AN ABSTRACT OF THE THESIS OF

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The purpose of this study was to investigate the practices of curriculum development in the community colleges of the western states and make recommendations for guidelines that can be used to plan, implement, and evaluate technical vocational programs in the community colleges. The various functions of other organizations concerned with curriculum development were considered.

The findings of this study were limited primarily to an analysis of the facts and opinions concerning the practices of curriculum development and evaluation of technical vocational education programs in public community college, as expressed on questionnaires received from state directors and community college administrators of technical vocational education in the West.

Fifty-six community college administrators in ten western states

were represented in the investigation. State directors in the same ten states participated in the study.

The data received from the questionnaire returns were recorded, analyzed, and interpreted. A comparison of the information from both administrative groups in the study was made. The literature revealed data that established a setting for the study by tracing the vocational education and community college movements, developments in Oregon, issues in technical vocational education, and trends.

Summary

The formal requirements in technical vocational curriculum development in the ten western states suggest that approvals are required by the community college and state department of education officials before a new course or curriculum can be offered. This permission is especially necessary where state or federal funds are requested to support the offering.

Recent changes in curriculum development at the community college level include more extensive use of advisory committees, involvement of faculty to a greater extent, and strengthening or expanding the technical vocational offerings. State departments of education are producing guidelines, working out arrangements with state community college boards, and contracting with several schools for the funding of curriculum laboratories.

The major resources or other sources of help in curriculum development were found to be materials developed by other commuity colleges, U.S. Office of Education materials, state departments of education, and the professional literature. Many community colleges were receiving help from occupational advisory committees, faculty, local surveys, professional organization, and attendance at professional meetings.

Financial support for curriculum development generally was not found to be budgeted as such at either the community college or state department of education level. The biggest curriculum development expenditures at the community colleges were being made for professional libraries, extra pay for curriculum work, summer employment, released time to work on curriculum, and travel time and expenses to visit other community colleges with curriculums of interest. The state departments of education were employing community college and curriculum specialists and contracting with other agencies in addition to providing a professional library.

Curriculum titles found in the study that were offered in the past are currently the basic offering. No new titles are planned for the near future. Nonengineering related curriculums outnumber the engineering related nearly two to one and are the fastest growing in number and enrollment. Technical vocational education makes up approximately one-third of total enrollment and this ratio is not

expected to change in the near future.

In the planning and implementing of a new curriculum offering, the community college administrators must perform a great variety of activities before the necessary approvals can be obtained. These activities include involvement of the advisory committee, faculty, and administration. Data needed to justify the offering are found by using a community survey, employment service, and information from other sources. Leadtime needed to estimate and acquire the building space, equipment, and supplies needed, employ an instructor and recruit and screen students will take a minimum of nine months.

The community college and state department administrators agree generally on the criteria appropriate to the evaluation of a community college technical vocational program. These criteria are the same as those used to evaluate a successful vocational education program at the high school level.

Recommendations

In summary it is recommended that the appropriate agency officials should make every effort to locate the bulk of the technical vocational curriculum development at the community college level. It is further recommended that each community college president use the findings of this study to establish guidelines for technical vocational curriculum development that are consistent with and will

contribute to their institutional goals.

The state departments of education and the U.S. Office of Education should examine their roles in curriculum development to the end that greater emphasis, funds, and professional assistance can be directed to the community college as the main force in curriculum building.

A Study of Current Practices in Technical Vocational Curriculum Development in Community Colleges of the Western States

by

Richard Dale Boss

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I. INTRODUCTION

Vocational education is in a period of rapid change. Public concern for this kind of education has developed interest in the community college because it is the most logical institution to potentially serve large numbers of youth and adults. Evidence will be shown that community college leaders view the expansion of vocational education as one of their major problems (91). Current curriculum practices in the development of technical vocational education require a continuous examination of the procedures for planning, implementing, and evaluating these new programs.

Background of the Problem

A comprehensive national analysis of scientific and technical manpower--including technicians--was initiated in 1956 when the President appointed his Committee on Scientists and Engineers as an action group to coordinate and stimulate the nation's efforts to meet the shortage of scientific and technical manpower. At a luncheon address given to the American Technical Education Association in Atlantic City on December 9, 1963, Dr. W.G. Torpey, Executive Officer of the President, Office of Emergency Planning, reported

there was much confusion surrounding the word "technician." He stated, "There are several types of technicians who are essential to our economy," and concluded his remarks with four observations concerning technical manpower on the national and world scene:

> First, the role of technician, including engineering technician, is being rapidly enhanced.
>
> Second, the need for individuals qualified to perform technician duties is sharply increasing.
>
> Third, increasing attention is being given to the education of technician manpower but such education is apparently not being accelerated, on a national basis, at a pace sufficient to meet demands in particular technician fields, including the engineering technician field for qualified personnel.
>
> Fourth, the challenge facing producers, users, and associates of technicians is to take effective action as warranted by the individual situation, to maximize the education and utilization of such personnel. Positive effort to strive for this objective is in the interest of the individual--the Nation, and the interest of the Free World.

The sixth survey of organized occupational curriculums in higher education made in 1962 by Ken August Brunner, Junior College Personnel Specialist of the U.S. Office of Education, gives a good indication of the extent of technician education in the country--including that of engineering technicians (12, p. 1). Brunner sent questionnaires to 1,929 institutions; 98.9 percent were returned. A summary of his report reveals programs of at least one, but less than four, years in length in 879 institutions of higher education in the United States. This was an increase of 2.4 percent from the number of

institutions offering these curriculums two years earlier. The 1962 enrollment of 274, 725 students in technician or semi-professional level curriculums represented an increase of 10. 8 percent over that of 1960. The reported total of 53, 272 graduates between July 1, 1961, and June 30, 1962, was 2. 3 percent higher than the number of graduates in the 12-month period two years earlier. The public supported two-year institutions continued to dominate the survey. Their 316 reporting institutions, approximately 36 percent of the total number which offer organized occupational curriculums, accounted for 55 percent of the enrollment and 41 percent of the graduates. The 173 privately controlled four-year colleges and universities ranked third in enrollment and fourth in graduates. Engineering related curriculums accounted for 92, 255 of the enrollment and 14, 977 of the graduates in the Brunner survey. Nonengineering related curriculums accounted for 182, 470 of the enrollment and 38, 295 of the graduates. This data published in 1965 was used as a base or beginning point for the study. This is the most recent study of its kind available.

The problems in vocational education, and specifically those of technical education, had apparently been brought to the attention of the president because he seemed determined to re-evaluate the acts with the intention of suggesting new legislation. In his message to Congress on American Education, February 20, 1961, President John F. Kennedy said:

> The National Vocational Education Acts, first enacted by the Congress of 1917 and subsequently amended, have provided a program of training for industry, agriculture, and other occupational areas. The basic purpose of our vocational education effort is sound and sufficiently broad to provide a basis for meeting future needs. However, the technological changes which have occurred in all occupations call for a review and re-evaluation of these acts, with a view toward their modernization.
>
> To that end, I am requesting the secretary of Health, Education, and Welfare to convene an advisory body drawn from the educational profession, labor, industry, and agriculture, as well as the lay public, together with representatives from the Departments of Agriculture and Labor, to be charged with the responsibility of reviewing and evaluating the current National Vocational Education Acts, and making recommendations for improving and redirecting the program (114).

On October 5, 1961, the White House announced that the Secretary of Health, Education, and Welfare had appointed a President's Panel of Consultants on Vocational Education. Benjamin C. Willis, Chairman, submitted the final report to the President on November 27, 1962. The report uses the term "vocational education" to refer to all formal instruction for both youth and adults at the high school, post-high school, and out of school levels which prepares individuals for initial entrance into and advancement within an occupation or group of related occupations. References made in the report to "technical education, which is considered to be a part of the natural continuum of vocational education," were used to focus attention upon a phase of vocational education having certain unique characteristics usually requiring a more rigorous background of science and

mathematics and more exacting skills. It was estimated that two-thirds of the public secondary schools were enrolling nearly four million students and spending in local, state, and Federal funds $250 million per year. The reason given to support the long established Federal-State program of cooperation for the development of vocational education was based on three principles:

1. That development of vocational education is in the national interest because it is essential to the national economy, defense, and welfare.
2. That Federal funds are necessary to stimulate and assist the States in making adequate provision for vocational education.
3. That the local schools and the States exercise control of the program through State Boards for Vocational Education and State plans (113, p. 7).

Title VIII of the National Defense Education Act, which became Title III of the George-Barden Act, provided funds for the training of highly skilled technicians in programs administered through the framework already established for vocational education. Data at that time indicated the enrollment had grown from 48,564 in 1959 (the first year funds were appropriated) to 122,952 in 1961. In this same year, the first group of technicians was graduated and 7,596 persons had completed the program. Of these, 15.7 percent continued their education and 8.9 percent entered the Armed Forces. Of the 5,572 remaining, 82.9 percent were placed in positions either directly or indirectly related to the field for which they were trained. Only 115

were reported unemployed and 445 "unaccounted for." Some were reported placed before graduation. The funds provided for this program were to be exclusively used in training of highly skilled technicians in recognized occupations necessary to the national defense. This restriction has since been removed, the funds thus being made available to a broader spectrum of technical vocational programs.

Curriculum patterns of technical vocational education in institutions beyond the high school differ considerably from those found in the high schools. Usually they concentrate on the vocational content, with less emphasis on general education (113, p. 136). Some high schools offered technical education programs aided by the National Defense Education Act; however, the majority, or 27,445 persons, were enrolled on the post secondary level in institutions of higher education. The community or junior college enrolled approximately one-third of all students in all institutions.

The Panel of Consultants reported that development of national concern for technical education has been handicapped by the "less than college grade" provision in the federal acts that provide financial aid.

> Institutions that consider themselves in the field of higher education, such as most junior colleges, in some states are under a state board of education. They logically look toward the Division of Higher Education in the U.S. Office of Education for counsel and guidance, and make their national reports to that Division. If these junior colleges accept the aid available under Title VIII, and 176 of them did so in 1960-61, they also make their reports to, and look for aid from, the state board for

> vocational education, and through those boards to the Division of Vocational and Technical Education of the U.S. Office of Education (113).

When the federal aid program under the National Defense Education Act was made a part of the vocational education acts in the Division of Vocational and Technical Education in the Office of Education, it was felt by many persons that a mistake had been made. Events have shown the program can be effective. "... the task would have been easier if unity of purpose had prevailed among those concerned with the problem." A lack of unity has continued to handicap the development of the overall program (113, p. 147).

Statement of the Problem

Community colleges in this country are growing in number and enrollment. To continue this growth and serve the occupational education needs of larger numbers of youth and adults, the technical vocational curriculums started by these institutions must be planned and evaluated continuously and new programs implemented as needed.

The purpose of this study is to investigate the practices of curriculum development in the community colleges of the western states and make recommendations for guidelines that can be used to plan, implement, and evaluate technical vocational programs in community colleges. The various functions of other organizations concerned with curriculum development were considered. Eight specific objectives

of the study are to:

1. determine the formal requirements and who is responsible for curriculum development for technical vocational education,
2. determine ways that formal requirements have changed in recent years,
3. determine the resource personnel and other sources of help for technical vocational curriculum development,
4. determine the increase in technical vocational curriculums and enrollment in recent years,
5. determine the institutional and state department support for technical vocational curriculum development,
6. determine the activities being used in curriculum planning,
7. determine the length of time needed to complete certain activities in implementing new curriculums, and
8. determine criteria for the evaluation of a successful program of technical vocational education.

The rationale for this study was derived from a set of assumptions based on the pertinent literature and other research. It is assumed that:

1. Manpower requirements in many industries are changing at such a rapid pace that a need exists for criteria to provide guidelines for the continuous planning and evaluation of

existing programs with procedures for the implementation of new programs.

2. The community college is the local institution most likely to provide the flexibility needed to expand the technical vocational education curriculums needed for a large percentage of the post high school youth and adults.
3. Persons responsible for vocational education on the national, state, and local levels must evaluate the accomplishments of technical vocational education in terms of established goals.
4. Regional accrediting agencies that evaluate and pass judgment on the entire offering of a community college need criteria consistent with the current requirements for curriculum development to realistically judge the technical vocational program offerings.

Hypothesis of the Study

It was the hypothesis of this study that curriculum practices in technical vocational education which produce results could be isolated and that criteria could be established that would be helpful in planning, implementing, and evaluating these community college offerings.

Significance of the Study

It is suggested that the findings from this study will have particular value for the State Departments of Education, and the community colleges in the western states and will have general significance to other community colleges, as well as having transfer value to the national level. Findings in this study will have particular significance to support the efforts of the State Boards of Education in their efforts to pass judgments on the approval of new programs, help to more economically allocate various functions for curriculum development, and more efficiently and effectively produce the kind of vocational program needed by the employing industry and the student seeking training and work. The findings will support the efforts of the regional accrediting association representatives who are called upon to evaluate and accredit community colleges. The transfer value to the national level will result in the influence the findings have on officials of the U.S. Office of Education who are continually called upon for assistance in curriculum development projects.

Limitations of the Study

The findings of this study are limited primarily to an analysis of the facts and opinions concerning the practices of curriculum development and evaluation of technical vocational education programs

in public community colleges as expressed on questionnaires received from state directors and community college administrators of technical vocational education in the Western States.

Definition of Terms

For the purposes of this study the following terms are defined:

Technician

The term technician is restricted to a person who is engaged in occupational activities possessing extensive specialized knowledge, who make very accurate measurements using delicate and complex instruments, who accept unusual responsibilities for the safety and welfare of persons and equipment, and who work directly as an assistant or support the work of a highly skilled professional. Technicians are found in industry, health, public service, home economics, business, agriculture or science, and engineering occupations.

Curriculum

A community college technical vocational education curriculum is a highly selective sequence of general education and technical courses designed to provide a precise balance of class and laboratory experience that will enable the graduate to obtain entry employment in an occupational specialty upon completion of the educational program.

Community College

A community college is a publicly supported and controlled post high school institution offering two years of college-level education in the lower division for transfer to a college or university to complete the baccalaureate degree. The comprehensive community college is defined as one which also offers technical vocational education in occupational fields leading directly to employment at the completion of the curriculum. The comprehensive institution is the one referred to in this study.

Technical Vocational Education

Technical vocational education consists of occupationally oriented educational curriculums at the post high school level designed to prepare persons for employment upon graduation in semi-professional, technical, and skilled level fields of agriculture, business, industry, health, home economics, and public service. The central concern of technical vocational education is with a body of knowledge directly related to specific jobs. This study refers to organized occupational curriculums only. It is concerned with whole curriculums, not individual courses. A curriculum which meets all five of the following criteria is a technical vocational curriculum (Appendix A).

1. High school graduation (or its equivalent or age 18), but no work beyond the high school is required for

admission to the curriculum, which extends from one to three years beyond high school.

2. The curriculum is a series of required and elective courses constituting an integrated program prescribed by the institution to assist in the general education and training of the individual, but more particularly, in his training as a future practitioner in a given occupation or cluster of occupations. A group of courses, even though all of them be in a given occupational area, do not necessarily constitute a curriculum.

3. Individual courses in the curriculum may be credited toward a bachelor's or first professional degree for transfer; however, the curriculum as an organized program is designed to educate primarily for occupational competence, rather than for transfer or degree credit. The objectives of the curriculum itself should be considered rather than the intentions of the students involved.

4. Completion of the curriculum requires at least one but less than four years of full time attendance. A "year" means an academic year of approximately nine months.

5. The curriculum leads to a certificate, diploma, associate degree, or other formal award, signifying that the student has completed an organized program in an occupational area; or the state grants a license or other formal recognition, without examination, to all graduates of the curriculum.

Procedures and Techniques

Two questionnaries were constructed for this study (Appendix A). One was designed for community college administrators of technical vocational education and one for state directors of vocational education.

Community college administrators were asked to provide data

about technical vocational curriculums offered in 1962 and again for 1966 to show the kinds of offerings developed and the growth in number. Further growth data were obtained by asking for enrollment for the past three years and estimates for the next three years. Several questions directed to community college administrators asked for specific information on current practices in curriculum development.

State department officials were requested to give sources of curriculum materials and ways the department had helped the community colleges. Both community college administrators and state department officials were asked to list the changes in curriculum development during recent years. Curriculum planning activities and time needed to implement these activities were solicited from the college administrators. Both groups were asked to evaluate criteria suggested for use in the evaluation of a successful technical vocational program.

A letter of transmittal accompanied the questionnaires. Each questionnaire had a title page describing the study and one page of instructions.

