home Ec.	1:2.7
3.	Clerical	1:2.7	10.	Ind. Mech	1:2.7
4.	Construction	1:2.6	11.	Marketing	1:2.5
5.	Electric	1:2.1	12.	Metals	1:3.0
6.	Forest Products	1:4.5	13.	Secretarial	1:2.3
7.	Graphics	1:2.5	14.	Service	1:1.9

The chart in Appendix B shows how the planner can further determine enrollment needs based on the school districts' approximate share of the preparation requirements projected by CPPS in the state. One must know the ratio of students within a school district to the number within the state or the administrative district. Portland has approximately thirty-nine percent of District Two secondary school enrollment.* In the case of marketing, as an example, Portland's share of needed completions is about 576. Keep in mind the ratio shown in Chart V. Two and one half marketing students are enrolled for each student who completes a marketing cluster, therefore, marketing cluster enrollment in Portland could increase by about 1440.

* 1976-77 Portland enrollment is approximately 32% of District Two.

SCHOOL CONSIDERATIONS

The school's philosophy and vocational education program goals should be consistent with the decision to add a new vocational program. Both should reflect a seriousness of attitude toward providing relevent preparation for currently required competencies. There should be equal commitment toward integrated cooperative work experience, placement, and follow-up activities on the part of staff. Genuine concern for the employability of graduates is vital. If neither the school philosophy nor the program goals reflect these aims, then one might suspect that something other than a vocational cluster program is wanted.

Space and equipment demands must realistically be included in the decision-making process, since vocational programs normally have extensive requirements in both areas. As both are considered, one must also examine the effect a new program might have on an existing program. Will space used by one program be needed by another? Is it possible that two programs might use space cooperatively? What will be the other scheduling problems such as period length, length of school day, and room assignments? Perhaps some existing equipment might be wanted. Will the students from an existing cluster program choose to enroll in the new program, thus creating an assignment problem for an instructor? Problems in the areas will seldom be definitive, but all will have an impact on program decisions and probable program success and must therefore be considered.

Basic to any program decision is adherance to all school district policies regulations, and Oregon school law, but equally important is the

awareness of those holding decision-making positions. They can not, nor should they be circumvented. It is important for key people to be identified to solicit their participation in the total planning process. In most school districts, the responsibility for planning and reviewing vocational programs is centered in the school. School administrators obtain teacher input, often from ongoing curriculum committees, but coordination with other personnel such as area career education specialists, curriculum specialists, and other area administrators is vital. With their input and cooperation, there will be a much greater likelihood of an appropriate program decision, and acceptance and implementation of the decision will be greatly facilitated. It should be emphasized again, though, that teacher input is important, since it is at that level that the ultimate success of the program will be realized.

STUDENT NEEDS

Have you ever planned a party or other social activity and expected a much greater turn out than the number that actually attended? The analogy is not unlike the problem that is occasionally faced by school administrators when a new course or program is added, but fewer students enroll that were anticipated. The point is, the students possess some vital information regarding vocational programs, namely their attitudes, interests, and willingness to enroll, and these factors must be considered in planning.

Many school districts use student needs assessments to help determine, among other things, their program and curriculum offerings. Many commerical assessment instruments are available, and assessment instruments can be

written for individual schools or school districts. Among the many guidance implications and management uses, student needs assessments help planners to develop programs and curriculum more relevant to students and more consistant with their goals. Educators' time and energy spent on "selling" programs to students is minimized as is the time and energy spent by students, as they are less likely to have to take unwanted courses.

Student needs assessments need not be formal. Periodic checks to ascertain student interest in courses is easy and desirable. It may be a guidance department or an administrative function, but it should be coordinated with the latest employment forecasting and trend information and should logicly relate to students' career education, career planning, and decision-making experiences. A logical, career developmental relationship should exist between a student's courses and career/vocational plans. Assessing interests can help to plan appropriate programs, and the process can be used as a check to see how adequately the programs and courses are meeting student needs. Follow-up surveys should be employed to measure effectiveness in meeting student needs and to help measure program value. Similar steps might be taken to assess the attitudes and aspirations of parents.

COMMUNITY CONSIDERATIONS

Any system for planning must take into account citizen needs and attitudes, the influences of certain socioeconomic factors, and a variety of demographic trends within the community. When a school systematically expands its vocational programs while the parents and influential community members are valuing college preparatory programs, an inevitable conflict will result. The

reverse will also be true. As college graduates are finding placement more and more difficult, and as underemployment among college graduates continues to be a problem, the community will become less and less enchanted with general and college preparatory programs. Population trends must be observed, so planners are in tune with their constituents. Projections of population patterns must also be considered for long-range planning. Here, U.S. Census tract data can be useful in planning. This conflict between community expectations and school programs can be minimized through greater community contact, advisory input, and effective public information.

A very often successful method of soliciting community attitudes is through the advisory committee. Many levels and functions of advisory committees exist, but all can be used to gain information about community thought and attitude patterns, and all can increase feelings of committment, commonality of purpose, and general acceptance on the part of the community. Members should be carefully chosen so as to represent appropriate cross sections of the community.

A word of caution must be mentioned here. The role and function of the advisory committee must be clearly defined. Committee members must understand that they are functioning clearly in a advisory capacity. On the other hand, the educators who are receiving the advisory input have an obligation to actively listen to feelings as well as suggestions, and to apply them in their program decisions. Often, advisory committees exist because they are a requirement, or perhaps because it is felt that they are a good public relations gesture. If a committee is not used effectively, school and community relations may well deteriorate.

Other methods of gathering community attitudes include surveys, parent conferences, and periodic contact with local civic organizations. Certainly it would be appropriate to survey community attitudes when a new vocational program is being considered, if for no other reason, it will be more difficult to implement a program not being enthusiastically accepted by the community. There are better reasons for surveying attitudes. The input may prevent costly mistakes in program choice, design, or implementation, but commitment gained from participation is indeed important.

Surveys should be a part of the total school evaluation and planning process. It is not necessary to develop multiple surveys, which may negate attempts to communicate with the public. A well coordinated, periodic attempt to monitor attitudes should be able to gather enough general information so as to be helpful in a variety of school planning situations.

Provisions should be made to collect feedback resulting from a variety of parent conferences. Such conferences can serve as an ongoing source of information regarding attitudes and feelings of parents. Of course, a method for recording and evaluating the information must be developed. Building administrators might assign a secretary to the task of tabulating parent comments. Such a list could then be applied to program and curriculum decisions. Community awareness of the willingness of school personnel to use their input should intensify positive school and community relations. In some cases this kind of informal feedback can indicate a need to administer formal surveys. Nonetheless, there is a place for less formal input in the planning process.

Teachers and administrators should be encouraged to join and regularly attend meetings of organizations such as Lions, Rotary, City Club, and others to a much greater extent. We spend too much time listening to each other, and more exposure to members of the business and industry community will provide us with a new and useful source of information.

In summary, then, there are several ways that program planners can gain a better understanding of community attitudes. Advisory committees surveys, and conferences are all methods of securing that input. Census data and other sources can provide a good deal of demographic information including population patterns and trends. All such information should more greatly sensitize the school to the nature of the community. Greater understanding of factors such as family living patterns, values, educational and occupational aspirations, and community population and employment trends are all important.

The uses of the community information will generally be limited by three variables: other planning data available, subjective judgments about the quality of community input, and the degree to which that input conforms or rejects the planner's predisposition toward a given decision. Again, it must be emphasized that there is no prescribed place in a planning formula, rather the planner will have to gather the information at his disposal and use it as his experience, wisdom, and advisors indicate it should be used.