Refinement of Instruments

The primary data for this study were obtained entirely through the use of two questionnaires. Special attention was given to the refinement of these instruments. In the beginning, the study proposal

was sent to several community college presidents in Oregon, Washington, Idaho, and California. They were asked to criticize the proposal and return the material. Then items for the questionnaires were developed following a study of the literature and related studies. Further advice was solicited from several community college administrators in Oregon especially about the questionnaire items to be used with this group. Revisions were made and a tentative draft of the questionnaire was given to a graduate class in community college curriculum at Oregon State University. Recommendations were given and further revisions made. Since the Oregon State Director of Vocational Education had expressed considerable interest in the study, he and his staff were asked individually to review the questionnaires and criticize them. Format and content were revised in keeping with their suggestions. Further interviews were held with the State Directors of Vocational Education of Washington and Idaho. Before the questionnaires were printed in final form, sample questionnaires were sent to three Oregon community college technical vocational administrators for their suggestions.

Dr. Lynn A. Emerson,[1] who is recognized as an authority in the field of technical education, was consulted in the final analysis to

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[1]Dr. Lynn A. Emerson is professor Emeritus of the School of Education, Cornell University, New York. He is retired and living in Oregon.

review the items in both questionnaires. His vast knowledge and broad experience in the Office of Education were helpful in clarifying terminology to be consistent with practices in the many states.

Since it was impossible to make a comprehensive assessment of the validity and reliability of the questionnaire responses, interviews were conducted with Dr. Emerson, Dr. Loomis,[2] and other state staff members in Oregon.

Participants in the Study

Community College Administrators. The 1966 Junior College Directory published by the American Association of Junior Colleges was used to isolate the community colleges for the study. This directory contains the names of all member institutions, the name of each president, and a statistical review of enrollment, cost, and other data (2, p. 8-53). The American Junior Colleges for 1963 was used to obtain additional detailed data on individual institutions (43).

To obtain a good sampling of the subjects in the universe it was decided early in the study to select community colleges with varying degrees of experience with technical vocational education based on the length of time occupational education had been offered. Since this fact was unknown and no information available anywhere it was then

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[2]Dr. William G. Loomis is the Oregon State Director of Vocational Education, Salem, Oregon.

decided to limit the study to the same states and where possible the same institutions used in a previous study by William G. Loomis, entitled, "A Study of the Formal Preparation of Academic Teachers in Community Colleges with Proposals for Oregon."[3]

The ten western states of Alaska, Arizona, California, Colorado, Idaho, Montana, Oregon, Utah, Washington, and Wyoming were selected for the study. Nevada, New Mexico, and Hawaii included in the Loomis study were at the time offering very little in the way of technical vocational curriculums and were omitted from this study. From this group of states, 79 community colleges were originally selected and 61, or 77.2 percent of the college presidents agreed to participate in the study (Table B-1). An institution was included when it met the following criteria: The institution was a public community or junior college; it offered both lower division transfer courses and technical vocational curriculums; it was reporting enrollment in technical vocational courses for 1962; and it was coeducational. Only institutions organized before 1950 were selected from California.[4] Only one such college was included from a single administrative district. The president was asked to give the name and address of the administrative officer in charge of technical vocational education to whom

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[3]A thesis prepared as partial fulfillment of the requirements for a degree of Doctor of Education, Oregon State University, August 1964.

[4]The same limitation was used in the Loomis study.

the questionnaire was to be directed. Fifty-six returns were received, or 91.8 percent of those who agreed to take part in the study (Table B-2). All reference to community college administrators will be to those responding to the questionnaires.

Enrollment represented in the returns was 224,910 or 35.0 percent of the total public community college students in the same western states for October 1966. All public community colleges in the country reported enrollment of 1,316,980 students on that same date. The institutions surveyed represented 17.1 percent of the national enrollment reported by all public community colleges to the Association of American Junior Colleges (Table B-12).

State Directors of Vocational Education. The State Directors of Vocational Education of the ten western states were asked to name the appropriate state staff member who could respond for the Department. Replies were received from all the states (Table B-1). All ten states were responsible for technical vocational education in one form or another with the exception of Wyoming and Colorado. These states had no direct responsibility yet exercised considerable leadership in this area. Colorado had just created a separate board for community colleges and that state department had ceased to be responsible for occupational programs in such institutions. Both states scored the questionnaire and the data were included in the study.

Six respondents were full-time directors or supervisors of technical education and the others held positions of slightly different types in their respective states. Of the latter group, one was a research coordinating unit director, one was a trade and industrial education supervisor, one was a state director, and another was assistant to his state director.

Plan for Presentation of the Data

Chapter II contains a review of the literature and related studies. A review of the information received from community college administrators of technical vocational education is reported in Chapter III, and the facts and opinions of officials of the State Departments of Education are covered in Chapter IV. Chapter V is a comparison of data received from community college administrators with that received from state directors of vocational education. Chapter VI consists of a report of the conclusions, recommendations, and a summary of the study.

Appendix A contains a copy of the questionaire for community college administrators of technical vocational education and the questionaire for the securing of data from State Directors of Vocational Education. Appendix B provides the tables constructed from raw data taken from questionaires received from community college administrators. Appendix C consists of tables taken from questionnaire data

received from State Directors of Vocational Education. The remaining appendices consist of other data and a summary of public and private community or junior colleges in the country with a status report of curriculums developed by the U.S. Office of Education.

Summary

This chapter serves as a means to introduce the problem and its significance. A brief background is given showing the national concern, developments, and extent of the problem. A summary of the situation in the country shows the background of the problem and the national concern for expansion of technical vocational education. The remainder of the chapter outlines the purposes, hypothesis, and objectives of the study and its limitations, defines terms, and gives the plan used in the construction of instruments. An analysis was made of the participants of the study and an outline shows the procedure to be followed in the presentation of data.

II. REVIEW OF LITERATURE AND RELATED STUDIES

In this chapter the review of the literature relevant to the current practices in curriculum development is presented by tracing the vocational education and the community college movements, developments in Oregon, issues in technical vocational education, and trends.

The vocational education and community college movements have many similar characteristics and appear to follow similar patterns.

The developments in Oregon are shown for two reasons, 1) to illustrate how one state reacted to the movements mentioned above, and 2) to show a systematic approach to curriculum development.

The major issues related to curriculum development involve the reluctance of some community college administrators to provide technical vocational education. More specifically, the issues which complicate the problem include, the impact of technology on society, the need for more technicians, the definition of terms, and where technical vocational education belongs in the public school structure.

Trends which are referred to in this chapter deal with the above issues and show a change in direction is needed if the community college is to fulfill the objectives its proponents have adopted.

There is an abundance of literature in the field dealing primarily with the idea that community colleges should become more active

in searching out the need for and development of occupational curriculums. Much has been written on specific types of technical vocational curriculums. The most important literature available in the field is found in government bulletins and reports. Very little is found in the research on this topic which is current and directly related to curriculum development. Therefore, a brief review of the vocational education movement will draw the problem more nearly into focus.

The Vocational Education Movement

Vocational education began among the early races of mankind. In man's effort to conquer his physical environment, manual skills and knowledge pertinent to specific tasks have in one way or another been transmitted from generation to generation and population to population.

In a primitive and static society there was no usable knowledge upon which to draw when man pondered better ways of doing things and finding means of easing burdens. Discoveries were rare and inventions evolved so slowly that man could only inch his way toward a better and safer existence. In the days of apprenticeship under the guild, operations and processes changed but little. The master could impart to the apprentice, in an unhurried and satisfactory manner, the technical knowledge and skill required (53).

As the Industrial Revolution began in this country, at the end of the eighteenth and beginning of the nineteenth centuries, the commercial enterprise moved from the home to the factory. There were many inventions in science that resulted in the development of new technical knowledge and the replacement of old skills by new methods (108, p. 1).

Nearly every study of vocational education makes an attempt to establish the passage of the Morrill Land-Grant Act of 1862, and its contribution to the vocational education movement, as a starting point. The purpose of the act was to "stimulate and further the education of agriculture and the mechanical arts, not to exclude other scientific and classical studies and including military tactics."

The "land-grant colleges," as they became known, grew slowly at first; however, with the passage of the Hatch Act of 1887, which provided funds for experiment stations, they began to grow more rapidly (97, p. 46).

Promotion of Industrial Education

A more positive action in the development of vocational education came in 1906 when a small group of men formed the National Society for the Promotion of Industrial Education (113, p. 20). Their devotion and attention to the cause are exemplified by these statements of belief. The society believed that:

> A trained citizenry, guided by trained and capable leaders, is the salvation of democracy.
>
> The main purpose of education in a democracy is to prepare all of its people for the duties and responsibilities of every grade of citizenry.
>
> The ordinary man needs educational service as much as the "superior" man, and that he is just as much entitled to it.
>
> Education is primarily training for thinking and doing in a socially useful way.
>
> There are many forms of education training the interests and abilities of many different kinds of people, all of whom are worth educating.
>
> Everyone can and should be educated so that he can work for himself and for society.
>
> The educator is responsible for both the individual and the social results of his work.
>
> Education must be constantly adapted to the changing demands of life and should therefore never be dominated by tradition or by the mere voice of authority (53, p. 61).

The newly created society continued to interest itself in the promotion of industrial education, in molding public opinion, and in the shaping of federal legislation through publication of a series of some 30 bulletins in the first few years following its establishment. The society later became the American Vocational Association and made its objectives a part of the constitution of the newly formed organization. They include:

> To assume and maintain active national leadership in the promotion of vocational education,
>
> To render service to state or local committees in stabilizing and promoting vocational education,
>
> To provide a national open forum for the discussion of

> all questions involved in vocational education,
>
> To unite all the vocational education interests of the country through membership representative of the entire country (53, p. 74).

It is believed that years of discussion, thinking, and planning by the prime movers of the vocational education movement (The Society for the Promotion of Vocational Education) led to the development of a sound basis for vocational education.

> Attention was directed toward providing an educational program that would prepare young people for the world of work and help both employed and unemployed youth and adults to find more appropriate positions in the labor force. The entire area of vocational education was considered to be a public responsibility, motivated by the federal government, but with intent to honor state's rights, and to reflect local need (7, p. 2).

Dr. Walter M. Arnold believes the movement grew out of at least three general social movements of the industrial revolution in the latter half of the nineteenth and the beginning of the twentieth century.

> The most important general social movements giving rise to vocational education were: 1) the labor movement; 2) the rise of the middle-class entrepreneur, including the midwest farmer, in the United States competitive market economy; and 3) universal free public education, with special emphasis upon the broadening development of the secondary curriculum (4, p. 17).

Others believe that education has changed continuously as the economic and social organization of the nation developed. The function of education today is quite different than that of the early days of the republic. Modern life and technology advancing together at a rapid rate

demand greater skills and knowledge in the employment market place. To train some and not to train others "creates inequalities that violate the spirit of democracy." Hence, every individual must be afforded the privilege of preparing himself to the extent of his ability to play his proper role in the "national scheme of life." "This obviously involves universal vocational education as one of the conditions of genuine democracy. Modern education must include provisions for vocational training opportunity for all the people." Mays states that only recently has there been any large acceptance of this principle (67, p. 85).

Dr. Melvin L. Barlow takes the position in his paper on a contemporary rationale for vocational education and states, "the next step was to provide an interpretation of the principles thus established in a general context appropriate for all systems of public education" (7). The first interpretation of these principles occurred in the form of the Smith-Hughes Act of 1917.

The Smith-Hughes Act

Through the efforts of the National Society for the Promotion of Industrial Education, The Commission on National Aid to Vocational Education was created by an act of Congress and approved on January 20, 1914, authorizing the President to appoint a commission of nine members "to consider the subject of national aid for vocational

education and report their findings and recommendations not later than June 1 next" (113, p. 21). The commission, consisting of persons from Congress, labor, industry, and education, made their study and reported to Congress on June 1, 1914. Two and a half years later the Smith-Hughes Act was signed by Woodrow Wilson on February 23, 1917. The Smith-Hughes Act (Public Law 347, 64th Congress) provided a grant to the States of approximately $7.2 milmion annually for the promotion of vocational education in agriculture, trade and industrial education, and home economics with a separate appropriation for teacher training. The act was administered by a Federal Board for Vocational Education responsible directly to Congress. The Board consisted of seven members including the Secretaries of Agriculture, Commerce, and Labor; the Commissioner of Education; and three citizens representing the interests of labor, agriculture, and manufacturing and commerce. A minimum appropriation of $1,655,586 was made the first year and increased annually until the total appropriation was made in 1926-27.

The states were required to create or designate a state board for vocational education and prepare a state plan showing the program they intended to provide before they could share in the benefits of the legislation. Many of the provisions of this parent legislation were contained in subsequent statutes and, in fact, are in practice today.

Authorization by the Congress provided funds for further

development of vocational education beyond the amount appropriated under the Smith-Hughes Act. In general, the provisions of the parent act carried over to the George-Reed, George-Ellzey, and George-Deen Acts. These acts differed from the Smith-Hughes Act primarily in that they contained terminal dates and merely authorized appropriations. The George-Deen Act added distributive occupations to the original parent legislation.

Occupational Information and Guidance Service in the Division of Vocational Education was inaugurated by a Circular Letter (CL 2107) from J. W. Studebaker's office in 1938. The Smith-Hughes and George-Deen Acts had appropriated funds for agricultural education, home economics education, trade and industrial education, and distributive education. Funds needed to support guidance had to come from one of these four services (141, p. 55-56).

The George-Barden Act

In 1946, the George-Barden Act was passed authorizing a peace time budget and making the act more flexible with provisions for new phases of work. This act was the new look for vocational education and differed from the Smith-Hughes Act in that it provided one appropriation for each of the four service fields and no separate appropriations for teacher training. Funds allocated to the four services could be used for vocational guidance.

Federal funds under the George-Barden Act may be used for maintenance of administration and supervision; the Smith-Hughes Act allows for salaries of supervisors of agriculture only. Under the George-Barden Act federal funds may be used for purchase or rent of equipment and supplies for vocational instruction.

The George-Barden Act provides that

> ...pre-employment schools and classes organized for persons over eighteen years of age or who have left the full-time school may be operated for less than nine months per year and less than thirty hours per week and without the requirement that a minimum of 50 percent of time must be given to shop on a useful or productive basis (113, p. 24).

Later amendments to the George-Barden Act include:

> Practical Nursing--The trades and industry appropriation authorized by the George-Barden Act was utilized to some extent in practical nurse training (The Health Amendment Act of 1956).
>
> Fishery Amendmant--An act of Congress approved August 8, 1956 authorized an appropriation of $375, 000 for vocational education in the fishery trades and industries and in the distributive occupations.
>
> National Defense Education Act--Title VIII of the National Defense Education Act, 'Area Vocational Education Programs,' authorized an appropriation of $15 million annually for four years to support programs limited exclusively to the training of highly skilled technicians in recognized occupations necessary to the national defense.
>
> These provisions of the National Defense Education Act passed in 1958 became title III of the George-Barden Act. In October 1961, Congress extended the National Defense Education Act for two years to June 30, 1964. This act and the nursing act were made permanent by the vocational education act of 1963 (113, p. 24-25).

The National Defense Education Act

The National Defense Education Act of 1958 has increased the number of programs designed to educate "highly skilled technicians in recognized occupations requiring scientific knowledge" (51, p. 86). Enrollment of full-time students in these technical education programs grew from fewer than 20,000 in 1958 to more than 90,000 in 1964. In 1958, some 260 institutions provided education of this type, and the number grew to nearly 300 by 1964. Expenditures for technical education programs under the Act from the beginning of the program in 1959 through fiscal year 1964 totaled $131,314,296. Federal funds amounted to $54,704,605; State contributions of $30,162,487 combined with local expenditures of $46,429,204 make up the grand total (24, p. 2-3).

The curriculums offered under the NDEA, title VIII, technician programs were very limited in number. Some 25 technologies were offered, with four of these curriculums dominating the scene. The four were electronics technology, mechanical technology, mechanical drafting and design, and electrical technology, which are basically engineering or industrial related programs. Other curriculums which provided one to 30 offerings were technologies of civil and building construction, chemical, instrumentation, aeronautical, industrial and production, metallurgy, and business data processing

(113, p. 141). Electronics combined with the other three curriculums dominating the field consisted of nearly 70 percent of the total enrollment.

One of the major problems that has handicapped the development of technical education was the "less than college grade" provisions in the Federal acts that provide financial aid. Community college officials generally consider themselves in the field of higher education and in some states are under a state board for higher education. Many educators felt that a mistake had been made when funds for technician education were incorporated into the George-Barden Act and hence assigned to the Division of Vocational and Technical Education in the Office of Education. However, events have proved these programs can be administered by the Division.

One thing certain about the National Defense Education Act is the importance of curriculum planning, which grew out of the need to get these programs under way. The Office of Education has contracted with various universities for the development of specific curriculums for technician training. These curriculums have been checked by selected panels of representatives and industry and have been made available to the states as suggested patterns. Several of the states have also performed similar work in this field (113, p. 147).

The most important aspect of the National Defense Education Act was that it was a good start in the right direction. There were

too many restrictions in the legislation and it took the Vocational Act of 1963 to make the law more useful.