COST-VALUE

It is generally accepted that vocational program costs are greater than general or college preparatory program costs. Exact costs ratios will vary

from district to district, and it must be noted that the degree to which local monies are used to support vocational programs will vary. In all cases, federal and state vocational funds help to defray the costs of vocational education. Additional program costs are necessary for vocational instruction. The impact of these programs on society is not readily known, but it would be useful to research their impact.

Higher vocational program costs result largely from lower, more favorable student - teacher ratios, greater space requirements, equipment and supply costs. A study done by the Oregon Department of Education in 1974 identified specific items contributing to excess costs as follows:

Item	% of Excess Cost
Supervisor salaries	18.2
Teacher Salaries inc. fixed costs	26.7
Clerical salaries	3.1
Supplies	9.0
Travel	2.1
Operation of plant	11.9
Maintenence of plant	21.1
Depreciation of instructional equipment inventory	7.9
	100.00

The actual value of any school course or program must at least in part be judged subjectively. Follow-up surveys can help to measure program effectiveness. They should be used regularly, but their validity will be directly related to the sampling procedures used. Should the value be based on the cost, or should it be based on the results of the program? If so, what are the desired objectives, and what are the acceptable limits within which those objectives must be met? Is the main objective employment? If so what levels and overall rates of employment are satisfactory? To what extent is extended

career exploration a proper goal of vocational programs? What about program enrollment? What about program completion ratios?

The reader can readily expand the list of questions. The important aspect of planning is that questions such as these be asked and the answer be allowed to shape the philosophy, goals, and objectives of vocational programs. They are questions essential to the planning process.

SUMMARY

It has been the intent of this guide to emphasize the need for planning and to point out some of the factors that should be considered in planning vocational programs. The importance of using formal and informal sources of manpower data can not be overemphasized. Systems such as CPPS can provide reasonably reliable demand projections for the state and, certain administrative districts (See Appendix C) and Portland. Sources such as advisory committees, major employers in an area, and newspaper help wanted pages also provide useful information.

Manpower demand data must be used prudently and in conjunction with other planning factors. The data gives us a good idea of future employment needs, which should be of concern in planning vocational programs. National, state, and local projections of employment opportunities should form a foundation for planning to which other information should be added. However, keeping employment projections in mind, we can make better program decisions.

Costs of vocational programs are generally greater than costs of general or college preparatory programs. Proper program planning, however, should result in sound, educationally defensible programs.

The guide emphasizes the importance of obtaining planning input from multiple sources. The identification of persons in decision-making positions, and the importance of their planning participation and cooperation is stressed. A variety of school and community considerations must be applied to planning. Advisory committee input, student abilities and aspirations and those of their parents, and a good understanding of the community are essential to successful program planning and implementation. Employment patterns, immigration and emigration trends, family living characteristics and other population and employment trends provide useful planning information.

Student needs must be considered, although it is difficult to measure motivation. It is important to base program decisions at least in part on student interest, career objectives, and vocational aspirations. If a program is to be offered cooperatively or as a "magnet" site, the willingness of students to leave their neighborhood school must be assessed and included in planning.

The effects of a new program on existing programs must be considered. Student participation will effect space, equipment, and staff utilization.

Throughout the planning process, a variety of curriculum concerns must be addressed. The major decisions about what will be taught, the instructional methodology, and what will be the expected learning outcomes will be the subject Part Three, the curriculum planning section of the guide.

INTRODUCTION

Even before the decision has been made to offer a new vocational program the planners will have had to consider a number of curriculum questions. Information regarding possible course content will have been assimilated, reviewed, and some value judgments will have been made. A series of formal curriculum planning steps must be taken, however, at the time it has been decided to begin a new program. Similarly, the same processes might be followed during a periodic curriculum review and revision. This section of the planning guide will discuss the process by which appropriate vocational course curriculum is planned, implemented, periodically reviewed, evaluated, and revised.

STEPS TO CURRICULUM PLANNING

The following are four general but essential steps to vocational course curriculum planning. In general they should be accomplished in order, but in some cases the planner may wish to modify the sequence and perhaps add additional steps. Again, this stage of planning will normally occur after a program decision has been made. (See Appendix D)

I. IDENTIFY COURSE GOALS and OBJECTIVES

II. PLAN THE INSTRUCTIONAL METHODOLOGY

III. PLAN THE INSTRUCTIONAL DELIVERY SYSTEM

IV. IMPLEMENT PROGRAM, EVALUATE, REVIEW and REVISE

The reader will readily note that the first step deals with the question of course content or generally: "What will be taught?" Items two and three are directed toward methodology or the system in which the

instruction will be provided, that is: "How will it be taught?" The final step addresses the question: "What were the results of the instruction?"

WHAT WILL BE TAUGHT?

Identification of Course Goals and Objectives

General course goals should be acquired reflecting outcomes that have been indicated in early planning. They should reflect employment needs, namely what skills should be taught, and which curriculum aspects should be emphasized in order for graduates to compete successfully for employment. The nature of the community, student characteristics, school limitation, and costs must also be considered. At this point an individual, perhaps an instructor, might plan the goals and objectives. A homogeneous committee or interdisciplinary committee may be charged with the responsibility, but in either case, strong advisory committee input should be sought. Attention should be given to existing course outlines, cluster guides, text books, and suggestions from professional and craft organizations.

The course goals should be consistant with the school philosophy and vocational program and school goals. Some specific topics that might be addressed are: "For whom will the course be offered? What levels of skill training will be provided? How broad will the exposure be? How will performance be measured, and to what extent will student placement be a goal?"

The process should include reviewing course goals of similar existing programs. Such a review will point out areas of omission or goals which might be related in order to receive greater emphasis. It should always be remembered that the goals should be written for a fairly specific population, so their learning characteristics, environmental restrictions, and

other related factors should be kept firmly in mind.

Course objectives must also reflect the above mentioned factors, but they will also be shaped by manpower employment information. Information about what workers do on the job is expressed in Occupational Analyses which have been developed through efforts at the State Department of Education.

Occupational/Task Analyses. Occupational task analyses have been prepared in forty-six occupational areas within Oregon. Key occupations were selected from within sixteen clusters. Each had some characteristics closely related to other occupations within the cluster, and each employed a minimum of 250 people. The occupational/task analysis is defined as a list of statements about the duties and skills a worker must perform in order to hold a particular job.

The Oregon Department of Education has contracted with workers within the identified key occupations to compile the task lists. The frequency with which the task is performed, whether or not it must be performed at job entry or may be learned on the job, and the estimated degree of difficulty of the task is estimated and recorded. The tasks are then submitted to a panel of workers from within the occupation where they are reviewed for suitability, appropriateness, and accuracy. A final, revised list of tasks is then prepared for each of the forty-six occupations. The Oregon Department of Education intends to complete analyses in an additional sixty-five occupations.

Competency analysis. The next step in planning the program curriculum was to translate the tasks performed within the key or representative occupations to specific statements about what students must learn in order to achieve job entry level skill within a given cluster. The Department

of Education has published and made available booklets of performance objectives for specific clusters. Teachers are encouraged to use them, but also to develop their own. This will be discussed in the methodology section of the guide.

Performance indicators. Performance indicators identify the learner behaviors that are expected as a result of competencies having been taught. Performance indicators and behavioral objectives are essentially the same, except behavioral objectives normally require a statement of the acceptable limits criterion within which the performance will be demonstrated. In either case, it is the competency mastery that will determine student learning and performance.