The Vocational Education Act of 1963

The Vocational Education Act of 1963, signed by President Johnson on December 18, 1963, put into law the most important legislation for vocational education since 1917 (132, p. 124). The legislation was written with the aim of improving the quality of vocational education. The emphasis on quality was expedited by authorizing the commissioner of education to channel ten percent of funds to research, experimentation in curriculum, the development of instructional materials, teacher training, and other projects of a related nature (115, p. 9).

The Act of 1963 gives authority and flexibility to fill the gaps that have been long recognized by vocational educators. Among the new features are authorizations for the first time for the construction of certain vocational school facilities for an experimental program of residential schools needed for youth of rural and some urban areas, for work-study programs for those who need employment in order to stay in school, and for education adapted to the needs of persons economically and educationally disadvantaged. Funds are not restricted to specific categories as in the past. Equally important, the authorizations for training practical nurses and technicians were made

permanent. The Act is to be administered through state boards in a manner similar to the Smith-Hughes and George-Barden Acts. A new state plan was required of states who wish to participate in the use of these funds (117).

The Community College Movement

Origins of the Movement

Many of the leaders tie the beginning of the community college movement to the public junior college at Joliet, Illinois, which opened in 1902. H.I. Weitzel (137, p. 1-2) suggests the movement had much earlier roots.

> The junior college idea probably started with Tappan of the University of Michigan about 1852. Harper first put it into practice at the University of Chicago in 1892. Expression of the junior-college idea also appears in the early writings of President Folwell of the University of Minnesota. Dean Lange of the University of California, in his reports to the faculty, kept the idea alive. Bradley Polytechnic Institute began as a junior college in 1897, and Oregon Agricultural College and Rennssalaer Polytechnic Institute both had their beginnings as technical junior colleges. The oldest of the present junior colleges is Monticello Seminary, a private girl's school at Godfrey, Illinois. It was established in 1838.

Early Writings on the Two-Year College

Leonard V. Koos (63, p. 13) made a study of the movement in 1925 and wrote a much quoted book on the subject. He found the

enrollment in junior colleges in 1921-22 ranged widely from as few as six or seven students to well over a thousand. The average enrollment for institutions operated by city and high school districts was 59; for state institutions, 78; and for private units, 44. The full count in 1921-22 for all colleges of the three types was, respectively, over 5,000, somewhat more than 3,500; and something short of 8,000 totaling more than 16,000 students.

Among the 21 different stated purposes of the junior colleges studied by Koos, the first and most often mentioned function was offering two years of work acceptable to colleges and universities. The second in importance was to make it possible for the junior college to serve those who are "not going on" by providing the opportunities for "rounding out their general education." The third major purpose refers to preparation for occupations, the final training for which would be given during junior college years. The term semi-professional was used to describe the level of training. Such areas of study included agriculture, industry, home economics, and commerce. The fourth major purpose centered around the need to provide a lower cost education for the student (63, p. 20). Koos devoted two full chapters of his book to the democratizing function and the value of its conserving and socializing influences. In his evaluation of the junior college, he proclaims the institution is well suited to serve the needs of those who should or can aspire to higher levels of training, but it

is clearly better designed than are other typical higher institutions to provide for those who should not or cannot go on.

Walter C. Eells, writing in 1931, observed that prior to 1925, not a single course on the junior college had been offered in any American university. In the short period between Koos' study in 1925 and Eells' book in 1931, a course on the junior college had been taught in at least 20 universities with a total class enrollment exceeding 900 students.

Walter Crosby Eells was a Professor of Education in the School of Education at the Leland Stanford Junior University and Editor of the Junior College Journal. Eells quoted the definition of a junior college as adopted by the American Association of Junior Colleges at its second annual meeting at Memphis, Tennessee, in 1922: "The junior college is an institution offering two years of instruction of strictly collegiate grade" (25, p. 25). He went on to establish several methods of classifying junior colleges. The report indicated that in 1930, at least 450 junior colleges enrolled 69,497 students, averaging approximately 162 per institution. All but five states were found to have junior colleges, California and Texas leading with 49 and 47 institutions, respectively.

Jesse Parker Bogue, as Executive Secretary of the American Association of Junior Colleges in 1950 set out to write what became a much-used text for most contemporary leaders of the movement.

However, it is of interest to note that he entitled his book The Community College. He also authored a previous book called the American Junior College in 1940, with a second edition printed in 1948. Over 12,000 copies were sold of these two editions. Bogue gave as his reason for the change in titles from "junior" to "community" college that "community" more accurately described the essential functions and objectives of the movement.

Bogue pointed out that three years after the original definition of a junior college was made in 1922, the American Association of Junior Colleges took a significant change of position. He then states:

> The junior college is an institution offering two years of instruction of strictly collegiate grade. This curriculum may include those courses usually offered in the first two years of the four-year colleges; in which case these courses must be identical, in scope and thoroughness, with corresponding courses of the standard four-year college. The junior college may, and is likely to, develop a different type of curriculum suited to the larger and ever-changing civil, social, religious, and vocational needs of the entire community in which the college is located. It is understood that in this case, also, the work offered shall be on a level appropriate for high school graduates (10, p. xvii).

Bogue states, "Essentially there are two types of two-year colleges, independent and the community." Of the 322 privately controlled two-year colleges in the United States in 1949, 180 were affiliated with religious bodies, 108 were operated on a nonprofit basis with independent boards of trustees, and 34 were classified as proprietary. These institutions were not considered as community colleges

even though many were performing practically all of the functions of a community institution. The community college is usually supported at public expense and is not necessarily operating exclusively in the community area. Students are frequently drawn from distances far beyond commuting range, even from out of state. In addition to public support, the community college is usually under public control.

Higher education leaders in the late 1940's were becoming concerned with the rapid growth of the community colleges. The following proposal was made by President Conant in the Harvard University Press:

> Those institutions which are now coming to be called 'community colleges' offer the best hope of meeting the postwar surge for vast expansion of education beyond the high school. They likewise can serve most effectively as centers for adult education. Their curricula should combine general education and vocational training, and they should be defined as terminal two-year colleges. By and large, the educational road should fork at the end of the high school, though an occasional transfer of a student from a two-year college to a university should not be barred (10, p. 32).

Community College Terminal Education

The American Association of Junior Colleges had long been aware of its responsibilities for assuming leadership in the field of terminal education. This phrase identifies the type of education program which includes both general education and occupational training and is designed to meet the needs of those students who complete

their education soon after high school graduation. As a result, in 1939, the Association arranged with the General Education Board of New York City for the financing of a special study on "terminal education," which was inaugurated on January 1, 1940, and was carried on for five years by the Administrative Committee for the Commission on Terminal Education. Dr. Walter C. Eells, Executive Secretary of the Association, conducted the study which provided the data for several books.

John A. Sexson (101, p. 273) writes that the junior college, when first established, was branded largely with the function of preparation for college. The enrollees in the early junior colleges were predominately prepared for futher university work. He observes that "in the heart of the depression after 1929, students flocked to the junior colleges who were ill-adapted to university preparatory work." Terminal curriculums were rapidly developed, and shortly the enrollment in these courses was reported to have exceeded those enrolled in university preparatory courses.

The University of Chicago organized an institute for Administrative Officers of Higher Education in 1942. A workshop on Junior College Terminal Education was being held concurrently with Professor Leonard V. Koos on the campus. He was asked to have several of his students present papers to the institute. All the papers presented were published and provide an excellent reference on the

was the development of terminal curriculums that could enlist and hold the interest of the students. Discontent was not caused by a student dislike for the courses so much as by the attitude of the general public, the student body, and even the faculty. The student and the public had the feeling that university preparatory courses were the only real college courses. If a student was not enrolled in this curriculum it was the "consensus that he had something to explain." He criticized the practice of "picking a course from here and there to make a curriculum which really had no cohesiveness." Many vocational terminal courses exist only in the college catalog. He used several examples to prove his point and hit squarely upon a serious problem usually perpetuated by the college president who is reluctant to employ a professionally trained administrator to supervise and develop meaningful technical vocational education.

Diekhoff (22, p. 113), in discussing the advocates of two-year college vocational programs, suggests, "They do not understand, generally, that the greatest contribution even of job-training programs lies in the general education that accompanies or is part of them." He states later that the college that establishes job-training courses is under obligation to see that its training is not wasted.

> It must provide careful vocational counseling, of course. It must have an efficient placement bureau. It must establish the closest liaison and the most cordial relations with the local labor organizations and local industry. Above all, it must know what it is doing; it must anticipate

> the needs of local industry. It must conduct continuous scientific surveys of employment opportunities in the community and in the community at large (22, p. 114).

Vocational Education of College Grade

Many community (junior) colleges operated by secondary education school districts were classified as secondary education for purposes of utilizing funds made available for specific vocational education programs. One of the stipulations of the Smith-Hughes Act of 1917 was that funds were to be used for vocational education "of less than college grade." In 1946, the staff of the Division of Higher Education in the U.S. Office of Education assumed responsibility for preparing a report dealing with the question of vocational education of college grade. The staff found it necessary to use three phrases in the report to designate types of programs and gave them the following meanings:

> Vocational education of less-than-college grade, meaning that area of training which does not require the maturity and breadth of understanding and knowledge customarily identified with higher education;
>
> Vocational education of college grade, meaning that area of training exclusive of professional education characterized by the intellectual requirements, breadth of understanding and knowledge customarily found in college curricula and carried on in an institution which requires for admission of its regular students high-school graduation or its equivalent;
>
> Professional education, meaning that area of education involving a curriculum in college or university leading to a baccalaureate or professional degree which prepares for the practice of a profession (119, p. 2).

After an extensive study of the occupational needs indicating a need for higher level of education for vocations, after obtaining expressions of needs of industry for persons of college-grade vocational training, and after a study of the life span of population and other factors affecting vocational programs of post secondary school youth, the staff found three general conclusions to be reasonably valid:

> The youth of tomorrow must expect, in increasing proportion, to take his specialized vocational training after the high school, rather than after the grammar or junior high school, since the substantial majority of his fellows will be high-school graduates. This development is in many ways comparable to that which has occurred in the professions during the past 50 years. As occupational and educational standards are raised, the necessary general basis for vocational training will continue to grow away from the elementary school.
>
> Greatly increased numbers of students seeking to enter college in the future cannot expect to find places in the professional schools alone since large numbers of graduates of many of these schools can hardly be absorbed.
>
> Colleges and universities, junior colleges, technical institutes, and related preparatory agencies must increasingly provide vocational programs to meet the growing needs of youth. These programs must produce vocationally competent graduates and at the same time provide them with adequate social knowledge involving college-grade instruction (119, p. 27).

Curriculum Developments by Community Colleges

Clifford G. Erickson (38) provided an excellent description of the guidelines used in curriculum development at the Chicago City Junior College. This article, and one by President Basil H. Peterson

of Orange Coast College (92), were chosen to be included in the fifth Occasional Report sponsored by the Junior College Leadership Program, one of the Kellogg foundation centers. Both articles give good general descriptions of how the total community college offering was established, how it grew, and what some of its strengths and weaknesses are. Peterson outlined the steps that are followed in curriculum development:

1. Determining periodically the educational and occupational needs of the area,
2. Utilizing citizen advisory committees,
3. Maintaining continuously a faculty-administration curriculum committee,
4. Regarding curriculum development as a continuous process,
5. Obtaining board of trustess approval for all curriculum changes.

He reported the direction and coordination of the curriculum construction program is the responsibility of the curriculum committee, under the leadership of the vice president. Some of the procedures outlined by Peterson are typical of many community colleges and therefore, are quoted here as an example to be used in the review of data obtained in the study questionnaires (Chapters III, IV, and V).

Approval of New Courses and Curriculum

1. The approval of new course and curricula requires:

a. Recommendation by one of the divisions of instruction of the college. (Adult education is considered a division of instruction in this regard).
b. Approval by curriculum committee (12-member representative committee, three representatives appointed by Faculty Association).
c. Approval by district superintendent.
d. Approval by board of trustees.
e. Approval by State Department of Education.

2. Recommendations from Divisions of Instruction for new courses or curriculums should include the following information:

   a. Title of course to be added or changed.
   b. Course description and general content.
   c. Unit value.
   d. Total number of hours class to meet and recommended number of hours per week.
   e. Need for the course.
   f. Manner in which the course would contribute to educational objectives of the college.
   g. Manner in which course satisfies state standards and criteria.

3. The curriculum committee should use the following criteria in arriving at decisions regarding the approval of courses:

   a. Educational value.
      1) Courses should contribute to one or more of the objectives of the college as set forth in the catalogue.
      2) Courses should be of value to students as a general or a vocational curriculum, offering real possibilities of employment for the graduate of a transfer curriculum or a worthy specialized interest.
      3) Courses should be of collegiate level, but not of upper division level. Required high school make-up courses and remedial courses should also be taught in a manner appropriate to college students.
      4) Courses should be properly catalogued as to number, unit value, etc.
   b. Relation to total program of the college.
      1) The importance of the proposed course in

relation to other possible additions.
2) The likelihood of adequate student demand.
3) The degree of overlapping with existing courses.
4) The degree of competition with other classes.

4. In considering recommendations regarding new courses or curriculums, the district superintendent should keep the following considerations in mind:

   a. Availability of sufficient funds to finance proposed course or curriculum.
   b. Evidence of sufficient enrollment to warrant offering this course or curriculum.
   c. Accordance of the course with the purposes and basic philosophy of the college.
   d. Ability of the course to meet state standards and criteria.

Final approval of courses or curriculums rests with the board of trustees. The board of trustees will authorize the offering of courses or curriculums through formal action at a regular board meeting. Such action will be based upon evidence and recommendations presented by the district superintendent.

Developments in Oregon

Vocational Education Begins

Since the National Vocational Education Act, better known as the Smith-Hughes Act of 1917, Oregon has emphasized post high school vocational programs. This act stipulated that funds would be provided only to those states whose legislature met in 1917, made provisions of their own for vocational education, and accepted the federal offer (78, p. 7).

The Oregon legislature adjourned early in 1917 without taking action on the matter. At the request of the State

> Superintendent of Public Instruction, Oregon's delegates in Congress secured an amendment to the Smith-Hughes Act allowing local school boards to match the federal appropriations. Following this action, Governor Withycombe created a state board of vocational education. High schools in Eugene, Portland, Pendleton, The Dalles, and Salem raised matching money for programs covering several areas of vocational technical training. In 1919, when the Oregon legislature passed a bill accepting the requirements of the federal act, the state took a formal step in recognizing trade and industrial education as a responsibility of public education.

Legislative Actions

Early in 1925, a bill was introduced into the Oregon State Legislature that would have permitted establishment of public junior colleges in school districts of 300 students in grades nine through twelve which had an assessed property valuation of $4 million. The bill failed to pass, and in 1927, Senator Roberts of The Dalles introduced a bill that would have divided the State into 13 junior college districts. Support for the colleges was to come entirely from local taxes. This bill also failed to pass.

During the 1930's, studies were conducted to determine the need for area vocational schools in The Dalles, Eugene, Portland, and Grants Pass. The Eugene Public Schools started the first area vocational school in 1938. This institution has been in continuous operation since that time and has recently become a part of the new Lane Community College.

The Oregon legislature passed the Regional Vocational School Act in 1941, permitting post high school vocational education. However, it provided no state aid for the schools. Under this act, the Oregon Vocational School (now Oregon Technical Institute) was formed in 1947 and the Oregon City Vocational School in 1949. Other post high school vocational programs were started by local school districts in Eugene, Salem, Coos Bay, Pendleton, Portland, Bend, and Astoria.

The Dunn Bill was passed in 1949 by the Oregon state legislature and authorized school district boards to contract with the State System of Higher Education for lower division classes. No provision was made in this bill for technical vocational education, and no funds were provided. Baker, Bend, and Klamath Falls began classes under the provisions of the bill in the fall of 1949. Baker closed its operation after the first term; Klamath Falls closed down at the end of the first year; and Bend continued to operate under this legislation until 1957. The Bend program is now a major part of Central Oregon Community College.

Interim Committee Studies

The Oregon legislature created an interim committee in 1949 and began the first of a series of studies of post high school (community college) needs in Oregon. Dr. Leonard V. Koos was employed to

direct the study. His results were published in 1950 outlining his philosophy of post high school education within local communities (78, p. 16).

Koos proposed the establishment of tuition-free, partly state-supported, community colleges which would be made part of the local school system on a 6-4-4 plan. Elementary education would be covered by the first six years, with a four-year high school which would include the seventh and eighth grades, and a four-year community college which would include the eleventh and twelfth grades combined with the first two collegiate years. Community college legislation passed during the 1951 session was based on Koos's findings but eliminated several of his recommendations. This legislation was designed for lower division transfer work only, and the 1941 Regional Vocational School Act remained as the legal provision for post high school technical vocational work. To be eligible for a community college, a district was required to have a true cash value of at least $20 million and at least 500 pupils in grades nine through twelve. This plan was not consistent with the thinking of the time and no schools were developed.