Performance objectives have been prepared for a variety of clusters. They have been catagorized by related topics such as bearings, seals and gaskets, lubrication, and engine systems, in the case of Industrial Mechanics. These objectives might be adapted for use by an instructor, but care should be taken to see that they will address the identified program goals and objectives, and will reflect the unique characteristics of the learners such as their career objectives, learning strengths and limitations, and current attitudes and interests. The performance objectives must also reflect the available resources, equipment, space, and instructor's strengths and limitations.

Performance evaluation. Attention must be given to how performance evaluation will take place and how a person's competency performance might be recorded. Both are essential if performance objectives are going to form the substance of vocational course instruction.

After competency tasks have been identified, performance can be monitored

a number of ways. It is important to monitor the intermediate or formative goal attainment in order to facilitate progress toward reaching terminal and summative goals and objectives. Periodic checks can be made as a task is performed for the instructor. Advanced student assistants or teaching aides can be used to observe performance. A more economical use of time, though, would probably see some student self-evaluation combined with periodic instructor performance checks. Some competencies might well be measured by paper and pencil exercises, others might require completion of an actual task or series of tasks.

A method for recording performance must be employed. It should combine the qualities of simplicity, administrative efficiency, and concurrent validity. The Oregon Department of Education has developed task analysis certificates of competency for three clusters, and it intends to develop certificates for additional areas. Each is suitable for instructor and/or student use. They may be easily duplicated in section or in part, and they may be maintained by students or by the instructor. (See Appendix E) One method is for entries to be made by the instructor as performance competency is reached, but for the sheets to be kept on file in the class site for easy student access and review.

The performance skills records are very useful guidance tools. They allow the instructor or guidance counselor and the student to identify points of concern, focus on strengths, and translate the information in the document into specifics about possible employment, employment seeking strategies, or perhaps continued related education. A clean, final, official copy of the competency skills document might be made available to graduates and those seeking employment in order for them to more successfully present themselves as they look for work. Similarly the same document

would be of use to those going on to further education, so that their program of courses could be better planned.

HOW WILL IT BE TAUGHT?

Plan Instructional Methodology. A seperate topic from goals and objectives is determining the instructional methods that will be employed. A series of decisions must be made about staff, facilities, outside resources, cost constraints, and scheduling restrictions. An interdisciplinary planning approach might be taken here as in other steps to insure the broadest, most representative input. Recommendations from the community, total faculty, and school administration are in order as are the thoughts of the technical experts on the advisory committee.

Staff. The ways courses will be taught will have significant staff implications. Decisions must be made about how to identify possible instructor candidates, how they might be screened, and how the final selection might be made. Costs, hiring regulations, and the availability of qualified instructors will certainly effect staff decisions. If a currently employed instructor takes on the new program assignment, the effect such a move has on existing programs must be determined. The ability to find an adequate instructor will certainly effect the methodology, since the instructor experience, strengths and weaknesses, and interests will greatly effect his teaching methods, goals and objectives.

Some kinds of courses lend themselves to cooperative teaching, in which case care should be taken to choose instructors whose styles of teaching, areas of preparation, and goals for the program are complementary. Much time and effectiveness can be lost when two or more individuals are

assigned to work together but are unable to do so. Adequate planning time and care in the selection of instructors is very important.

As needs for inservice activities are identified, the necessary support must be made available. Teachers and administrators may need assistance in performing the program and curriculum planning tasks. Certainly time and a proper atmosphere must be made available for high quality planning to occur. Help may also be needed in order for teachers to effectively use materials. Workshops on the use of individualized learning packets and general methods for facilitating individual instruction might also be useful.

Facilities. The availability of adequately equipped facilities will influence teaching methodology. If the latest techniques of wheel alignment and balancing are to be taught in an automotive class, for example, a spin type balancer is needed. Similarly, teaching current brake repair skills requires a brake drum lathe for turning brake drums and a brake shoe arking grinder to arc the shoes to the drum. Other, less sophisticated equipment will not yield the same learning outcomes.

Space and time to allow proper instruction and use of equipment, and individualized learning aids should be reviewed as the instructional methodology is planned. Steps should be taken to arrange such equipment and materials in ways to maximize their safe, effective useage. Learning materials placed away, out of sight, are seldom used. Also, filmstrips and cassetes are unlikely to be used if the learner has to go to seperate, remote areas of the building to get the equipment necessary to use them.

Existing Resources. Existing resources including those in the community should be inventoried so appropriate instructional use can be made of them. The degree to which the community will be used for cooperative work and

exploratory work experience sites will largely be determined by their availability. It will also be affected by the instructor's readiness to use off campus resources, the ability of the school to schedule appropriate blocks of time, provide transportation, and state its commitment to the goal of maximum exposure of learners to community work sites.

Even when extensive student participation in the community is not possible, those planning the instructional methodology should include experiences for guest speakers, demonstrations of equipment and skills, and maximize the use of appropriate audio-visual aids.

Cost Constraints. Cost considerations are woven throughout the curriculum planning process. They effect decision on staff, equipment, instructional materials, space, transportation, and other matters. In short, the instructional methodology will be greatly effected by the availability of funds.

In some cases, alternatives to the most desirable methods must be chosen when funds are not available in order to secure the proper combination of the above mentioned factors. A creative, experienced instructor, who makes good use of available teaching resources, can do much to offset the problems created by a lack of money. It is important to realize just what are the cost constraints, however, so appropriate planning can occur. The instructional methods and objectives must be consistant with the ability to finance the program.

Selection of Materials. A key factor in the determination of instructional methodology is the review, evaluation, and selection of materials. Bibliographies of instructional aids are usually available. It is also possible to interview instructors of similar programs to get their points of view on materials. A more formal, comprehensive system for identifying instructional aids is available for the curriculum planner, however.

The National Network of Curriculum Management Centers provides such a service to educators. The Northwestern Region Vocational Curriculum Management Center, of which Oregon is a member, provides a publication listing teacher designed and tested materials and activities, and other instructional ideas. Many of the items are available for purchase. Teachers may submit their ideas for publication through the Curriculum Development Coordinator, Oregon Department of Education.

to questions regarding curriculum materials can normally be provided. The service is an attempt to encourage teachers and administrators within the Region to work more closely and cooperatively.

A catalog of individualized learning materials has been developed by the Oregon Department of Education and is available to teachers and administrators through Division of Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207. The catalog lists learning modules in eleven vocational areas, booklets, and multi-media materials. All items are reasonably priced, and the catalog will be continually revised as new materials are developed.

Materials developed through individual grants to teachers and curriculum writing workshops should be reviewed for possible use.

Plan the Delivery System.

Before much planning can occur, a PERT chart or some similar organizational plan showing dates for the completion of tasks and listing individuals who are responsible for the completion of the tasks must be prepared. Course goals and objectives must have been written, and decision regarding instructional methods (ie. individualized learning system verses group paced) must have been made prior to beginning the program. Also, key factors such as

personnel selection, choice of facilities, acquisition of supplies and equipment, and determination of needed support services must be completed so as to constitute a delivery system.

Supplies and Equipment. Supplies and equipment must be identified for purchase. In some cases advisory committee input will be needed. In some cases the purchase process will require securing bids on items. Strict attention should be given to the implementation time line in order to complete these steps properly and as needed.

Facilities. It would be desirable for the instructor to be hired in time for him to participate in part of the planning process. Instructor input regarding the teaching schedule, room assignment, and other such matters would be helpful. It would insure greater acceptance of the decisions on the part of the instructor, and result in a smoother, more problem-free implementation.

Support Services. A variety of support services must be identified, planned, and integrated into the delivery system. Transportation needs must be identified. Community agencies that will be used for work observation, work experience, and cooperative work experience sites must be named as should those individuals or agencies who will have responsibilities for coordinating and delivering the services. If placement and pre-employment preparation are among the program goals, then those responsibilities must be clearly assigned to the proper personnel.