The Bend program operating under the Dunn Bill was growing to the place where state aid was needed. Interested persons from central Oregon introduced legislation specifically for their institution in Bend. This bill passed in the House and was defeated by the Senate

by a narrow margin. This action generated a good deal of interest in the problem and another interim study committee was named in 1956. The committee consisted of a representative cross section of all educational interests in the state. It made the following recommendations to the 1957 legislative assembly:

(a) Junior colleges should be an extension of the public school system, administered and financed by local school districts with supplementary funds from the state.

(b) Junior colleges in Oregon should be defined and designated as community colleges, providing curriculums according to needs and demands of the community.

(c) Existing legislation should be amended to permit the organization of additional school districts for community college purposes only.

(d) Although the Dunn Bill should be repealed, school districts should still be able to contract with the State Department of Higher Education for the operating of lower division collegiate courses, with the reservation that such contracts would terminate at the end of five years, at which time the district would have to meet the statutory provisions for a community college district if it wished to continue offering lower division collegiate courses.

(e) The law should be amended to allow a school district operating a community college and enrolling a resident of Oregon but not of the community college district to charge the school district in which the student legally resides for the difference between the per capita college operating cost and the tuition received from the nonresident student (78, p. 9).

The suggestions made by this committee were implemented in 1957 by amendment of the 1951 act. The Bend school remained as

the only community college because the procedure for creating separate community college districts was still awkward.

The Flesher Study

Two other interim studies were set up by the 1957 legislature. One was conducted by Dr. W.R. Flesher of Ohio State University's Bureau of Educational Research and Service (40), and the other by the legislative interim committee. Both groups proposed that "service area" districts be established for community college purposes and be defined solely by the natural geographic areas of the state. These areas would be superimposed over existing school districts. The Portland metropolitan areas were to be the only exception. Dr. Flesher proposed using the term "educational centers" to refer to the community college administrative districts and recommended dividing the state into seven such "educational centers." Flesher recommended combining the vocational education programs, lower division transfer courses, general education, and general adult education to make up the total offering by these centers. The interim committee recommended that individual areas initiate or create the administrative district for a community college.

The work of Flesher and the interim committee led to the passage of a completely new "area educational district" or community college law. The 1959 law repealed the old 1951 community college

law, as well as the Regional Vocational School Act of 1941. State aid was provided for lower division transfer courses only, and schools without this offering were to be called "area educational districts." During this period, several areas were providing the basic functions of a community college within the framework of a local school district by contracting with the Division of Continuing Education for the lower division courses. Bend remained the only school to operate under the law during the following biennium (78, p. 10).

Community Colleges Emerge

In 1961, the legislature amended the 1959 law and gave Oregon its present community college law. It has been amended at every meeting of the legislature since. State funds have been provided for all types of enrollment with building construction and equipment aid included (77, p. 153). One feature that has helped the expansion of technical vocational education was additional financial support given for programs of this type over the basic formula of $433 per full-time equivalent student for the total enrollment.

Technical Education Studies in Oregon

In 1957, the Oregon Vocational Association made a preliminary study and proposed the development of 14 regional vocational schools (87, p. 4). This proposal helped get the Flesher study started and

resulted in a more specific state-wide survey of need for technicians in Oregon. A preliminary report was made of the findings by the State Supervisor of Trade and Industrial Education, William G. Loomis, in March of 1959 (81).

Nationally, a good deal was being done to promote expansion of technician training, and the Oregon survey of need in this area was very timely. Loomis (81, p. 3) states that the primary objective of the survey was to obtain information on which to base further developments for technician training through the public schools of Oregon. More specifically, the study was designed to determine the following:

1. The number of technicians employed in selected industry groups in Oregon and the occupations in which they are employed,
2. The annual number of new entrants needed for these technical occupations in the industries concerned and the estimated number to be trained in public post high school programs,
3. The need for extension instruction for those already employed in these occupations who could advance to technician jobs as a result of such training, and
4. The duties, responsibilities, and educational requirements of technicians employed in these occupations.

The findings in the Oregon survey of technician needs indicated considerable employer interest in expanded training opportunities for pre-employment and extension courses. The survey was limited to a study of engineering and industrial employment. The technicians needed for other types of technical employment such as in the fields

of accounting, business management, real estate, banking, insurance, merchandising, agriculture, food service, health services and public employment were omitted. The more specific findings are understandably limited in this regard. Since this study represents a beginning for the expansion of technical education through the public schools of Oregon, a summary of the findings of this study has been included (87). These findings are as follows:

1. The estimated total number of technicians employed in 1957 in the industires included in the survey was 14, 364. These technicians were employed in nearly all areas of heaviest concentration in the Portland area.
2. The number of technicians employed in Oregon industry was increasing much more rapidly than the total industrial employment. Employers contacted estimated that from 1957 to 1960 technician employment would be increased by 13. 9 percent as contrasted to 5. 7 percent for total employment.
3. Approximately 700 technicians were needed each year to replace those who drop out because of death, retirement, or change of occupation, based on five percent annual replacement rate. In addition, about an equal number would be required to provide for the increase in the number of technical jobs if the anticipated rate of increase is maintained.
4. There was a great need for programs of technical education which would provide opportunities for employed persons to qualify for various levels of technical jobs or through evening or part-time classes. The two main categories of these employed persons were:
    a. Employed technicians who can improve their skills and technical knowledge and thus be better qualified for their present jobs or qualify for higher technical jobs.

b. Other employed persons who can qualify for technical jobs by acquiring the necessary knowledge and skills. It is common practice in industry to fill technical jobs by upgrading other employees.

5. Many technical occupations require considerable background and experience in the skilled trades. Skilled craftsmen can qualify for these occupations through an organized program of technical training either as full-time students or as part-time students in evening classes.

6. Most technical occupations found in the survey involve supervisory responsibilities to a varying extent. Approximately forty percent of the estimated 14, 364 technicians employed in the industries studies were serving in a supervisory capacity.

7. While there is a great deal of variation in the specific duties and job requirements of technical occupations in different firms, most of the occupations can be logically classified into a limited number of groups having sufficiently similar requirements for educational purposes. Ten such occupational groups cover approximately eighty-seven percent of the technicians employed in the industries surveyed.

8. Some organized in-plant training for technicians was provided by twenty-eight of the firms contacted. Nineteen of these twenty-eight firms, however, indicated a specific need for additional training through evening classes.

9. A large majority of the employers contacted were in favor of providing pre-job post high school technician training through the public schools. They were willing to cooperate in such a program by having representatives serve on advisory committees and would be willing to employ graduates of such programs.

Post High School Technical Vocational Education in Oregon

Technical vocational education is made available in Oregon principally through proprietary (private) vocational schools,

apprentice training programs, community colleges, and state system institutions. Of these four, the community colleges are emerging as the institutions most likely to provide the bulk of the training (86, p. 114).

Oregon Technical Institute (OTI) is the one single-purpose institution in the State System of Higher Education charged with the responsibility for developing and maintaining sub-baccalaureate technical educational programs. Reference is made to this responsibility of O.T.I. in the 1965-66 institute catalog which says:

> Oregon Technical Institute is a polytechnic college with comprehensive coverage serving the State of Oregon principally in the areas of engineering technology, business technology, science technology, medical and dental technology, and certain other specialty fields. Its curricular programs complement the offerings of the other institutions in the system of higher education and supplement many of the offerings of the various community colleges of the state.
>
> The philosophy of the technical institute is that for every young person who has the capacity, incentive, and resources to pursue technological education to a bachelor's or more advanced degree, there are the many who have the right capacities, interest, and aptitudes to develop productive and rewarding careers in the expanding realm of applied science and in the technologies which neither require nor justify four or more years of collegiate study.

Oregon Technical Institute is accredited by the Northwest Association of Secondary and Higher Schools as a specialized school (86, p. 117). The Institute has sought continuously to upgrade its programs, its staff, and its facilities.

The limitation of Oregon Technical Institute to sub-baccalaureate

technical programs began when the legislature placed it in the State System of Higher Education in 1960. The State System Board, on January 24-25, 1966, extended Oregon Technical Institute's curricular allocation to include programs leading to the Bachelor of Technology degree, effective 1966-67 in the case of medical laboratory technology (86, p. 119). In taking this action to expand Oregon Technical Institute's curricular allocation, the State Board expressed its expectations that:

> ...OTI would continue to offer two- and three-year programs for the preparation of technicians. These programs would be expected to continue to serve the interest of, among others, that large group of youngsters who are largely forgotten in American post-high school education, namely those who, though they lack high verbal skill, yet are possessed of other abilities which permit them to excel in technical education and as technicians in industry.

Curriculums with technical orientation have been offered at Oregon State University for many years. New additions include civil engineering technology, mechanical engineering technology, and electric power technology. These and others offered by the University are baccalaureate degree programs. These programs are terminal in character in that they are not intended to provide a base upon which graduate work may be built (86, p. 123).

The community colleges of Oregon will be expected to play an increasingly important role in providing technical vocational education because the Post High School Study Committee, in its report,

(86, p. 123) estimates that community colleges in Oregon will continue to offer a wide variety of occupational curriculums and courses. Some overlap is anticipated with the offering at Oregon Technical Institute and Oregon State University as well as the private schools. This is expected by the committee, and this "Likely duplication of sub-baccalaureate technology programs in certain fields...ought not to be a source of concern, provided the enrollment in the community college programs justifies the investment" (86, p. 24)

Master Plan for Technical Vocational Education in Oregon

Many states have surely considered the need for a master plan for the development of occupational education in the community colleges. The writer has been convinced that probably no state has pursued this idea more fully than Oregon. Local and state-wide studies completed in recent years are so numerous it would seem no additional research may be needed. Yet, officials in the Oregon State Department of Education are currently considering the idea of making a study that will in the final analysis become a master plan for the development of occupational education for the state. The content of this plan is given here simply to illustrate how far one state department of education is prepared to go to be of service to the community colleges of its state. Suggested content of this plan includes:

The Mission of the Community College in Oregon

Present-day objectives of the community college and how they have evolved over the years.

The Role of the Community College in the Total State Pattern of Education

Relationships of the community college to higher educational institutions with particular respect to transfer curriculums. The total function as including full time day programs, and evening and other adult education programs; and occupational education programs of different types as well as college transfer programs. Broad allocations of responsibilities for occupational education programs in the community college as compared with the high school and the area vocational-technical school or skill centers.

The Developing Community Colleges in Oregon

An overview of the present status of community colleges in the state and how they have been developed. Legislation affecting the community college. Origins in temporary quarters, new campus locations, progress in campus development. Curriculum offerings, enrollments, graduates. Enrollment of graduates in four-year colleges. Numbers and proportions of high school graduates enrolling in community colleges. Geographic locations and plans for state-wide expansion.

Higher Education in Oregon

A summary of the over-all facilities for higher education in the State, including the present status, plans for changes and expansion, and the allocation of responsibilities for various types of programs among the various types of institutions. Present enrollments and projections.

Public School Statistics--Present and Projected

School enrollments and projections by counties or other pertinent units; trends in enrollments; attrition in high schools. Trends in post high school enrollments and

types of institutions attended; employment follow-up of high school graduates. Occupational choices of students in relation to abilities. Trends in occupational and practical arts curriculum.

Current Status of Occupational Education in the State and Directions in Which it Appears to be Moving.

A summary of present types of occupational education programs, with respect to curriculums offered; post high school and high school program enrollments; evening, adult, and part-time curriculums and enrollments; geographical location of curriculums; trends in present programs and plans for expansion. State Education Department organization and operation with respect to occupational education. Occupational teacher education program.

Occupational Curriculum Offerings in Oregon Community Colleges.

Present and proposed occupational curriculum offerings in each community college, by curriculums and by occupational fields; enrollments in full-time and part-time programs; attrition in 2-year programs; percentage of total population enrolled; enrollments compared with high school population and high school graduates.

Economic Trends in Oregon.

Present economic development of the State in basic occupational fields; trends in basic industries, such as manufacturing, agriculture, highway and other construction, lumbering and wood products, commerce, etc. Growth in research and development service. Trends in medical and health services.

Oregon's Population--Present and Projected.

State and regional population trends and projections; changes in age distribution of the labor force, and of women in employment; population density; income patterns, by regions; ethnic patterns; educational characteristics of the population; in- and out-migration.

The Labor Force in Oregon.

Present and projected data on major aspects of the labor force; employment by occupational groups (professional, etc.), by industries, by specific occupations; geographical distribution of workers within the State; growth and decline of occupational groups; present employment and projections of numbers in specific occupations, including such fields as skilled craftsmen, technicians, office workers, etc. Detailed data are needed on which to base projections for occupational education programs for the years ahead. Impacts of technology.

Occupational Education Programs Compared with Labor Market Needs.

Estimated needs in specific fields (such as that for technicians) and present and projected occupational education programs in community colleges; statewide and regional labor market needs; curriculum offerings in regions of the state in relation to needs; uncovered areas.

Developing a State-wide Pattern of Community College Curriculum Offerings in Relation to the Needs of the State.

Pulling together a state-wide analysis of occupational needs, by regions of the state, for preemployment and occupational extension programs, in all pertinent occupational fields; planning a state-wide program of needed curriculum offerings in addition to those now available; planning the facilities required for offering the needed educational services (79).

Additional data needed for overall planning:

Requirements for sites, plant, and equipment,

Capital outlay and operating costs for additional programs,

Financing of programs,

Role of the State Education Department and of the local community,

Issues faced by community colleges in the development of

occupational education programs and how these may be met.

Issues in Community College Technical Vocational Education

All of the issues of any consequence concerning occupational education offered at the community college level relate to one basic problem and three concomitant issues. The problem simply stated questions the responsibility of the community college for this type of education. Three issues surrounding the problem are based on past, present, and future prospects of this institution to produce results. The issues are: 1) Should community colleges provide technical vocational education, 2) Do the community colleges want, desire or have the will to produce technical vocational education, and 3) Can the community college produce technical vocational education.

The evidence is relatively abundant that the emphasis by the two-year college is on the transfer function. Leland L. Medsker suggests that some analysis of the situation should be made with either an evaluation of the curriculums offered or the claims made for the institution (70, p. 112).

> It is obvious from the data presented that the two-year college in America is focused more on the transfer than the terminal function. If, then, the institution is adjudged unique solely on the basis of its special services to students who do not transfer, it fails to measure up.

Grant Venn found the American junior colleges, "taken as a

whole," did not give proper attention to the occupational phase described in their objectives (132, p. 88).

Robert L. McKee, (68) made a study of how well the community colleges were doing in technical vocational education and made the following observations:

> There is a growing feeling that community colleges are the most likely institutions to do the occupational training of the work force in America. In order to accomplish this, their occupational programs will have to increase at a much faster rate than they have in the past. Occupational education will need to be made equal in importance with academic transfer education. A few community colleges have been able to accomplish this by creating the 'special climate' needed for growth in this segment of American education.

McKee reported that he visited over 100 community colleges and found very few developing or maintaining occupational education programs reflecting the needs of 80 percent of the communities' youth who will not graduate from a four-year college. He states that "most students who attend community colleges take an academic transfer course for prestige purposes because it is the 'thing to do'; it is very hard to redirect them into occupational programs." McKee concludes that if junior colleges are going to become community colleges they must offer, in addition to the prestige technical courses, a broad offering of trade and occupational programs that represent the largest segment of community needs (68, p. 6).

W.H. Ferry (39) believes the community college is no place for

technical vocational education. He told a group attending a regional conference of the California Junior College Association in 1965 that he recommended two types of action be taken by the group. 1) that the junior colleges take the initiative in persuading the legislature to remove their statutory obligations to provide technical vocational training; and 2) that junior colleges advocate the establishment of a system of regional technical vocational institutes and assist in planning for them. He states, "The argument is not that technical training should be abandoned, but rather such training ought to be conducted in single-purpose institutions." His position became more clearly seen when he stated,

> Why should time be spent in preparing for work that will not be needed, or to fill jobs that will occupy only a few hours a week? Time should not be spent in technical education during the few years that most citizens engage in formal schooling. This time is needed to learn what the service of humanity means and the standards for regulating technology to provide that service... Technical training, whatever its value may be in the job market, has a low priority in education for the more and more demanding exercise of self government.

Ferry goes on to claim that technical vocational training offered in the high school or junior college is not keeping up with the ever-changing demands of the consumers of this kind of training and is usually "too little and too late."

Technical Vocational Education Belongs in the Community College

A major difficulty in planning the technical vocational program is related to the reasons contributing to the decline of vocational education at the secondary level. Rapidly changing mechanization and automation demand more than skills. Further, it is costly to duplicate the highly intricate and expensive machines and techniques employed by industry. Likewise, the critics should examine the record more closely, they should not be too quick to condemn the two-year college for not emphasizing the technical vocational function but rather consider the societal and cultural values that account for this situation. Medsker concluded,

> In the final analysis it would seem that if training for middle level occupations is to be even more important in the future than it has been in the past, the two-year college, and particularly the community college should continue to be the logical agency to do the training.

H. A. Hoeglund, in his statements of belief about the various aspects of the community college offering, states that,

> I believe that specialized training skills belong to education beyond the high school and that secondary education should comprise that general education which embodies the foundation subjects for later semiprofessional and professional training in the skills (55, p. 438).

He gave the following reasons for this belief:

> The mediocre or mentally low calibered high school student should not be shunted into the vocational courses to make these a dumping ground of mental rejects. Instead, he should be taking courses appropriate for his level of

> mentality and conducive to upgrading toward higher levels of mental achievement.
>
> Training for vocational technical occupations involves modern technology--nuclear energy, electronics, automation. The simpler vocabulary of such training includes, in part, air suspension, torsionaire, turbo-jet, cyclotron, betatron, hi-fi ultra-high frequency, univac, cinemascope, ICBM, penicillin, auromyecin, rayon, orlon, dacron, acrilan. The vocabulary no longer includes horsepower. It is megatons of energy. In the past forty years we have gone from lamplight to satellite.
>
> Training for vocational technical occupations involves expensive equipment which cannot be afforded in the high schools throughout the country. Therefore, vocational centers should be located for such training, involving junior colleges and technical institutes.
>
> For such training the readiness factor is important. In the training center beyond the high school the maturity of the student is the chief motivating factor. He has reached a level of maturity sufficient for him to know what he is capable of doing and why he is doing what he is doing, and this involves his livelihood--his future life and happiness.

Kinzer believes the community college is best equipped to develop flexible programs which are readily adaptable to technological change. He reported that "opportunities to develop imaginative semi-professional programs have recently been extended to junior colleges by the W. E. Kellogg Foundation" (59, p. 19). The Foundation decision to make available $1 million to two-year institutions for promising programs was announced in the March, 1964, issue of the Junior College Journal.

In conclusion, a recommendation made by Venn seems appropriate:

> The two-year colleges in America, if they are to assume

> their proper and effective role in the educational system of the nation, should make vocational and technical education programs a major part of their mission and a fundamental institutional objective.

Who Should Educate the Technician

Technical vocational education programs are found in many types of higher education institutions. This fact is made clear in the first Technical Education Yearbook published in 1963-64 by the Prakken Publishers, Inc., Ann Arbor, Michigan (104). This publication provided a directory of institutions offering technician training which included vocational technical schools, technical institutes, community and junior colleges, colleges and universities, and various evening schools.

Theodore Schuchat, a Washington correspondent, states that over the years there has developed a split in the ranks of education as to who will educate the technician and who will control the federal funds appropriated for this purpose. Consequently, several definitions have emerged. He describes the culmination of much of the fight for federal funds in 1963. The National Defense Education Act of 1958 placed $15 million in the hands of vocational educators to produce "training of highly skilled technicians." Post high school educators were convinced that technician education should be available only at college level (104, p. 51). This fight over funds has caused a great

deal of confusion over this type of education.

The literature reveals that for many years various institutions and organizations have debated the question of who can best educate the technician. Each agency or institution wants freedom in developing curriculums designed to produce a "technician." Educators, it seems, have devised many definitions best suited to the characteristics of their insitutions. Confusion is the most appropriate term to describe the situation. A lack of agreement on a common all-inclusive definition has caused considerable "taking of sides" over the issue (104, p. 3).

Technical Vocational Education Defined

"Technical Education" is used synonymously with "Vocational Education" in many countries of the world. It is not a standardized term in our own country (103, p. 175). Harris (51, p. 22) defines vocational education in the generic sense as:

> Education and training the purpose of which is the preparation of students for employment or for a career--as distinguished from the liberal arts and the humanities in which emphasis is intellectual and nonutilitarian, a program of education offered at any level which is designed to acquaint the learner with the necessary learning prerequisite to successful entrance and ability to progress in the world of work.

Office of Education Bulletin number one (76, p. 11) describes vocational education for the purpose of the federal acts as a program

of instruction that

> ...must be designed to fit for useful employment, and must be especially and particularly in an occupational field. Subjects which are of general educational nature and not directed toward any specific occupational field would not be considered vocational in this sense.

Technical education on the other hand has not been as well defined. The first Technician Education Yearbook, 1963-64, states in the foreward that the one obvious difficulty in preparing the volume was the matter of the definition of terms (19, p. 2). Schaefer and McCord suggest that educators seem to take delight in their diversity of opinion on the subject and believe that much time and effort have been lost in "taking sides" at state and national levels (19, p. 3).

Of those who have made substantial contributions to the clarification of the terms, the most notable has been the National Society of Professional Engineering which, in 1962, published a paper relative to the education of the engineering and scientific technician. Also in 1962, Dr. Lynn Emerson made a further attempt to clarify the term in his report to the Panel of Consultant on Vocational Education (33, p. 4-5). Harris (51, p. 21) believes the term is just beginning to acquire meaning in this country. There appears to be no "unanimously accepted definition of the term." He suggests that technical education is organized into two-year curriculums at the college level; emphasizes work in the field of science and mathematics and frequently, but not always, is related to industry and engineering; gives much

attention to technical knowledge and general education, but also stresses practice and skill in the use of tools and instruments; leads to competence in one of the technical occupations, and usually to the granting of an associate degree; includes a core of general education courses (English, humanistic-social studies, liberal arts) up to perhaps one-fourth of the total credit hours.

In the literature, it appears that technicians have been well defined if one confines his interest to either the engineering technician or the industrial technician. However, it appears that many occupations in the work force are just as technical, requiring similar training in scope and depth as either of these two.

The Office of Education (104, p. 4) has developed the following broad description of the technician:

> A general term applied to an individual who assists with technical details in a trade or profession. Uses tools, instruments, and/or special devices to design, illustrate, fabricate, maintain, operate, and test objects, materials, or equipment. Performs mathematical and scientific operations reporting on and/or carrying out a prescribed action in relation to them. Examines and evaluates plans, designs, and dates; determines action to be taken on the basis of analysis; assists in determining or interpreting work procedures and maintaining harmonious relations among groups of workers.

This definition was used in the allocation of funds for National Defense Education technician training programs and is much too specific to include all technical vocational curriculums in the community college.

A workable definition is suggested by Harris (51, p. 21) who is willing to include other occupational areas, which he calls "middle manpower jobs" and describes in this way:

> Semiprofessional education is more organized in college-level curriculums of two or more years in length, leading to an associate degree, and designed to prepare the student for employment in one of several fields recognized as nearly professional in status. Examples of semiprofessional jobs are registered (bedside) nurse, private secretary, research assistant, architectural draftsman, medical technician, engineering technician, surveyor, business data processing technician.

Harris concludes that the necessity for several levels of technical education has caused some confusion and controversy over the quality of the programs. The confusion is common among students, parents, and employers, while the controversy occurs largely among educators.

Trends in Technical Vocational Education

Lynn A. Emerson, mentioned earlier in this study as an authority in technical education, is the single source of information on trends in the field. Every book or report on a regional conference, seminar, speech, article, or paper on the subject of forecasting the future in technical vocational education is authored by Emerson or refers to him as the source (29, 30, 31, 32, 35, 37).

Emerson has based all his predictions on the assumptions that 1) population increases will continue along the same general pattern

as in the 1950-60 period, 2) no major recession will occur, and 3) technological change will continue to accelerate. While he elaborates on each of these predictions at great length and shifts show up from article to article, only a summary of each is presented here. The following predictions are those of Emerson:

Automation, new breakthroughs in science, and other technological change will continue to increase the type and number of technicians;

Changing geography of American industry will expand the need for technicians in new areas of the nation. Aerospace and federal government research facilities will cause rapid developments;

The annual demand for technicians will reach approximately 70,000 by 1960 based on a ratio of technicians to engineers of .7 to 1. A more desirable ratio of 2 to 1 would increase this to nearly 200,000 annually;

Substantial amounts of federal funds are needed to stimulate an expansion of training facilities to produce the nation's needs in technical vocational education;

Technically trained personnel will come from schools, in-plant training programs, the armed services, and through upgrading employed workers through evening courses. The large bulk will need to come from youth who prepare

themselves in technical vocational training programs;

The age and grade levels at which training is offered will continue to rise, with most of such training being provided by post high school institutions;

Technical education will continue under a variety of administrative patterns--private technical institutes, engineering colleges, area vocational schools, and community colleges;

Enrollments in private institutes will probably not increase as rapidly as in publicly supported institutions;

Engineering schools will expand their technician training programs;

Area vocational school technical offerings will probably expand rapidly;

Administrative leadership in many institutions will need to become aware of the problems and how to deal with them in the development of high level technical training programs;

The community colleges will continue to develop training programs for technicians. This type of institution appears to be the most promising type to provide the numbers of technicians needed in all occupational fields;

The extent to which the community college will contribute to technician training will depend largely on how well the leaders of these institutions come to understand the problems

and deal effectively with them;

State and local occupational surveys will continue to be used for determining curriculum offerings;

Increasing consideration will be given to the development of state-wide master plans for technical education;

Technical curriculum offerings will be widened. When compared with employment needs, the curriculum may cut across the major occupational categories--such as technical sales, technical secretarial work, agri-business;

There will be a trend toward standardization of technical curriculums that prepare for occupations of national scope;

There will be more high school programs designed to provide a pre-college introduction to technical education;

Qualified teachers in technical vocational education will continue to be in short supply;

Technical teacher-training programs will be developed in sections of the nation not now served by such programs;

Women will be enrolled in increasing numbers in certain types of technician training programs;

Cost of technical vocational education will continue to rise, both for capital outlay and operating costs;

Strenuous efforts will be needed to develop in high school counselors a true perspective toward the requirements and

rewards of technical occupations;

Competent full-time students will continue to be hard to recruit for the technical programs because of general lack of understanding;

The associate degree will increasingly be the credential granted to graduates of two-year programs with a certificate of completion awarded to shorter programs;

The "less than college grade" requirement in some of the major vocational education acts will be dropped;

Programs in technical education will not attain their maximum potential effectiveness because research in curriculum development is not keeping pace with the need; and

The many types of institutions and agencies concerned with technical education will continue the struggle for jurisdiction. Some steps will be taken to get various groups to work together (29, 30, 31, 32, 35, 37).

The Future of Technical Vocational Education

There has been considerable talk among public school vocational administrators regarding the failure of the public schools and colleges to produce adequate technical vocational offerings. Fears and forecasts of the educators are based on the use of federal funds to finance occupational education outside the public school structure.

Evidence to support the concerns of educators is building steadily year by year. The nature of this evidence is that our government is determined to provide large numbers of people the necessary education to enable them to obtain and hold jobs. It appears that unless the public schools are willing to make a greater effort to provide a majority of the students with occupational skills, the government will step into the picture and establish a new educational organization that will be controlled and operated by some other agency.

On January 23, 1967, a bill (S 584) was introduced to the 90th Congress, read twice, and referred to the Committee on Labor and Public Welfare (8). This bill, if enacted, would virtually transfer all current appropriations and authority for a number of federal projects to the Department of Labor. The new act would be named the "Manpower Services and Educational Opportunity Act." The transfer would include the activities and responsibilities of the Office of Economic Opportunity, including the Job Corps, Neighborhood Youth Corps, and other work experience programs of the Economic Opportunity Act of 1964. The new act would create Centers of Occupational Education and Training throughout the country, and this legislation would give the Secretary of Labor complete authority to establish, operate, and maintain these centers.

If this bill becomes operational, the following services and activities are proposed:

1. Educational courses equivalent to the two-year community college curriculums, and one-or two-year vocational or occupational training programs, designed to cover the widest possible range of technical and subprofessional skills;
2. Short training courses designed to develop or improve the skills of individuals unable or unwilling to complete formal education and training;
3. Adult education courses designed to assist individuals in preparing for vocational or occupational training;
4. Prevocational training for individuals who need such training to develop their capacities to choose an appropriate vocation;
5. Such other activities and services (including guidance, counseling, referral, and health training) as the Secretary deems appropriate for such Centers; and
6. Such other activities and services as the Secretary deems appropriate to carry out the purposes of this title.

Limitations of the proposed act suggest that no funds appropriated may be used for any such Center of Occupational Education and Training unless:

1. The State or local public agency or private nonprofit institution establishing, operating, or maintaining such Center will assure that such agency or institution will pay the non-Federal share, if any, of the cost of a program for such Center;
2. No tuition or other fees will be charged for individuals participating in any program offered by such Center;
3. No entrance requirements except enrollment and regular attendance will be imposed for such Center;
4. Such agency or institution will furnish such reports and follow such fund accounting procedures as the Secretary deems necessary;
5. Where practical and appropriate, residential facilities will be provided at such Center for such individuals as the Secretary determines cannot commute to

such Center; and

6. The activities and services of such Center will be coordinated to the extent possible with any programs of referral, guidance, counseling, training, and placement deemed appropriate by the Secretary, particularly programs for which such individuals may be eligible under the Act entitled 'An Act to provide for the establishment of a national employment system and for cooperation with the States in the promotion of such system, and for other purposes,' approved June 6, 1933, the Manpower Development and Training Act of 1963, the Smith-Hughes Vocational Education Act, the Vocation Education Act of 1946, the Vocational Education Act of 1963, the Economic Opportunity Act of 1964, and the Adult Education Act of 1966.

This "Manpower Services and Educational Opportunity Act" would in effect establish a completely new educational system, with facilities, staff, and control of nearly all occupational education in this country. The Act as presented to Congress culminates the efforts of the Department of Labor to take over and control all occupational education. Vocational educators have feared and forecast such a move by the Labor Department for years. If the public school adminstrators of America let this important phase of general education become isolated into a separate, federally controlled system of schools, they have failed to meet the challenge presented them. This challenge demands that vocational education be made a respectable component of the general education provided all students in the schools and colleges of the country.

Summary

This chapter on the review of the literature and related studies has traced the vocational education and community college movements in this country to show their parallel development related to technical vocational education. Legislative acts which support the development and expansion of technical vocational education have been discussed to show the concern and need for this type of education.

Developments in Oregon have been used to illustrate how one state reacted to the federal acts and responded to the vocational and community college movements. Master planning as contemplated by Oregon was detailed to show how one state department of education can help the community colleges determine occupational education needs.

The major issues in community college technical vocational education were shown to be focused on one basic problem. This problem, simply stated, questions the responsibility of the community college for this type of education. The issues were: 1) should community colleges provide technical vocational education, 2) do the community colleges want to produce technical vocational education, and 3) can the community colleges produce technical vocational education. Educational leaders believe the community colleges are the most logical institutions to develop technical vocational education.

They believe the community colleges can produce technical vocational education if the administrators will employ people who understand this kind of education to supervise and give direction to the programs. Whether the community colleges want or desire to have the technical vocational offering as a part of the college is still undecided. Past performance and current practices indicate the community college does not measure up to its claim that it is unique solely on the basis of its special services to students who do not transfer to the university.

One issue which has handicapped the development of technical vocational education has been the "less than college grade" factor in most federal acts supporting technical vocational education. This provision has created considerable debate over federal funds and created definitions of technical education suited to different types of institutions. There appears to be no unanimously accepted definition of the term. The confusion over who will educate the technician and control the federal funds has produced frustrations common among students, parents and employers, while the controversy occurs largely among educators.

Trends in technical vocational education indicate that, if the population continues to increase, no major recession occurs, and if technological change continues to accelerate, greater demands for technical education will require expansion of the community college

offering. Changes in the geography of American industry will create rapid developments, additional teachers, and expansion of teacher-training in new areas of the nation. It appears that the bulk of the technically trained personnel will come from youth who prepare themselves in technical vocational training programs.

Technical curriculum offerings will widen and cut across the major occupational categories--such as technical sales, technical secretarial work, agri-business, and the like. Women will enroll in technical programs in increased numbers, and full-time competent students will continue to be hard to recruit because of a lack of understanding of the programs. The most depressing trend indicates that many types of institutions will continue to be concerned with technical education and the struggle for jurisdiction of this type of education will continue.

If the struggle for jurisdiction becomes more than the public school educators can come to grips with, the major portion of occupational training will be channeled into a separate system of schools proposed by the Department of Labor. Such a move, if accomplished, would take the control and federal funds out of the public school and college framework and possibly prohibit the achievement of ever making general education truly general. This statement suggests that general education is a combination of academic and vocational education.

III. INFORMATION FROM AND OPINIONS OF COMMUNITY COLLEGE ADMINISTRATORS

The information from and opinions of community college administrators obtained by questionnaire are the substance of this chapter. The questionnaire form and a sample of the correspondence with the administrators are found in Appendix A. The data in table form are in Appendix B. The tables follow the same order as the description of data in this chapter.