A variety of guidance services might be identified, and a clear distribution of labor might be established between course instructors and guidance counselors. Many opportunities exist for cooperation in the delivery of guidance services. The counselor, working in the instructional

site or in the counseling center, might play a major role in dispersing occupational information, planning educational programs that are consistant with career objectives, counsel with students on a variety affective concerns, administer tests and review test results, and be a major factor in the administrative-management of the students career progression.

The delivery of guidance services will vary from school to school. It will largely be a function of the guidance personnel available, how they see their role and how they are seen by their colleagues, the working relationship established, the administrative expectations of their role, and the degree to which adequate planning and task identification has occured.

RESULTS OF INSTRUCTION

Begin the Program.

The implementation of a vocational program is the first step in a process that will see the complete implementation of a delivery system, continued advisory committee input, student follow-up, and program or course review and possible revision. It is at this stage that the program planning process and/or the curriculum planning process might again be applied in the form of a program or course review. Ongoing evaluation and revision is suggested as the way to insure highest program quality and the surest means of attaining program goals and objectives.

Student Enrollment. The nature of the vocational program and the learning characteristics of the students will determine student selection procedures. If some kind of screening is deemed necessary, criterion will have to be established. Such pre-entry requirements as having successfully completed introductory courses, being in a particular grade, or showing competency in basic subjects such as mathematics are examples. Some instruc-

tors may wish to see evidence of appropriate aptitudes as measured by standardized tests, but in such cases, adequate testing support services must be available.

Whatever the pre-entry requirements, they should reflect a reason; they should never be arbitrarily established without educational purpose. Care should be taken to make all pre-entry requirements known to students, therefore course entry requirements must be known by all personnel who teach and advise students. The process for requesting enrollment must be clearly stated, and the actual enrollment procedures employed by the school might be applied. Special attention might be needed for students participating in cooperative programs in order to enhance their successful adjustment. Adequate, readily available information, clear administrative procedures, and an opportunity to receive guidance are essential. Each requires staff preparation and task assignment.

Implement All Aspects of Program-Review/Revise. Course review and revision should be ongoing. Instructional goals should be formative (intermediate) and summative (terminal) and sufficiently related so as to provide check points of student progress toward end of course objectives. A variety of methods might be employed to measure student performance. Paper and pencil tests, actual student performance of tasks, student explaination or description of a process might all be employed.

Changes in curriculum content or methodology should be made as they are indicated by student performance, class attitude, instructor judgment, or other needs that might have become apparent.

External Input. Two types of external input should be ongoing. The advisory committee should be actively maintained, and a workable system

should be employed to secure feedback from graduates.

The program advisory committee should be made up of individuals who are knowledgeable about the vocational cluster, sensitive to the nature of the students, school, and community, and willing and able to work actively and cooperatively with the instructors involved with the program. Meetings should be regular and held in the site of instruction when possible. Their suggestions on all aspects of the program should be welcomed, accepted, and applied when possible. Care should be taken to keep the committee appraised of the impact of their efforts.

Considerable valuable information can be gained from student follow-up surveys. The survey done annually through the Oregon Department of Education provides useful data regarding educational, employment, and mobility characteristics of graduates. Individual schools, and in the case of Portland, specific Areas, have administered follow-up surveys which examine their more specific populations in greater detail. The vocational program planner can gleen much useful information from both kinds of surveys. A more restrictive and intensive survey of vocational program graduates must occur, though, to provide needed data for program review.

A number of surveying techniques are available to gain follow-up information from program graduates. It is recommended that the course instructor take an active part in determining the questionnaire items and if possible to take part in the actual survey. Guidance counselors, school administrators, or perhaps aides specially trained for surveying could also be involved in the follow-up process.

The size of the group to be surveyed, the geographical distribution of the population, accuracy of names, addresses, and telephone numbers will

all help to determine the method that will be used. Telephone interviews, printed surveys for program graduates, and surveys sent to the employers of graduates all have merit. They might also be used simultaneously. Responsibilities for these procedures should be identified in the program evaluation objectives.

Specific sampling techniques will determine whether the entire population of program graduates will need to be sampled or if sampling of the total group will be satisfactory. The instructor, along with advisory committee and school administration recommendations will have established the time frame for graduates. The intervals at which program graduates will be surveyed should also be clearly stated in the program evaluation objectives.

Care should be taken to request available evaluation support services when needed and to observe all school district regulations regarding the use of surveys.

The Secondary Education Report of Vocational Enrollment (SERVE) provides data on vocational program completions, attrition, and a description of the population enrolled in specific program. It provides useful general information, and can also be used to identify problem areas that need closer examination. For example, if alarming attrition is noted, the instructor or building administrator might want to interview or survey those leaving the program to gain information which might be used to correct the situation.

SUMMARY

At the point in time it has been decided to begin (or continue) a vocational program, a series of curriculum planning procedures must be

applied. A number of planning factors might be identified, but this planning guide has suggested that they might be grouped under four general headings:

I. Identify the Course Goals and Objectives

II. Plan the Instruction Methodology

III. Plan the Delivery System

IV. Implement the Program, Evaluate, Review, and Revise

The preparation of adequate course goals and objectives might be facilitated by reviewing goals and objectives of similar programs. They should be heavily based on the task analysis method which has provided lists of worker tasks which are common to certain occupational areas within vocational clusters. After carefully considering the unique needs of the learner population, the tasks should be translated into specific learner competencies and clear performance criteria.

Methods of instruction must be planned in view of the desired outcomes, cost constraints, availability of instructional staff, the time, space, equipment, and resource restrictions within the instructional setting. Although these factors will vary in terms of their importance in methods planning, it is believed none of them can be disregarded.

Decisions need to be made regarding a system for delivery. Timelines must be observed in interviewing and selecting personnel, determining facilities, purchasing supplies and equipment, and identifying needed support services. It is particularly important to assign the support tasks at such a time and in such a way as to allow for cooperative planning and staff development activities.

Program implementation can begin when the above mentioned planning

steps have been completed. Attention must be paid to student information and guidance, and workable administrative procedures of registration must be employed. Continued advisory committee support must be stressed as must be the need to secure feedback information from program graduates. It was stressed that program and course review and revision should be an ongoing process.

APPENDIX A

PLANNING FORM

I. DEFINE THE PROBLEM: Should we (begin, revise, end) a program in *Health Occupations?*

II. GATHER ADDITIONAL INFORMATION:

What do we need to know:	How do we get the information?
1. *What is the demand for workers in HO?*	1.1 *CPPS* 1.2 *CIS* 1.3 *Professional associations* 1.4 *Bureau of Labor statistics* 1.5 *Current employer hiring practices*
2. *What is the current availability of HO workers?*	2.1 *SERVE Report* 2.2 *ECC* 2.3 *State and local unemployment figures* 2.4 *National unemployment figures*
3. *How will the new HO program effect existing school programs?*	3.1 *Estimate staff, space, and equipment requirements.* 3.2 *Estimate potential enrollment.* 3.3 *Compare estimates to results of programs tried elsewhere*
4. *What is the degree of student interest in HO?*	4.1 *Assess student needs* 4.2 *Review student career planning records* 4.3 *Examine student forecasts* 4.4 *Survey graduates*
5. *What are the community attitudes toward a new HO program?*	5.1 *Survey community members* 5.2 *Obtain advisory committee input* 5.3 *Gather various data that will describe the communities values, aspirations, and attitudes toward similar programs*
6. *What will be the costs of a HO program?*	6.1 *Estimate start-up costs* 6.2 *Estimate program opperational costs* 6.3 *Compare estimates to actual costs of similar programs* 6.4 *Identify available resources* 6.5 *List possible funding sources*