Questionnaire items included in the chapter have been divided into six broad categories, 1) curriculums offered by community colleges, 2) enrollment in community colleges surveyed, 3) practices in curriculum development, 4) planning new technical vocational curriculums, 5) implementing new technical vocational curriculums, and 6) evaluating technical vocational education. A final statement is added regarding changes in curriculum development in the past five years.

Specific information on curriculums offered in 1962 and 1966 was asked for; this is thought to be a good indicator of the kind of offerings being developed by the community colleges. This information also provides a view of the growth and extent of the technical vocational offerings.

Enrollment data were requested for the past three years along with an estimate for the next three years. This kind of information

was considered a good indicator of the present status of technical vocational education as compared to the lower division transfer program.

Since current practices in curriculum development were significant to the study, more specific data were sought on formal requirements for curriculum approval, sources of curriculum materials, institutional procedures, resource personnel utilized, and the preference of administrators for the proper location for curriculum activities and materials.

In the construction of guidelines for planning new technical vocational curriculums, it was important to obtain data relative to appropriate criteria for planning. Community college administrators were asked to evaluate several criteria and suggest others used in the planning stages of curriculum development by their respective institutions. The time needed to implement a new technical vocational curriculum varies according to the activity. Several activities were suggested and the community college administrators were asked to suggest others and evaluate the time needed to perform each of the activities.

Evaluation of existing curriculums for updating or revising has long been considered a major requisite for a successful vocational program. Community college administrators were asked to evaluate the appropriateness of suggested criteria for use in the evaluation of technical vocational programs. These criteria are given a

mathematical value and ranked according to majority preference as a good indicator of a successful program of technical vocational education.

If curriculum development in technical vocational education is to keep pace with changes in society which affect curriculum, it is important to determine these changes. Each community college administrator was asked to outline the changes that had occurred in curriculum development procedures at his institution during the past few years. A summary of the most significant aspects of these changes is given.

Curriculums Offered by Community Colleges

A list of curriculum titles was taken from the Brunner study of Organized Occupational Curriculums in Higher Education published by the U.S. Office of Education in 1965. The community college administrators were asked to check this list against what their schools offered in 1962 and in 1966. Brunner had divided the list into two major groups: 1) engineering related curriculums with 57 titles and 2) nonengineering related curriculums with 102 titles (3).

This study found 52 of the engineering related curriculums offered in the 56 community colleges and 99 of the nonengineering related or 8 titles short of the Brunner list. Those not being offered either year were: airframe and powerplant mechanics, construction

technolgoy, environmental health and sanitary technology, optical technology, watch making, agricultural engineering, industrial agriculture and building materials merchandising. There were no new curriculums being offered that did not appear on the original list.

Curriculum Titles and Categories

The questionnaire asked each administrator to check the list and indicate which curriculum titles were being offered in 1962 and in 1966. Space was provided for titles omitted on the check list. Several titles were written in this space. However, in scoring this data it was found that all of these were actually on the original list. Brunner's list of curriculum titles and categories has been used in this study. A review of this classification will be helpful in the discussion of data and the findings in this study.

Engineering Related Technical Vocational Curriculums

Aeronautical Technology Curriculums

- Aircraft design or drafting
- Aircraft maintenance
- Airframe and power plant mechanics
- Airport operation and management
- Aviation technology
- Pilot technology

Architectural and Civil Technology

- Architectural technology
- Architectural specifications
- Civil technology
- Engineering technology (structural)

Building and Construction Technology

Building construction technology
Construction inspection

Drafting and Design

Civil drafting and design
Drafting, general
Drafting technology
Electro-mechanical drafting
Mechanical drafting and machine design

Electrical Technology

Electrical construction and wiring
Electrical technology, general
Electronics, general
Instrumentation
Radio and TV repair

Industrial Technology

Industrial pattern making
Industrial technology
Technical sales

Mechanical Technology

Air conditioning, heating and refrigeration
Auto body technology
Automotive technology
Diesel technology
Gunsmithing
Machine shop
Mechanical technology
Mechanics, other
Metal trades technology
Office machine repair
Tool and die design
Welding technology

Broad General Curriculums and Miscellaneous Fields

Chemical technology
Computer laboratory
Engineering technology, general
Food processing technology
Laboratory technology
Metallurgical technology
Mining

Naval and marine technology
Nuclear reactor or atomic materials technology
Petroleum technology
Quality control
Underseas technology
Vacuum technology
Wood technology

Nonengineering Related Curriculums

Agricultural and Forestry

Agricultural business
Agricultural engineering
Agriculturing mechanics
Agronomy
Animal science
Dairy technology
Forestry technology
Horticulture and floriculture
Range management technology

Applied, Fine, and Graphic Arts

Art
Arts, other applied, fine and graphic
Arts, sign
Arts, theater
Broadcasting
Commerical art and advertising
Fashion design
Interior decorating
Journalism
Journalism, photography
Photographic technology
Publishing and printing management
Radio
Television

Business and Commerce

Accounting and financial management
Beauty shop management
Business, general
Business, general 2-year
Business merchandising and management

Clerical
Data processing
Escrow procedures
Executive assistant
Hotel and restaurant management
Insurance
Insurance adjusting
Library clerical
Middle management training
Programmer
Real estate and insurance
Retail sales, purchasing or merchandising
Secretarial, 2 years
Secretarial, general
Secretarial, legal
Secretarial, medical or dental
Secretarial, technical or engineering
Technical office assistant
Transportation and traffic management
Travel and recreation management

Education

Audio-visual technician
Child care center director
Industrial arts
Library science technology
Nursery assistant
Nursery school education
Nursery school management
Nursery school teacher aide
Recreation-PE assistant
Teacher assistant

Health Services

Dental assistant
Dental hygiene
Dental laboratory technician
Doctor's office assistant
Medical or dental office assistant
Nursing, practical or vocational
Psychiatric nursing LPN
Registered nursing programs
X-ray technology

Home Economics
- Clothing and textiles
- Food administration
- Home economics

Industrial or Labor Relations
- Industrial and labor relations
- Industrial management
- Supervision
- Supervision - management

Broad General Curriculums and Miscellaneous Fields
- Airline stewardess
- Commercial foods
- Community development
- Correction science
- Cosmetology
- Fire protection technology
- Fisheries technology
- Hydraulics (H_2O treatment)
- Mobile housing
- Outdoor recreation technology
- Police technology

Changes in Curriculums Offered

It was found in the community colleges surveyed that changes were taking place in the number and diversity of curriculums offered. There were 100 curriculums offered in 1962 and 138 in 1966. Those showing the greatest increases are:

Engineering Related
- Air conditioning, heating, and refrigeration
- Automotive technology
- Civil drafting and design
- Civil technology, general
- Computer laboratory
- Electronics, general
- Food processing technology

Forest technology
Mechanical drafting and machine design
Mechanical technology, general
Welding technology

Nonengineering Related

Accounting and financial management
Agricultural, general
Business, general
Data processing
Dental assistant
Fire protection technology
Hotel and restaurant management
Library science technology
Medical and dental office assistant
Nursing, practical or vocational
Nursing, registered
Photographic technology
Police technology
Programmer
Real estate and insurance
Retail sales, purchasing or merchandising
Secretarial, medical or dental
Secretarial, technical or engineering
Transportation and traffic management

The increase in engineering related curriculums in the above group was from 41 in 1962 to 50 in 1966, with an overall increase of 22 percent. The fastest growing nonengineering related curriculums increased from 59 in 1962 to 88 in 1966, with a group increase of 49 percent.

Several curriculums experienced a decrease in number during this same time period. Those which were reported to have decreased include:

Engineering Related

Aircraft maintenance

Architectural technology
Technical sales

Nonengineering Related

Clothing and textiles
Executive assistant
Industrial or labor relations
Journalism

The study uncovered several curriculums that were being offered in 1966 that were not reported as being offered in 1962. While these curriculums may not be new to the study region they are new to the institutions surveyed. They include:

Engineering Related

Airport operation and management
Aviation technician
Avionics
Food processing technology
Laboratory technician
Office machine repair
Naval and marine technology
Nuclear reactor or atomic materials technology
Quality control
Underseas technology

Nonengineering Related

Agricultural engineering
Agricultural mechanics
Art
Arts, theater
Audio-visual technician
Business, general 2 year
Business merchandising and management
Child care center director
Commerical foods
Community development
Correction science
Cosmetology
Dental hygiene
Escrow procedures

Fisheries technology
Food administration
Industrial management
Insurance
Insurance adjusting
Library clerical
Mobile housing
Nursery school education
Nursery school management
Nursery school teacher aide
Outdoor recreation technology
Psychiatric nursing LPN
Range management
Recreation - PE assistant
Teacher assistant
Technical office assistant
Travel and recreation management

The overall growth in the study region in the number of curriculums offered is 42 percent for 1966 over that of 1962. The 31 percent increase for engineering related curriculums combined with the 49 percent increase in nonengineering related curriculums makes an actual growth of 257 curriculums started during this period by the 56 community colleges surveyed (Table B-4).

Curriculum Comparisons

The number of curriculums offered by community colleges in each state shows the greatest increase in California, Oregon, and Washington. While most of the colleges in each state had some increase, only one (Alaska) had no increase in curriculums offered. Community colleges in those three states with the greatest increase started 217 new curriculum offerings or had a combined effect on

growth in the region of approximately 85 percent (Table B-5).

To show the individual curriculums which constitute the bulk of the offering, the top twelve in each category (those offered most often) were isolated. The most often offered engineering related curriculums are:

1. Architectural technology
2. Automotive technology
3. Building construction technology
4. Civil drafting and design
5. Civil technology, general
6. Electrical technology
7. Electronics, general
8. Engineering technology, general
9. Mechanical drafting and design
10. Radio and TV repair
11. Technical sales
12. Welding technology

The above 12 curriculums in this category were offered a total of 180 time in 1962 with an increase of 33 for a total of 214 times in 1966. This group accounted for 42 percent of the growth in the engineering related category (Table B-6).

The top 12 curriculums offered in the nonengineering category are:

1. Accounting and financial management
2. Business, general
3. Data processing
4. Dental assistant
5. Home economics
6. Nursing, practical or vocational
7. Nursing, associate degree
8. Photographic technology
9. Police technology
10. Real estate and insurance
11. Retail sales purchasing or merchandising
12. Secretarial, general

The above 12 curriculums in this category were offered 231 times in 1962 with an increase of 75 for a total of 306 times in 1966. This group accounted for 42 percent of the growth in the nonengineering related category (Table B-7).

Table B-8 shows the comparison of the number of engineering and nonengineering offerings in 1962 with the increase and percent increase for 1966. The number offered in the top 12 in each category is compared to show what percent these groups represent to the total. It appears that of the 52 different engineering related curriculums, the 12 which are offered most often constitute 65 percent or a good portion of the total. The nonengineering category consisting of 99

curriculums is represented by the top 12 in this group by 57 percent or better than half of the total offerings. This bears out the idea that most community college administrators look to other community colleges for curriculum materials and suggestions for new offerings.

New Curriculums Being Planned

As for the number of new curriculums planned to start in the next three years, the engineering and nonengineering groups are almost equal with 64 and 65 respectively. The number of new curriculums being planned by the community colleges in the study is 129, or an anticipated increase of 15 percent over the 1966 offering in the study schools.

The top 12 curriculums to be started between 1967 and 1970 are:

Engineering Related

- Air conditioning and refrigeration
- Airframe and power plant mechanic
- Automotive technology
- Electronics
- Metal technology
- Welding technology

Nonengineering Related

- Agriculture
- Cosmetology
- Data processing
- Dental assistant
- Fire science
- Forestry

Enrollment in Community Colleges Surveyed

The study surveyed 56 or 42 percent of the public community colleges in the ten-state region. The Junior College Directory reported enrollment for this region of 642,360, which was 49 percent of the enrollment nationally in all public community colleges. Enrollment in community colleges surveyed was 224,910, or 35 percent of the students reported for the region and 17 percent of the national figure (Table B-12). The enrollment figures represent full and part-time students for both day and evening courses.

Enrollment figures were asked of the community college administrators for three reasons: 1) to compare the enrollment in the study region to the total nationally; 2) to determine the growth in enrollment, and 3) to make comparisons of technical vocational enrollment to that of lower division transfer for several years. All community college administrators did not respond to this question, and it was necessary to resort to other means for determining the size of the enrollment sampling. The Junior College Directory[5] issued each year provided the best source for enrollment comparisons. The 1967 issue contained a list of all public and private community colleges by state (see Appendix D). The public group consisted of 498 or 65

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[5]Published by the American Association of Junior Colleges. Washington, D.C.

percent of the total of 765 community and junior colleges listed. The study region had 133 or 27 percent of the national total of public schools and only 3 percent of the private schools.

The size distribution of the community colleges surveyed, based on enrollment, compares very well with national distribution at the 1,000 to 3,000 group. The schools studied were fewer in the smallest group of 1,000 or less and greater in the largest groups of 9,000 to 12,000 and over. The national average for community college size shows nearly half (47 percent) have 1,000 or less students, while the study has approximately the same percentage of schools (50 percent) in the 1,000 to 6,000 group (Table B-14).

Since only 36 community colleges reported complete data on enrollment, the remaining comparisons to be made on enrollment represent data from that group. The lower division transfer enrollment in these 36 schools totaled 274,517 for the three-year period of 1964, 1965, and 1966. The technical vocational enrollment for this same period in the same schools was 126,493 or 32 percent of the combined enrollment (Table B-15).

Each school provided an estimate of enrollment for the fall term for 1967, 1968, and 1969. The lower division transfer enrollment was expected to reach 323,571 for the three-year period, while the technical vocational enrollment was anticipated to be 161,546 for the same period. If these enrollment figures are actually realized

the technical vocational enrollment relationship will increase to 33 percent during this period. This does not appear to be much of an increase considering that 129 new curriculum offerings are planned in the technical vocational category. However, a closer look at these figures shows the actual difference in enrollment at 35,053 or 90 students per curriculum per year on the average. This calculation changes the enrollment comparison picture considerably. Most community college administrators would be pleased to see a beginning enrollment of 20-30 students each year for the first three years that a new curriculum is offered. Many new offerings struggle along with fewer students in the early years, especially in the sparsely populated areas. There are not enough large urban areas in this study to offset the smaller rural areas to improve these figures. Therefore, it is the assumption of the writer that those persons reporting for the community colleges are optimistic in their estimates.

This conclusion is based on the fact that in four community colleges, reporting complete data, the technical vocational enrollment was decreasing and in nine others it was remaining about the same during the three years of actual enrollment and was not expected to change during the next three years. Twenty-three schools show a steady increase in technical vocational enrollment, and in some it was very great. However, these were the newer schools in the smaller size group (Table B-16).

Practices in Curriculum Development

The practices with which this section deals are concerned with the requirements for state and local level approval of curriculums, helpful sources in curriculum development, resource personnel used by community college administrators, faculty participation in curriculum development, curriculum development centers, and general education provided the technical vocational student.

Curriculum Approval by State Departments of Education

The number of community college administrators aware of State Department of Education minimum standards for curriculum approval was 45 or 80 percent of the total. Community college administrators in four states were not sure about curriculum approvals. California requires the approval of course, not curriculums. Colorado has just created a new board for community colleges, and the State Department of Education, particularly the State Director of Vocational Education, does not approve technical vocational curriculums. In Washington the state director does approve technical vocational curriculums. However, four community college administrators in that state did not know this. In Wyoming no approval is required, yet one school reported to the contrary (Table B-17).

Community College Approval of Curriculums

Each community college administrator was asked to score a suggested list of criteria used by their community colleges for the approval of new curriculums or courses. The criteria in use was based on the stipulation that approval was required or recognized by the board or by administrative policy. Fifty-three community college administrators responded to this question with four suggesting additional criteria (Table B-18). The three most often used criteria were:

1. New curriculum or new courses or modifications of existing courses must be based on employment opportunities, actual or anticipated
2. Each technical vocational curriculum must have an occupational advisory committee
3. Degree requirements are specific and well defined

The next most important group consists of three criteria used by a good percentage of the community colleges. These criteria were:

4. The community college board must approve all new curriculum offerings
5. Some evidence of source and extent of potential student enrollment must accompany each new curriculum or course

application for approval

6. Evidence must be shown that new courses will not duplicate other courses

The criteria used least often were:

7. Each application for a new or different course must include what business or industry groups have endorsed or been consulted about the curriculum

8. All curriculum courses must have written course outlines approved by State Department of Education

Other criteria suggested by four administrators were: Must be a college grade course--must satisfy requirements set forth in California Administrative Code, Title 5, Sec. 131.5 (C); course must be approved by curriculum committee; must meet recommendations of Northwest Accrediting agency; and be subject to a practical veto by any faculty member.