III. OBTAIN AND EVALUATE INFORMATION:

1.11 *Annual expansion and replacement for Oregon = 1530. For District II = 597. 226 Additional completions needed annually in Portland.*
1.21 *General moderate growth, especially in status professions in rural areas. Some surplus of LPN's, nurses aides, and orderlies.*
1.31 *No definitive information available.*
1.41 *Good opportunities, especially in entry level.*
1.51 *Placement opportunities are good.*

2.11 *119 completions in 1975 in Portland.*
2.21 *1672 completions in Oregon in 1974, most in nursing, dental assist., and medical emergency tech.*
2.31-2.41 *Little unemployment in health careers.*

3.11 *All requirements will be met through existing resources.*
3.21 *Projected enrollment will justify one FTE.*
3.31 *All input factors compare favorable with successful programs in Portland.*

4.11 *Estimated 10 interested students per opening.*
4.21 *Career exploration records show high interest in HO among students.*
4.31 *Long-range forecasts show high interest in HO.*
4.41 *Graduates enjoy favorable placement - some dissatisfaction with employment level, however.*

5.11 *Community supports preparation for job-entry employment.*
5.21 *Advisory committee recommends HO program.*
5.31 *Attitude survey indicates the proposed program is consistant with community values and aspirations.*

6.11 *$5,000 equipment and supplies plus FTE costs.*
6.21 *$2,000 plus FTE costs.*
6.31 *Estimates are taken from similar programs.*
6.41 *Some equipment is available through advisory committee contacts.*
6.51 *PCO*

IV. IDENTIFY ALTERNATIVES OR OPTIONS BASED ON INFORMATION:

1. *Start new HO program.*
2. *Do not change HO offerings in the District at this time.*
3. *Modify existing HO programs to accept cooperative students.*
4. *Plan a HO "magnet" to draw enrollment from entire District.*

V. EVALUATE OPTIONS AND DECIDE:

Add new HO program.

VI. IMPLEMENT DECISION:

Plan curriculum - begin program.

APPENDIX B

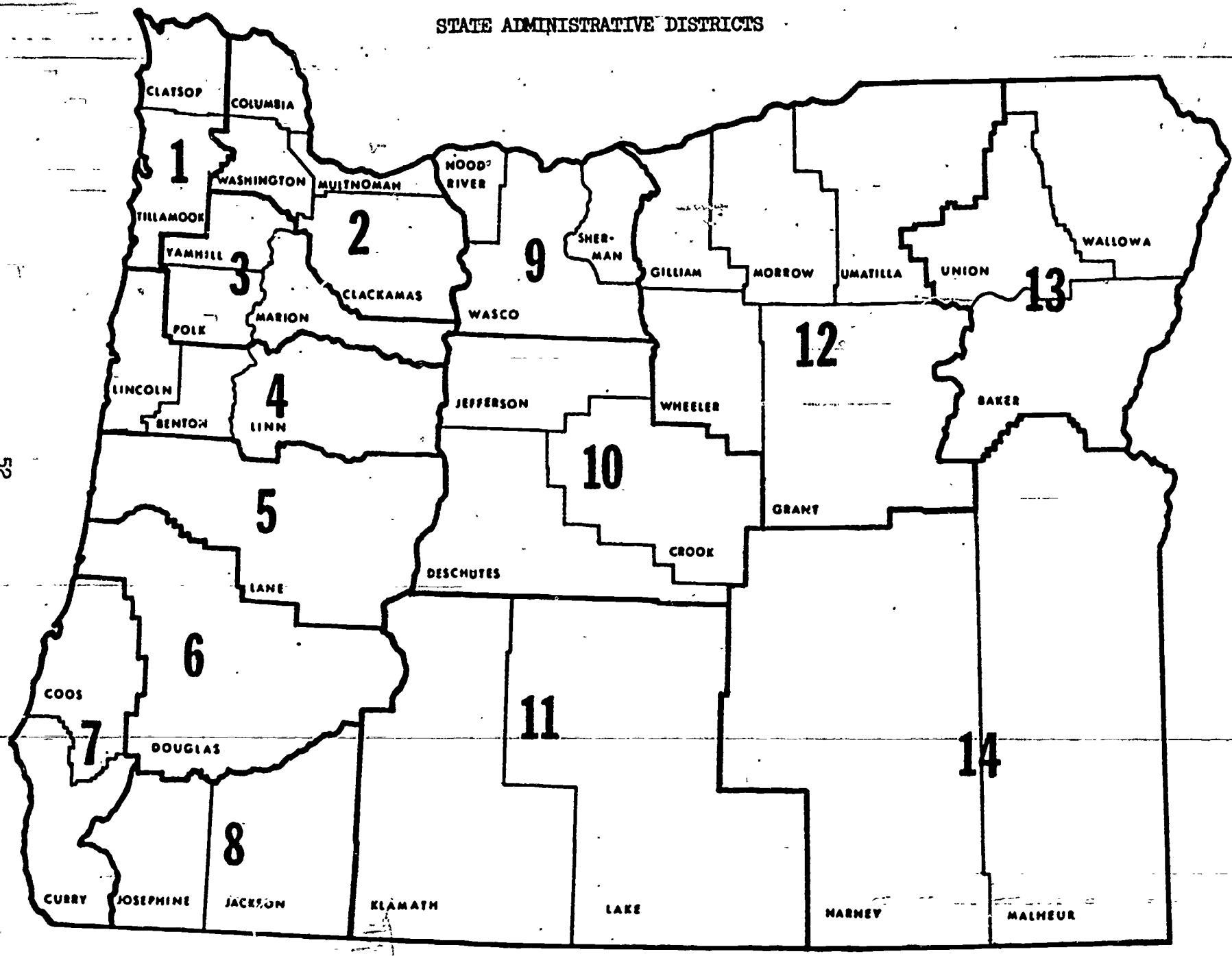
VOCATIONAL ENROLLMENT, COMPLETIONS and PROJECTIONS

PORTLAND PUBLIC SCHOOLS HIGH SCHOOL VOCATIONAL ENROLLMENT AND COMPLETIONS
1974-75

PROGRAM	ENROLLMENT	COMPLETIONS	Average Annual Proj. Expansion and Replacement (District Two)	Portland's Share (39%)	Average Excess or Shortage of Preparations
Agriculture	129	107	128	50	+57
Marketing	247	201	1992	777	-576
Health Services	431	371	1530	597	-226
Food Services	223	157	1190	464	-307
Accounting	734	516	746	291	+225
Clerical	2288	1977	1719	670	+1307
Secretarial	560	509	662	258	+251
Mechanical	766	624	686	286	+356
Construction	367	349	729	284	+65
Electronics	308	264	530	207	+57
Metals	372	322	793	288	+34
Child Care	163	132	72	28	+104
Clothing	33	27	299	117	-90
Institutional & Home Management	16	18	805	314	-296
Drafting	25	25	96	37	+12
Graphic Arts	170	146	171	67	+79
Service Occupations	388	336	1407	549	-213
Forest Products	77	70	203	79	-9
Total	7297	6151			