Four community colleges appear to either have no criteria for approval of new curriculums and courses or they do not require any kind of formal approval. A great majority, 91 percent, do require course and curriculum approval with a majority, 64 percent, requiring the least often used criteria mentioned above.

In summary, it appears that most community college administrators or boards want to approve new curriculums and courses. The above criteria are used by a majority of the schools surveyed in this

study and constitute generally the minimum requirement.

Sources Found Helpful in Curriculum Development

To determine the most useful source of help for the community college administrator in the development of curriculum, four major sources were suggested in the questionnaire and others were requested. Only one administrator found no help outside his own school. The remainder found all suggested sources helpful and gave a number of other sources (Table B-19).

The administrator was asked to evaluate each helpful source from a numerical high of one to a low of five. By giving the responses a numerical value, it is possible to determine the most useful source. The results of such a value system show that the source, "other community colleges," is the most important source and is most often used by the administrator. The second most helpful source is the "State Department of Education," even though this source is used less often than the "United States Office of Education." The latter ranked fourth, but very close to third place "U.S. Office of Education." "Professional Publications" was used as often as the "State Department of Education" but, was valued the least.

Other helpful sources given were: industry, advisory committee, laymen, faculty, commercial materials, engineering company, local surveys, private schools, professional organizations, and

participation in "Leadership Seminar on Vocational Technical Education" at Oklahoma State University, 1966.

In summary, it appears the most important source of help in curriculum development for the community college administrator is the information obtainable from other community colleges. Three other helpful sources which rank close behind are the State Department of Education, Professional Publications, and the United States Office of Education, respectively. Others reported by the administrators which are used by some community colleges are industry, advisory committees, laymen, and faculty.

Resource Personnel Used by Community College Administrators

A number of resource personnel were suggested as being helpful to the community college administrator in curriculum development. Each administrator was asked to score a frequency scale (consisting of the ratings of very much, some, seldom, and none) as to how often he had used any or all of these resource personnel during the past three years. The respondent was asked to evaluate each resource personnel on a scale of one as high to five as low (Table B-21).

The value of each resource personnel when ranked correlates perfectly with the rank order of use (Table B-22).

In summary, it would appear that community college

administrators seek help most often where they get the best results.

Faculty Participation in Curriculum Development

The community college administrators were asked if funds were made available in the way of a budget allocation for curriculum development. Of the 56 returns 20, or 36 percent, of the colleges were providing funds while the majority were not. Providing a curriculum library was the major expenditure for 11 of the schools. Six were allocating each department a specific amount and four were contracting with other agencies for special projects. The least often expenditure of budget funds was made for the employment of a curriculum specialist (Table B-23).

Other types of expenditures given by the respondents indicate that a variety of expenditures are made with the expectation that curriculum will be developed as a result. These expenditures have been simply quoted as they appeared on the returns and given here to show the diversity of expenditures.

Other expenditures include: allocated on request of department chairman; curriculum studies--summer project where instructors are paid for hours to develop or revise curriculum; the vocational education coordinator assumes this as part of his duty; teacher employment for development and release time; subscriptions for technical magazines, handbooks, etc., release time of one or more

instructors; release time for Vocational-Technical Director and Vocational-Technical Staff; coordinator to travel, research, and seek consultation as needed; some specific grant requests to develop new courses of study; and open-end budget based on current need.

In summary, it appears that a number of ways are used to expedite curriculum development. However, the expenditures of budgeted funds are not considered by the majority of the community college administrators as an effective way to expedite development. On the other hand, it does appear that expenditures are being made for quite a variety of activities under some other budget heading. The most often mentioned methods of getting curriculum work completed were to give faculty released time, summer employment, and travel time and expenses to research and seek consultation as needed.

Another question related to faculty development of curriculum revealed that a great majority, 84 percent, of the community college administrators require their faculty to develop their own curriculum materials (Table B-24). When asked if this were part of the regular teaching assignment, 50 or 89 percent, said it was; while 6 administrators reported that extra time was given to develop curriculum.

In summary, it appears that faculty are developing curriculum materials as part of their regular assignment. Some institutions provide partial assistance, though it is slight when considering the importance of this activity.

Still another question was asked relative to other resources provided the faculty in curriculum development. Seven community colleges were providing no resources for the faculty. The remainder of 49, or 88 percent, reported giving the faculty some help. There were four resources the majority furnished: time to visit other schools; a professional library; desk copies of reference materials; and time to visit business or industry (Table B-25). Fewer than half of the schools were providing extra pay for curriculum development, curriculum specialists, and research specialists. However, several other types of help were listed as being provided. This group consists: technical vocational advisory committee; encouraging industry to employ teachers in summer and encouraging teachers to accept such employment; encouragement by granting credit to faculty for summer employment in their field; time and expenses to attend meetings, conventions, etc., scored twice; state teacher-trainer help from state; and salary credit for work in industry in summer.

In summary, it appears that a far greater number of community colleges are trying to provide some resources to help the faculty in the development of curriculum. Mainly this help is in the form of library and reference materials combined with time to visit business, industry, other schools, and professional meetings.

Curriculum Development Laboratories

The use of a centralized instructional materials laboratory located within the community college has been emphasized in recent years. Each administrator was asked if his school had such a laboratory for preparing and developing materials for the faculty. Of the 56 responding, about half or 52 percent said they operated an instructional materials laboratory. Four administrators omitted answering the question (Table B-26).

Another question along this same line introduced the idea of utilizing a curriculum development center located at one of the universities within each state. Some states have such a center. These centers usually offer a broad variety of services to the local schools. A number of typical curriculum development activities were suggested and each administrator was asked to give his opinion as to where the activity could be best carried out. His choices were limited to the community college, State Department of Education, or the suggested curriculum development center. Opinions were sought as to preference (Table B-27).

A majority of the administrators felt the community college was the best location for carrying out a majority of these activities. However, several thought that all locations could share in several of the activities. Those activities which were thought to be

predominantly a community college responsibility were: technical vocational education curriculum research; curriculum organization and refinement; course construction and course outlines; lesson planning; selection of text books; and development of course "handouts."

Those activities that were considered to be the responsibility of the State Department of Education were: regional studies of employment opportunities and development of follow-up procedures.

Those activities allocated to the suggested university operated curriculum development center were: development of audio-visual aids and development of achievement tests.

Since several of these activities were thought of as being shared by two or more locations, it is important that attention be drawn to this fact. Those which can be shared are: technical vocational education curriculum research; regional studies of employment opportunities; development of audio-visual aids; development of achievement tests; and development of follow-up procedures.

In summary, it appears the community college administrator would rather see most of the curriculum development activities located at the local school level. However, he is willing to share this responsibility to some degree with the State Department of Education and a university curriculum development center.

When asked if a curriculum development center was operating at one of the universities in his state, 19 or 34 percent, of the

administrators said "yes." The 37 who said "no" came nearer to being correct, as will be shown in the report of findings from State Directors of Vocational Education in Chapter IV. The reason this is so may be found in the possibility that some technical vocational divisions have a university based teacher-training department which is responsible for activities closely related to curriculum development. Most states have an audio-visual film depository where an increasing number of other services are emerging which could be considered in the area of curriculum development. Only one state director reported a university based curriculum center was operating in his state, and one other omitted the question.

General Education Provided the Technical Vocational Student

Directly related to the curriculum content but only an associated factor in curriculum development are the source and nature of the general education provided the technical vocational student. Several questions dealing with this aspect of curriculum development were asked the community college administrators. Two methods are commonly used in providing general education: designing special courses best suited to the needs of the technical vocational student and correlated with the technology and related occupational information provided; and selecting courses from the lower division transfer offering which have similar content as the specially designed courses.

Several questions were asked to determine the preferences of administrators and to find out what is happening in the field. Of the 49 administrators who responded, 19 or 39 percent, said that lower division transfer courses constituted the general education offered their technical vocational students. The majority were taking specially designed courses for general education purposes (Table B-28).

The administrators were asked if they thought the general education provided the technical vocational student in their schools was appropriate. Of the 50 who responded, 30 or 60 percent, answered in the affirmative (Table B-29).

It was then asked if students were permitted to take lower division courses or if they were required to take lower division courses. Fifty-one schools were permitting the student to take this type of course and one did not. Thirty-four schools were requiring technical vocational students to take lower division courses and 19 were not (Table B-30).

In summary, it appears that while lower division courses are used for general education purposes, specially designed courses provide the bulk of the general education taken by students. Slightly over half, 60 percent, of the administrators believe the general education courses taken by the majority of technical vocational students are appropriate.

Planning New Technical Vocational Curriculums

One of the important aspects of curriculum development is the planning of a new offering. The question of what activities produce the best results and how often these activities are used by the community college administrator is the substance of this section.

Several planning activities were suggested, and each administrator was asked to score how often he had used each. The scale had four choices provided. They included: "Often or Always," "Frequently," "Seldom or Occasionally," and "Never." All 56 administrators scored the question; however, a few simply omitted a single item rather than score "Never." The "Never" items were omitted in the ranking (Table B-31). The top five most frequently used activities are:

1. Organize an occupational advisory committee to make a study and recommend a program
2. Determine the need for a curriculum by making a community survey
3. Use Employment Service data for justification of program
4. Make a preliminary study of the need, but not a survey as such
5. Ask a faculty member or department to make a study of need

The next activities used less than half of the time were:

1. Contact governmental agencies such as welfare, labor, for justification of program
7. Ask the State Department of Education to assist in determining the need for a program
8. Turn all curriculum requests over to the faculty curriculum committee

Those activities used least often and ranked at the bottom of the list are:

9. Ask the State Research Coordinating Unit for help in making a study of need
10. Hire outside specialists to make a study of need and recommend a program

In summary, it appears the community college administrator looks to the local community for assistance in the planning of a new curriculum. The faculty member is asked to make a study by utilizing the help of an occupational advisory committee and a community survey where employment service data are taken into account. Other agencies usually outside the community college are less helpful, and research agencies or specialists are used least often.

Implementing New Technical Vocational Curriculums

After the decisions are made relative to the starting of a new

technical vocational curriculum, it becomes necessary to get the new offering underway. Activities in this connection take varying amounts of time depending on the nature of the activity and conditions which prevail. A list of these activities was suggested to the community college administrator and he was asked to give an approximate "lead time" needed to carry out each activity. The time ranges were in months from one or less to over 12. Averages were made of the responses given; the following time schedule was devised from the results (Table B-32). Time needed and implementing activities are:

4 months

Instructors hired and on duty

Students recruited, screened, and ready to begin

All equipment purchased, installed, and ready to use

Audio-visual aids itemized and availability known

5 months

Lesson plans developed for each course

Instructor given proper teacher training and certified

All courses approved by the State Department of Education

6 months

Leaflets or booklets describing the program published and available to prospective students

State Department of Education approval to start a new curriculum

7 months

Source of students determined

All equipment and supplies itemized and budgeted for

Instructor needs determined

Job opportunities isolated in sufficient number to provide placements for the number of students to be enrolled

8 months

Complete curriculum designed with course descriptions and objectives developed

9 months

Building space needs estimated

Occupational advisory committee appointed and deeply involved in the project

In summary, it appears that considerable time is needed to implement new offerings. Some of the activities overlap the planning activities; however, no sharp dividing lines are drawn between planning and implementing a new curriculum.

Evaluation of Technical Vocational Education

In the planning and implementing of new curriculums it follows that evaluation of existing offerings of the community college will result in a determination of how well these programs are serving the

needs of students and employing industries. Several evaluative criteria were suggested as being appropriate for this purpose. Each community college administrator was asked to indicate how he viewed the appropriateness of each criterion for judging a successful program of technical vocational education. All criteria suggested were being used for the evaluation of secondary school level vocational education (92). Since the community college technical vocational offering differs only in depth and variety, the question was how well the same criteria could be used at this level. Each administrator was asked to evaluate each criterion on the basis of being "Excellent," "Good," or "Poor." No mention was made of the criteria being used by the high schools. The results were extremely interesting because all criteria given were scored very high as being either "Excellent" or "Good." The lowest scored items were still very high by comparison (Table B-33).

In summary, it appears that indicators of a successful technical vocational program at the community college level differ very little from that used at the high school level.

Changes in Curriculum Development in the Past Five Years

To determine what changes had occurred recently, and more precisely, to come to grips with current practices in curriculum development, each administrator was asked to describe what changes

had taken place at his school. The responses from 37 community colleges show recent changes in this area. The other 19 reported no change had occurred (Table B-34).

By summarizing the items most often mentioned, three changes which stand out most vividly are: 1) more extensive use of advisory committees, 2) involvement of faculty to a greater extent in matters pertaining to curriculum development and approval, and 3) strengthening or expanding of the technical vocational offering.

The most interesting comments were in the area of faculty involvement. Even though more and more administrators reported a greater use of faculty in curriculum matters, one suggested, "This has some value, but also severely limits the ability of the college to meet changing needs, and in many cases blocks the orderly development of vocational education." Another reported, "This procedure becomes more dependent on individual faculty members' veto, who use this to protect their vested interests."

In summary, it appears that recent changes in curriculum development suggest a strengthening or expansion of technical vocational offering by more extensive use of advisory committees and the faculty with the latter having questionable value.

Summary

The data received from community college administrators taken

from questionnaires returned from 56 colleges are reported in this chapter. Not all administrators responded to every question; however, a good percentage were willing to score the items and give opinions or comments. The following statements summarize the data received.

The top 12 technical vocational curriculums offered in both the engineering related and nonengineering related major divisions make up the bulk of the offerings in the community colleges of this study. No new curriculums are emerging. However, the nonengineering related division is expanding rapidly. This group is not only larger but it is the faster growing of the two groups. California, Oregon, and Washington are the states showing the greatest growth in recent years; they plan the greatest number of new curriculums anticipated to start between 1967 and 1970. However, the remaining seven states in the study show a bigger percentage increase in new curriculums planned compared to their present offering. They all are starting from a much smaller base. Overall growth between 1962 and 1966 was 40 percent. There were 129 new curriculum starts planned, and 38, or 30 percent, are currently being offered in the top 12 curriculums in each category. This planned growth is estimated to be 15 percent over the 1966 offering.

Community colleges included in this study showed enrollment of 224,910 students in 1966, or 35 percent of the enrollment in all

public community colleges in the same ten western states and 17 percent of the national figure for the same year. Community colleges in the region under study enrolled nearly half, 49 percent, of all public community colleges nationally. Thirty-six study schools provided complete enrollment data and showed technical vocational enrollment averaging 32 percent for the past three years. Administrators in the same schools estimated the technical vocational enrollment will increase to 33 percent by 1970. This was considered to be an optimistic estimate considering the number of new curriculums planned for this period. Also technical vocational enrollment was decreasing in four schools, not increasing in nine others, and showing steady gain in 23 smaller and newer schools.

New curriculums or courses started by community colleges must have some kind of formal approval in 95 percent of the schools. College boards and administrators want to approve new curriculums or courses. The main source of help in developing new curriculums was frequently found to be from other community colleges, however, technical vocational faculty members from these other colleges were not used a great deal. Funds were budgeted for curriculum development by less than half the colleges, and the faculty were expected to develop curriculum materials as part of their regular assignments.

Community college administrators are trying to provide resources for the faculty. Mainly this help is in the form of library

and reference materials combined with time to visit business, industry, other schools, and professional meetings. Community college administrators prefer curriculum being developed by the local institution, but would share some activities with the State Department of Education and a university operated curriculum development center. The bulk of the students are taking specially designed general education courses, even though lower division transfer courses are permitted. Slightly better than half of the administrators believe the general education provided their students is appropriate.

In planning of a new technical vocational curriculum, the community college administrators look to the local community for assistance. A faculty member is asked to make a community survey with the help of an advisory committee, utilizing data provided by the Employment Service. The time necessary to implement a new curriculum varies with the nature of the developmental activity. The activities of planning and implementing new programs tend to overlap in some areas.

The evaluative criteria used by high schools for many years seem to be equally good for the evaluation of community college level technical vocational education.

Changes in curriculum development in recent years indicate more use of advisory committees in strengthening the offering. Greater faculty involvement is the most often mentioned change; however, this involvement is considered by some as having questionable value.

IV. INFORMATION FROM AND OPINIONS OF STATE DIRECTORS OF TECHNICAL VOCATIONAL EDUCATION

This chapter is a report of the data received from state directors of vocational education in ten western states.[6] In this study the respondent was selected by the state director as one who could answer for the director about the operation of the division. The state director is responsible for the vocational division, all reference to the respondent will be to the director or his staff as administrators in the State Department of Education. This questionnaire form and related correspondence are found in Appendix A. The data received are in tabular form in Appendix C. The discussion of data will follow the same sequential arrangement as the tables.

The material in this chapter is divided into six topics with a final statement covering recent changes in technical vocational curriculum development at the state level.

All ten states had public-supported community colleges offering technical vocational education. Some of these curriculums were supported with state or federal funds supervised by the state director.