APPENDIX C

CPPS INFORMATION

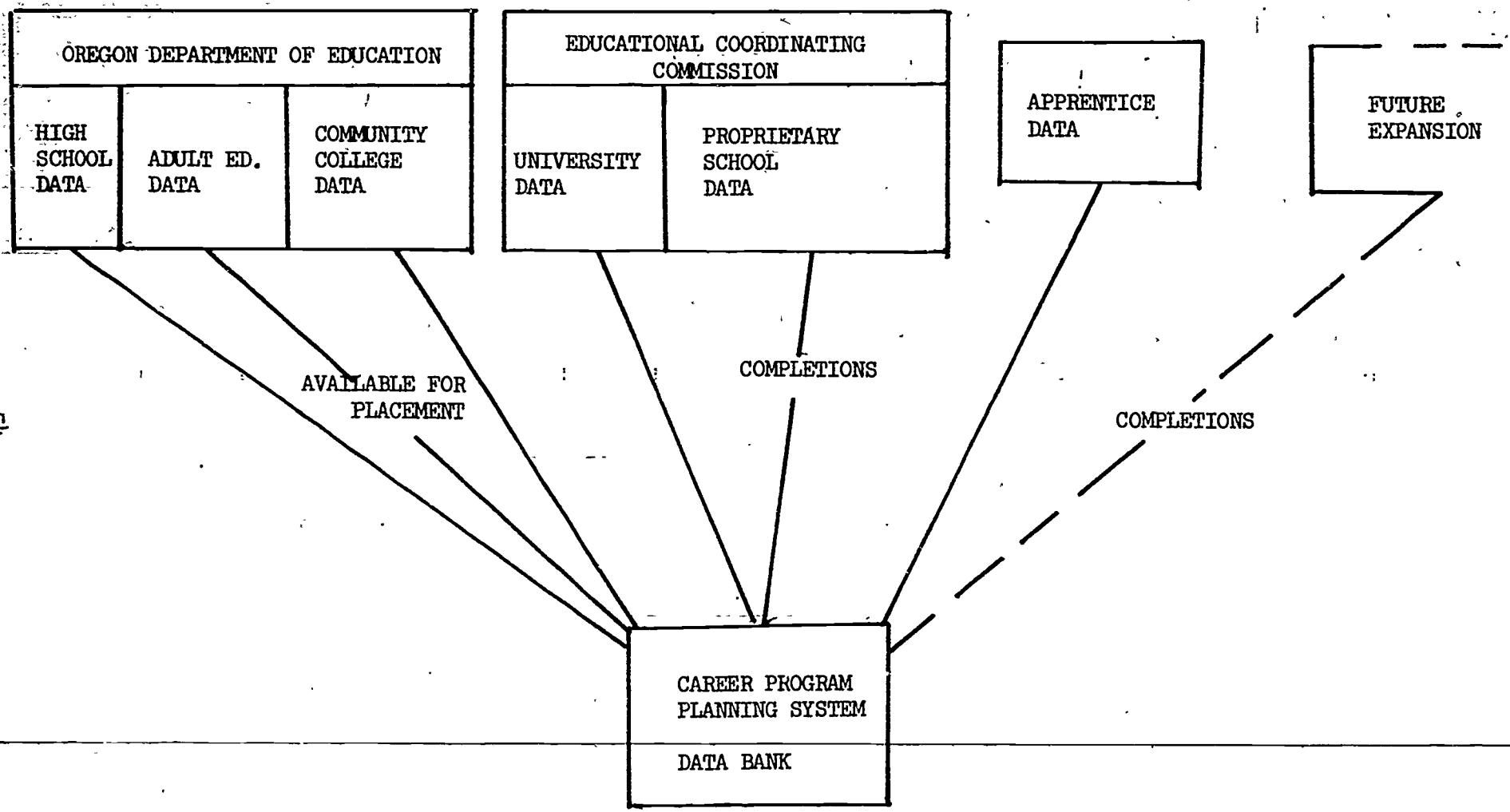

STATE ADMINISTRATIVE DISTRICTS
CLATSOP
COLUMBIA
1
WASHINGTON
MULTNOMAH
HOOD RIVER
TILLAMOOK
2
9
SHERMAN
GILLIAM
MORROW
UMATILLA
UNION
WALLOWA
YAMHILL
3
CLACKAMAS
13
MARION
WASCO
POLK
12
LINCOLN
4
JEFFERSON
WHEELER
BAKER
BENTON
LINN
10
5
GRANT
CROOK
DESCHUTES
LANE
6
COOS
11
14
7
DOUGLAS
8
CURRY
JOSEPHINE
JACKSON
KLAMATH
LAKE
HARNEY
MALHEUR

ORGANIZATION OF OCCUPATIONS

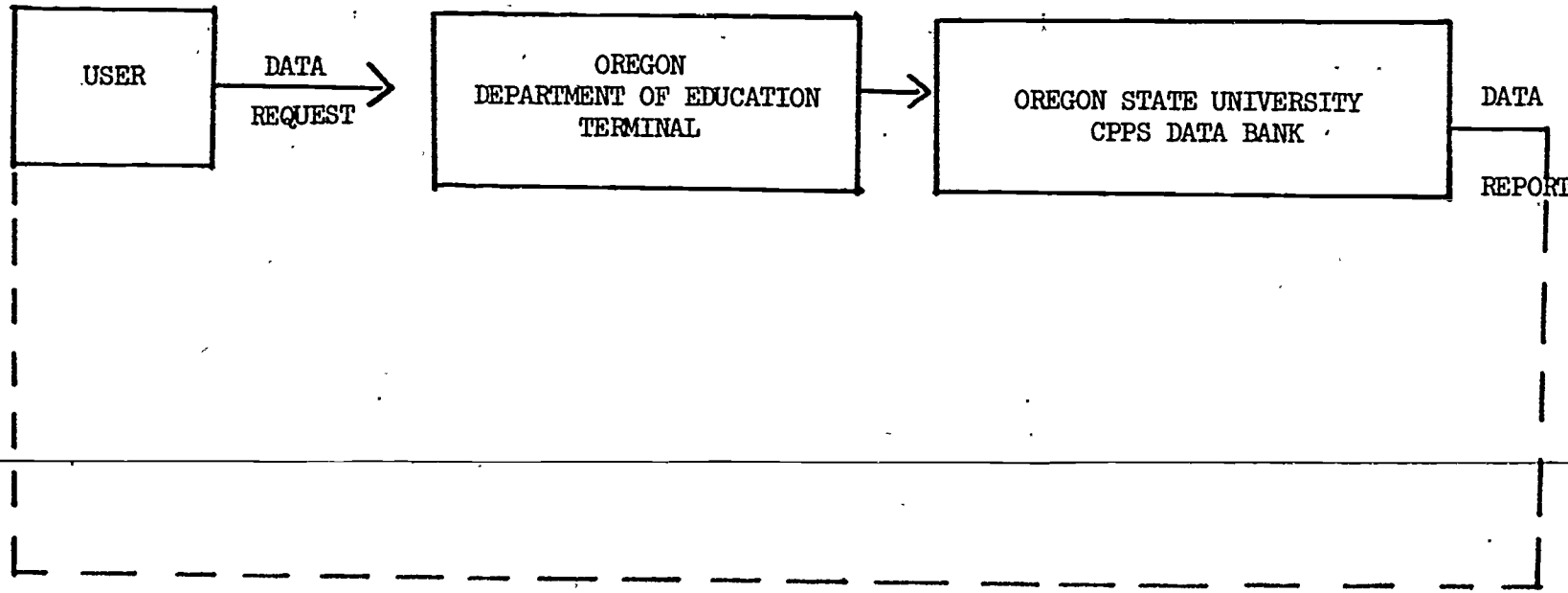
3500 OCCUPATIONS

1. CLUSTER CODE	(18), FOR USE AT EXPLORATORY AND PREPARATION LEVEL, e.g., 10, ELECTRICITY-ELECTRONICS
2. WORKER TRAIT GROUP	(114), FOR USE AT THE AWARENESS AND EXPLORATORY LEVEL, e.g., 481, MERCHANDISING
3. USOE CODE	FOR USE AT THE SPECIALIZATION LEVEL e.g., 17.150300, RADIO AND TELEVISION
4. DOT NUMBER	e.g., 720281010, RADIO REPAIRMAN
5. JOB TITLE (DOT)	e.g., RADIO REPAIRMAN

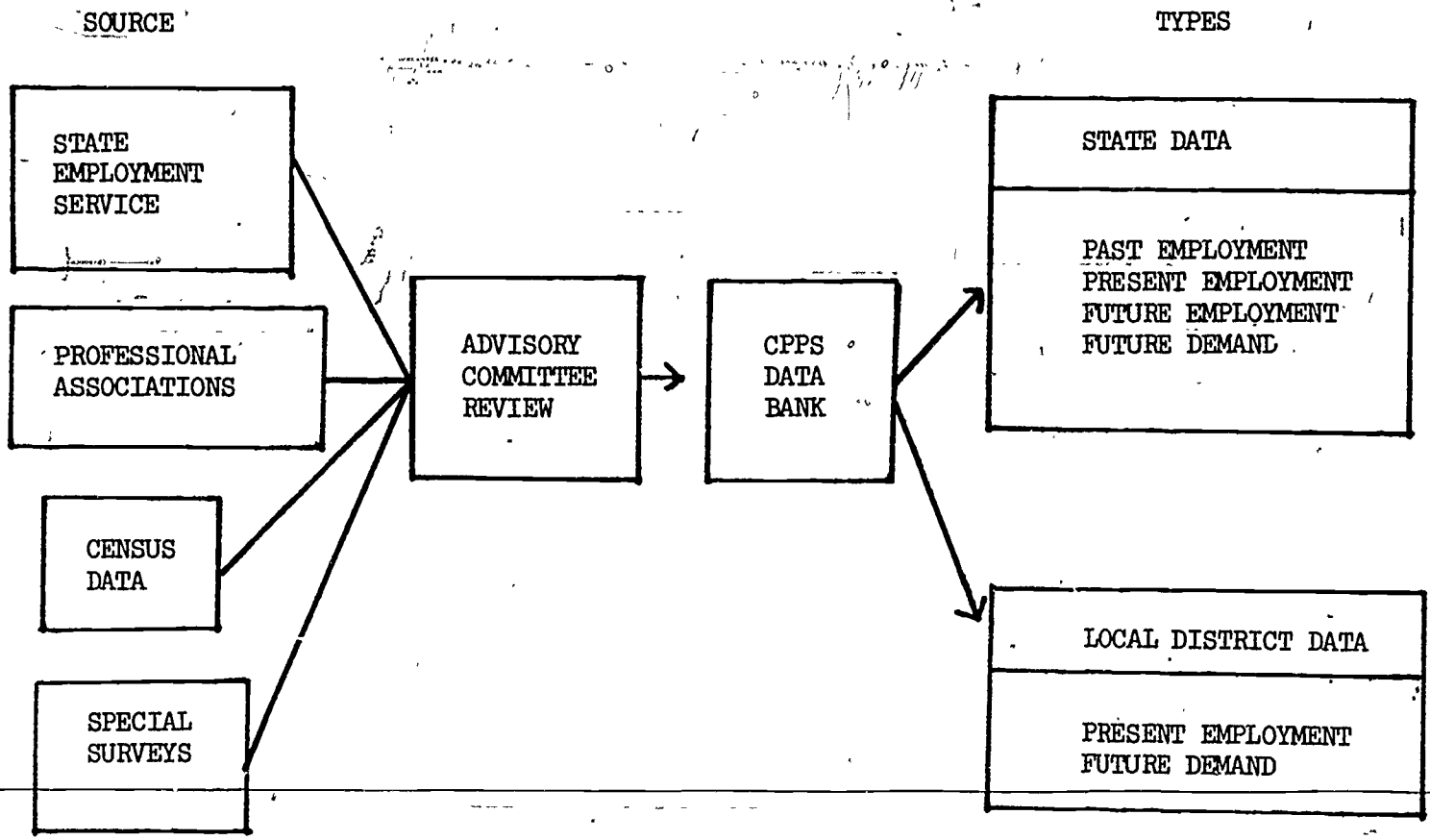
MANPOWER SUPPLY DATA



PHYSICAL LAYOUT OF CPPS



MANPOWER DEMAND DATA



CAREER PROGRAM PLANNING SYSTEM
(CPPS)
User Request Sheet

A. USER IDENTIFICATION

Name, Title & Address _____

_____

Date Requested _____ Date Required _____

User Classification

_____ (1) State administration
_____ (2) Local administrator (Central Office)
_____ (3) Local administrator (Institution)
_____ (4) Vocational teacher
_____ (5) Non-vocational teacher
_____ (6) Counselor
_____ (7) Student
_____ (8) Other, specify _____

B. TYPE OF REQUEST

Purpose

_____ (1) District Program Planning
_____ (2) Institution Program Planning
_____ (3) Counseling
_____ (4) Other, specity _____

Level

_____ (1) Awareness (K-6)
_____ (2) Exploratory (7-10)
_____ (3) Preparation (11-12)
_____ (4) Specialization

Comments _____

_____

C. DATA SEARCH PARAMETERS

1. State Manpower Demand Data

a) Is state manpower demand data required - NO _____ YES _____

b) What types of data are required - _____ past employment
_____ current employment
_____ future employment
_____ future occupational expansion + replacement needs

c) Do you wish to specify a minimum size of the six year expansion and replacement need for the search - NO _____ YES, specify minimum _____

_____, _____, _____, _____
For Office Use Only

2. Local Manpower Demand Data

a) Is local manpower demand data requested - NO _____ YES, specify administrative district #'s _____

b) Do you wish to specify a minimum size of the six year expansion and replacement need for the search - NO _____ YES, specify minimum _____

_____: _____, _____: _____, _____: _____,
For Office Use Only

3. State Manpower Supply Data

a) Is manpower supply data required - NO _____ YES _____
b) What types of supply data do you want -

_____ High School (HS)
_____ Community College (CCOL)
_____ Apprenticeship (APPR)
_____ Private School (PRIV)
_____ University (UNIV)

_____, _____, _____, _____, _____,
For Office Use Only

4. Occupations

Check the methods by which you wish to search for occupations and the specific type within the methods selected

a) _____ Cluster Group

_____ (1) Agriculture
_____ (2) Marketing
_____ (3) Health
_____ (4) Food Service
_____ (5) Accounting
_____ (6) Clerical
_____ (7) Secretarial
_____ (8) Mechanics
_____ (9) Construction
_____ (10) Elec/Electronics
_____ (11) Metals
_____ (12) Child Care
_____ (13) Clothing
_____ (14) Home Mgt.
_____ (15) Drafting
_____ (16) Graphic
_____ (17) Service
_____ (18) Forestry

b) _____ Worker-trait Group
(See DOT for clarification)

_____ _____ _____
_____ _____ _____

c) _____ U.S.O.E. Code

_____ _____ _____
_____ _____ _____

d) _____ D.O.T. Number

_____ _____ _____
_____ _____ _____

e) _____ Job Titles - _____
_____
_____

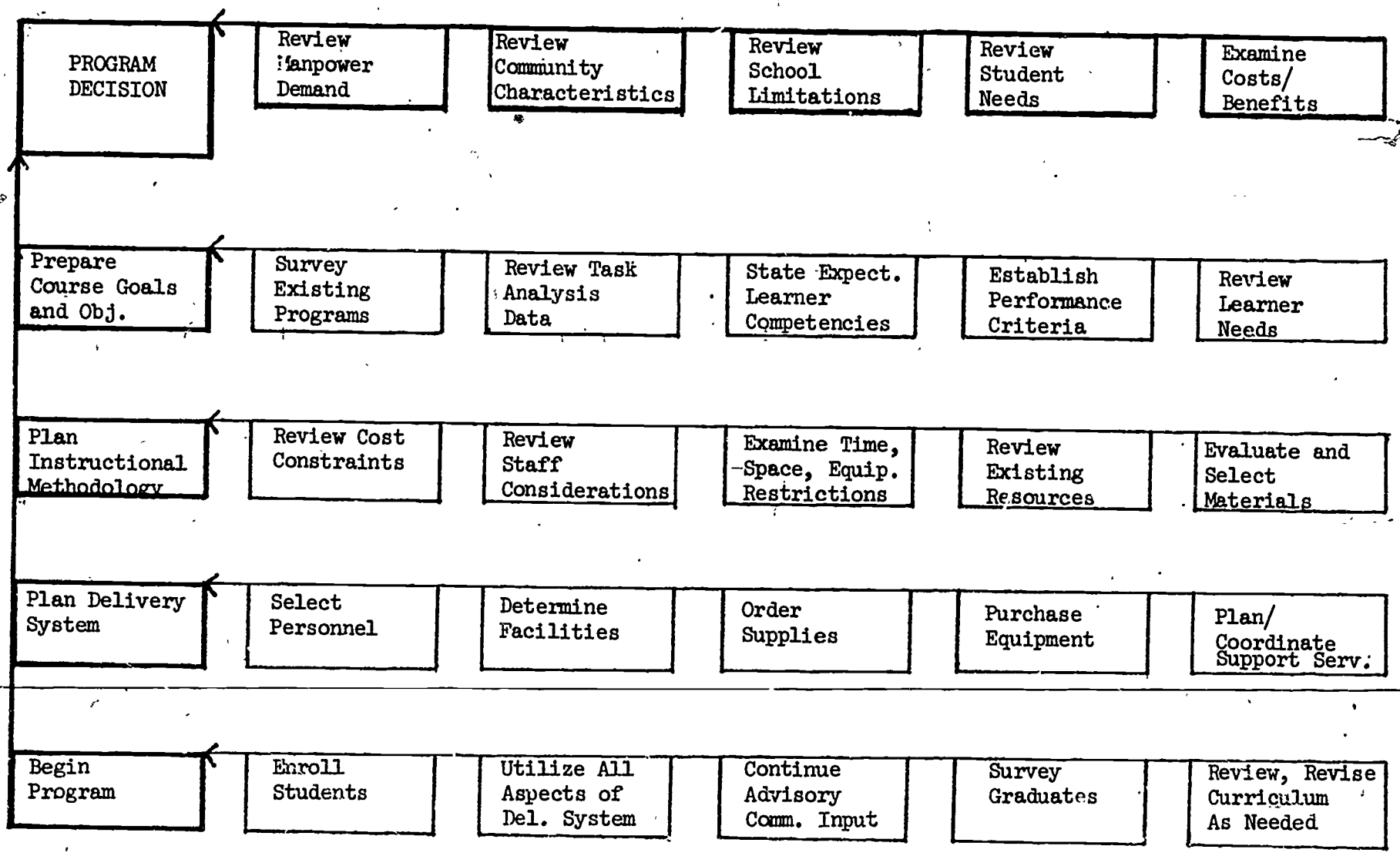
CLUSTER _____, _____, _____, _____,
WTG _____, _____, _____, _____,
USOE _____, _____, _____, _____,
DOT _____, _____, _____, _____,
ALPHA _____, _____, _____, _____,
For Office Use Only

APPENDIX D

STEPS TO PROGRAM AND CURRICULUM PLANNING

PROGRAM PLANNING DECISIONS

CURRICULUM PLANNING DECISIONS



APPENDIX E

SAMPLE TASK ANALYSIS

CERTIFICATE OF COMPETENCY

No Exposure	Introduced to Concept	Minimum Skills in Concept	Proficient in Concept	BASIC CONCEPTS AND RELATED SKILLS
				Can calculate electrical circuit characteristics involving:
				---- Ohm's law
				---- Watt's law
				---- series resistive circuits
				---- parallel resistive circuits
				---- Kirchoff's law
				---- sine wave values
				---- transformers
				---- inductance
				---- capacitance
				---- resonance
				---- inductive reactance
				---- capacitive reactance
				---- _____
				Can demonstrate knowledge of:
				---- electron theory
				---- voltage, current & resistance
				---- conductors, insulators & semi-conductors
				---- magnets
				---- magnetic fields
				---- Ac terminology
				---- voltaic cells
				---- primary and storage cells
				---- DC generators
				---- alternators
				---- DC motors
				---- AC motors
				---- synchro & servo systems
				---- multiple contact switches
				---- motor controls
				---- diodes
				---- transistors
				---- tubes
				---- amplification
				---- oscillators
				---- _____
				Can properly use:
				---- scientific notation
				---- slide rule for multiplication & division
				---- slide rule for finding squares & square roots
				---- slide rule for finding reciprocals
				---- electronic calculator
				---- _____
				---- _____

CERTIFICATE of COMPETENCY

TASK ANALYSIS

ELECTRICITY–ELECTRONICS VOCATIONAL SKILLS RECORD

STATE DEPARTMENT OF EDUCATION
942 LANCASTER DRIVE, NE.
SALEM, OREGON 97310
DR. VERNE DUNCAN
SUPERINTENDENT OF PUBLIC INSTRUCTION

developed in cooperation with
the State Department of Education
Division of Community Colleges and Career Education

STUDENT _____ INSTRUCTOR _____

SCHOOL YEAR(S) _____ INSTRUCTOR _____

No Exposure | Introduced to Concept | Minimum Skills in Concept | Proficient in Concept

SYMBOLS, COMMUNICATIONS and TECHNICAL LITERATURE

Can properly:

- keep time, material, cost records
- make and use schematic diagrams & layouts
- interpret basic symbols
- use color codes
- use parts catalogs for orderings
- use equipment instruction manuals
- read a graph
- plot rectangular coordinate graphs
- plot logarithmic and polar graphs
- work well with others
- write reports clearly and legibly
- follow blueprints
- interpret nameplate data
- make and use block diagrams
- identify electrical materials
- identify electronic components
- _____
- _____
- _____

TEST EQUIPMENT

Can properly:

- read meters
- convert meter functions
- use volt-ohm-ammeter
- use power supplies
- use vacuum tube voltmeters
- use AF & RF signal generators
- use general purpose oscilloscopes
- use digital voltmeters
- test tubes
- test transistors
- test capacitors
- _____
- _____
- _____
- _____
- _____
- _____

No Exposure | Introduced to Concept | Minimum Skills in Concept | Proficient in Concept

ELECTRO-MECHANICAL CONSTRUCTION, INSTALLATION MAINTENANCE and REPAIR

Demonstrates proper skills in:

- electrical-mechanical safety
- soldering
- conventional drill press operation
- use of special electrical tools
- wire selection for respective applications
- fundamentals of trouble shooting
- electrical trouble shooting
- mechanical trouble shooting
- refrigeration trouble shooting
- refrigeration mechanical repair
- heating system analysis
- chassis construction
- electronic wiring
- component mounting
- printed circuit etching & design
- installing electrical cable and conduit
- making electrical splices and connections
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Criteria which determine an acceptable level are too detailed to be included in this report. If you are interested in this detail contact the school directly.