Curriculum approvals are considered indicative of the control or degree of leadership exercised by the state director or required by state boards of education. These approvals also provide an indication

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[6]States included in this study were Alaska, Arizona, California, Colorado, Idaho, Montana, Oregon, Utah, Washington, and Wyoming.

of what criteria are used for curriculum building which the state department considers minimal for community colleges.

The community college administrator looks to the state department for assistance in curriculum development and it is important to know how the department assists the community college. Information requested in this question included what outside resources are used by state staff, the kinds of assistance given the community colleges, resource personnel involved in curriculum development, and the degree to which the department supports its staff through a budget allocation or other sources of assistance.

The question as to a university based curriculum development center was suggested by the investigator and each state director was asked to indicate his preference as to where certain curriculum development activities could best be carried out. This subject was included to ascertain the degree of agreement which could be found among the community college administrators and state vocational education directors.

Several states in recent years have established a state level research coordinating unit, usually in cooperation with a university. This unit specifically involves itself with technical vocational education in many ways directly related to research. To what degree this unit is involved in curriculum development was unknown. A question was asked requesting the functions of these units as viewed by the

state director of vocational education.

One question was asked to determine the degree of agreement that existed on the subject of general education provided the technical vocational student by community colleges.

The state director of vocational education is generally held responsible for both high school and community college technical and vocational education. The same high school level evaluative criteria suggested to the community college administrator as indicators of a successful technical vocational program were also suggested to the state directors. The directors were to indicate how well this evaluative criteria fit the community college level.

Recent changes in curriculum development are considered important to the study as compared with changes made at the community college level. One question was asked of the state directors on recent changes in curriculum development.

State Department Approval of Technical Vocational Education

Approval of the technical vocational offerings in the community college is required in nearly every state. This approval requirement generally applies when state or federal funds are requested to support the offering. Six states, or 60 percent, require approvals of all curriculums regardless of type or source of funds. Three other states do not require approvals of all curriculums, and the fourth reported

no approval of any kind was needed (Table C-1). Alaska community colleges are operated by the University of Alaska. State approval in Alaska means the resident director must submit a memorandum of agreement to the state director of vocational education if he wishes state or federal funds. Otherwise permission is granted by the provost of the university. California uses the procedure of approving courses only, not curriculums. Wyoming has no requirement for approval. The latter case seems unlikely since the use of federal funds would impose some form of curriculum approval (Table C-1).

To determine the criteria used by the state director for curriculum approval, some criteria were suggested and others requested. One limiting factor introduced the idea that criteria used must be either required by the state board or the director and made a part of the formal requirement. If the respondent was not requiring a formal approval, he was to check which criteria were used as a matter of routine practice.

Seven states require formal state approval of technical vocational curriculums. Two states, Alaska and Wyoming, do not (Table C-2). Utah stated that for three schools operated by the state board, formal approval is required; for five schools with separate boards, no formal approval is required.

Criteria required by a majority of the states ranked in order of frequency include:

1. New curriculums or new courses or modification of existing courses must be based on employment opportunities, actual or anticipated
2. Each technical vocational curriculum must have an occupational advisory committee
3. The local community college board must approve all new curricular offerings prior to seeking state approval
4. Some evidence of source and extent of potential student enrollment must accompany each new curriculum or course application for approval
5. Each application for a new or different course must include what business or industry groups have endorsed or been consulted about the curriculum

Additional criteria used by less than half of the states were:

6. Degree requirements must be approved by the State Department of Education
7. Evidence must be shown that new courses will not duplicate other courses in the institution
8. All curriculum courses must have written course outlines approved by the State Department of Education before the classes are held

Several states were requiring approval of teacher certification and fund requests, and one state required an analysis showing how

each curriculum bears a close relationship to an occupation or an occupational group.

In summary, it appears the matter of formal approval of technical vocational curriculums varies from state to state. When state or federal funds are requested, state department approval is generally required. The criteria used most often by the department for formal approval of curriculums or courses suggest that some evidence of support for the offering accompany the application, e. g., potential enrollment, community college board approval, advisory committee used, the curriculum or course must be based on employment opportunity and what business or industry group has endorsed or been consulted about the curriculum. Some states also require written course outlines, degree requirements, teacher qualifications, and evidence the new offerings do not duplicate other courses in the institution.

State Departments Help Community Colleges Develop Curriculum

State departments in all ten states were found to be helping the community colleges in the development of technical vocational curriculums. The state directors were unanimous in their belief that the state department should assist the community colleges.

Resources found helpful to the state staff in curriculum work are to be compared with the same resources used by the community college administrators. The "United States Office of Education

publications" was the largest single resource. Two other resources, "Community College Materials" and "Professional publications," ranked second, and materials from "other state departments of education" fell in last place. Two additional resources given were "commercially prepared" and "industry developed" materials. Each state director was asked to select his top two resources (those found most helpful). Nearly everyone checked the U.S. Office of Education as first choice; the second choices were scattered (Table C-3).

State directors reported they were helping the community colleges. They were asked what kind of assistance they gave. All ten states are providing: 1) procedures for the establishment and use of advisory committees, and 2) copies of curriculum materials developed by various agencies of government or other community colleges (Table C-4). The next five important kinds of assistance listed in descending order according to the number of states reporting are:

3. Funds to support the development of new technical vocational curriculums
4. Employment service data that would be useful in determining new program needs
5. Procedures for conducting a community survey
6. State-wide studies made by the State Department of Education
7. Pertinent findings and research conducted by the State

Research Coordinating Unit

The kinds of assistance least often given are:

8. Names and availability of persons knowledgeable of curriculum development (consultants)
9. Abstracts of innovations or imaginative approaches to curriculum development found in the literature
10. A specialist in school building construction who can aid in the development of technical vocational facilities

A list of specific resource personnel used by the state department staff in curriculum development the past three years was requested. The top five (most helpful) were isolated as those which were of the greatest assistance to the staff. Only three resource personnel stand out as being the greates help (Table C-5 and C-6). These three are:

1. State Department of Education vocational personnel
2. Technical vocational personnel from community colleges
3. Occupational advisory committee

All the remaining resource personnel with one exception ranked about the same and fell in the category of being of some help. This group includes:

4. College or university specialist
5. Community college administrators
6. Employment service specialist

7. Educational research specialist

8. Professional curriculum consultants

The exception is one used seldom and not highly valued:

9. Consulting firms

Additional resources furnished the state staff by the State Department of Education fell into two categories (Table C-7). Those furnished most often are:

1. Time to visit community colleges with programs of interest

2. Time to visit business or industry

3. Desk copies of reference materials

4. Research specialist

5. Professional library

Those remaining resources which were least often provided consist of:

6. Curriculum specialist

7. Extra pay for curriculum development outside of regular work assignment

Other resources reported as being provided are: time to work on university campus to use university facilities, funds for special projects, and assignment to pertinent vocational conferences.

One other possible source of help to the state staff is in the area of a budget allocation for curriculum development. Five states are providing such an allocation, five do not. The five make expenditures

mostly for the employment of community college personnel to develop curriculum materials. Of the four remaining suggested types of expenditures the employment of a curriculum specialist ranked the highest (Table C-8). The least often expenditures of budgeted funds are:

2. Providing a curriculum library
3. Contracting other agencies for special projects
4. Allocating each department a specific amount

One other expenditure suggested by one state was the employment of personnel from business or industry.

In summary, it appears that state staff are helping the community colleges in the development of technical vocational curriculum. Their state director believes they should. The greatest sources of curriculum materials used in helping the community college administrators are publications of the U.S. Office of Education and materials from other community colleges. Two kinds of assistance ranking high among the states are: 1) providing the community college administrator with procedures for the establishment and use of advisory committees, and 2) providing copies of materials developed by agencies of government and other community colleges. Resource personnel found most useful in helping the state staff in recent years are State Department of Education vocational personnel, technical vocational personnel from community colleges, and occupational advisory committees. The five most important other resources furnished the

state staff include time to visit community colleges with programs of interest, time to visit business and industry, desk copies of reference materials, the assistance of a research specialist, and a professional library. Five states were providing a budget allocation for curriculum development and these funds were spent mostly for the employment of community college personnel and curriculum specialists.

Use of a State Curriculum Development Center

The same question regarding the desirability of a university based curriculum development center that was suggested to the community college administrator was suggested to the state director. There were no such centers operating in nine states, and Oregon omitted the question. Even so, the responses to a number of curriculum development activities reveal that state directors believe several of these activities could be carried out best by a curriculum development center. The state director was asked to locate the activity in one of three places where he thought it could best be carried out. These three places were: 1) the community college, 2) the State Department of Education, and 3) a curriculum development center. The state director believed the community college is the best location for "course construction and course outlines," "lesson planning," "selection of text books," "development of course handouts," "development

of promotional materials," and "laying out building plans and specifications." This left only "the development of follow-up procedures" for the state department. The area of "technical vocational curriculum research" ranked high as a state department activity.

The state directors believe that "regional studies of employment opportunities," "curriculum organization and refinement," and "development of audio-visual aids" are activities that could be carried out by a curriculum center. Two activities, "technical vocational education research" and the "development of achievement tests," ranked high and tied with the community college.

It should be mentioned the state directors suggest the responsibility for most all of these activities can be shared by the different agencies. The Employment Service was suggested by several states as being helpful in making "regional studies of employment opportunities." One state director thought the teacher training center could be helpful in many of the curriculum development activities (Table C-9).

In summary, it appears that responsibility for curriculum development can best be carried out at the community college level with the assistance of the state department of education, employment service, and teacher training centers. The suggestion of a university based curriculum center was thought of as being a good location for several curriculum development activities. No such center exists in

this ten western state region, perhaps further study of this idea is warranted.

Functions of Research Coordinating Units

One question was asked about the research coordinating unit as a possible source of help for technical vocational curriculum development. Several functions were suggested and others requested. The top five functions reported by the state directors, as found in a majority of the states are:

1. Consult with state director of vocational education in determining appropriate state level research projects
2. Gather data and complete research projects for the State Department
3. Write research proposals for Federal funding
4. Screen applications from community colleges on proposed research needed in the local community where state or federal funds are requested
5. Write proposals for local studies for Federal funding

Two additional functions are found in less than half of the states. These two are:

6. Write curriculum proposals for State Department approval
7. Provide a technical vocational education curriculum research reviewing and clearing house and report pertinent

findings to community colleges

Other responses to this question indicate that only one state, Alaska, does not have a research coordinating unit. However, this state has applied for one, but the proposal had not been funded at the time of the study (Table C-10).

In summary, it appears the research coordinating unit is responsible mainly for state and local level research proposals which are designed for federal funding. Some gathering of data and completion of research for the state department and consultation with the state director are the most important functions of the unit. Functions with curriculum development activities are of least importance. Therefore, it can be assumed this unit is not designed to work on the development of curriculum.

State Directors' View of General Education Provided the Technical Vocational Student

Since several questions were asked the community college administrator about the provision of general education for technical vocational students, it was decided to request the views of the state directors on the same subject. One question was asked regarding the preference of the state director as to the source of general education courses.

All ten state directors responded with a 90 percent agreement

that specially designed courses were preferable to the use of college transfer lower division courses (Table C-11). Alaska was the only state which preferred that their students take lower division courses. All Alaska community colleges are extensions of the university, which may account for this.

In summary, it appears that a large majority of the state directors of vocational education prefer that students of technical vocational subjects have a specifically designed general education.

Evaluation of Technical Vocational Education

State departments are called upon to evaluate local community college technical vocational offerings. Many community colleges have been considered accredited by this process. Most schools seek for and have the additional accreditation of a regional association. Some technical vocational offerings are accredited by professional groups or have been certificated by a governing body; e.g., The Federal Aviation Administration has a program of continuous evaluation and certification of all aviation school programs regardless of the type of institution or offering. The state director of vocational education is responsible for the evaluation of all state or federally supported offerings in his state.

Some of the same criteria suggested to the community college administrators were suggested to the state directors. State directors

were familiar with the criteria because those suggested had been used for years at the high school level. The reason for suggesting them in this study was to calculate how well the same criteria fit the community college level. The directors were asked to indicate how well each criterion would indicate a successful program of technical vocational education. The possible response was on a scale of "Excellent," "Good," and "Poor." The result shows a high value factor in nearly every case (Table C-12).

In summary, it appears that technical vocational evaluative criteria for high schools can be used to indicate a successful program at the community college level. At least this seems to be the case in the opinion of state directors of vocational education.

State Level Changes in Curriculum Development in the Past Five Years

Each state director was asked to briefly describe changes which had occurred in the development of technical vocational curriculum at the state department level.

Several states--California, Colorado, Idaho, Oregon, and Wyoming--reported no change had occurred. The other half of the states reported several changes. Most of the changes in the latter group were in the area of producing guidelines, working out arrangements with state community college boards and contracting with several

schools, the funding of curriculum laboratories, and tying the curriculum more closely to occupational clusters. All these changes indicate an atmosphere of cooperation with other state boards and community colleges (Table C-13).

In summary, it appears that changes are taking place in curriculum development procedures in some states. Undoubtedly other changes will occur as the complexity of curriculum development requires a more comprehensive view of the problem.

Summary

Ten western states, including Alaska, Arizona, California, Colorado, Idaho, Montana, Oregon, Utah, Washington, and Wyoming constitute the region covered by this study. All state directors of these states responded to questionnaires. The data received are summarized here to provide a review of current curriculum practices in state departments of education.

Formal approval of curriculums or courses varies from state to state with seven states requiring such an approval, especially where state or federal funds are requested. Criteria for approval suggests the state department be furnished with some evidence of support for the offering. Criteria most often used include potential enrollment, community college board approval, use of an advisory committee, employment opportunities, and what business or industry

groups endorse the offering. Other criteria requested frequently include a written course outline, degree requirements, teacher qualifications, and some evidence to show the new offering is not duplicating other courses.

The state department staffs are helping the community colleges as their state directors believe they should. Resources provided the state staff include Office of Education publications and other community college publications. The use of advisory committees, other state staff in vocational education, and personnel from community colleges are the most helpful resource persons available to the staff. Budgeted expenditures were being made for employment of community college personnel and a curriculum specialist in half the states. The other half provided no budgeted funds for curriculum development. The most important other resources furnished the state staff were time to visit community colleges with programs of interest, time to visit business and industry, desk copies of reference materials, the assistance of a research specialist, and a professional library.

The state director believes the responsibilities for curriculum development can best be carried out at the community college level with the assistance of the state department, employment service, and the teacher training center was thought of as being useful.

Research coordinating units were found in all the states except

Alaska. A unit of this type is not designed to produce much in the curriculum field.

All but one state director would rather have a specially designed general education provided the technical vocational student as opposed to using lower division transfer courses for this purpose.

The evaluative criteria used to indicate a successful program of vocational education at the high school level can be used at the community college level, according to the state directors.

No major changes in curriculum development were reported by half the states. The other half were working out closer cooperation with other state boards and community colleges, producing guidelines, funding curriculum laboratories at the community colleges, and tying the curriculum in more closely to the occupational cluster. All these changes indicate the development of an atmosphere of cooperation.

V. ANALYSIS OF DATA AND FINDINGS OF THE STUDY

Introduction

This chapter is an analysis of data and findings of the study. Data from both questionnaires are brought together and treated in four broad categories: 1) explanation of the statistical treatment and characteristics of the study sample, 2) technical vocational curriculums offered and enrollment in the community colleges, 3) practices in curriculum development, and 4) planning, implementing, and evaluating technical vocational curriculums.

An explanation of the statistical treatment has been included to show how the comparisons were made in questionnaire items where a relationship could be established. The characteristics of the study sample are included to show the size and scope of the study and to establish a setting for the discussion of the other data.

The curriculums offered are subdivided into two major groups: 1) engineering related occupational fields and 2) nonengineering related occupational fields. Changes taking place in the offerings are noted with an attempt to show growth, enrollment, and plans for new offerings.

Practices in curriculum development at the community college and state department of education levels are analyzed to show which activities, resources, and procedures produce results. The idea of

establishing a university-based curriculum center was suggested to determine preferences of both study groups as to the location of certain curriculum development activities.

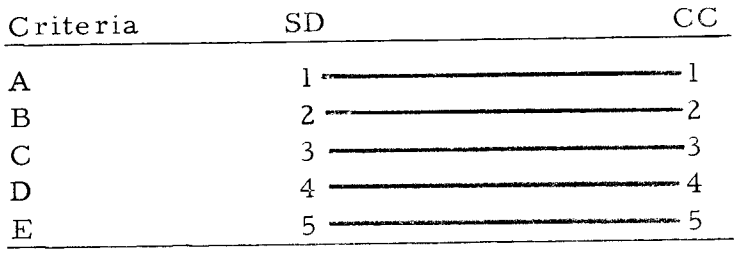
Criteria used in planning and implementing a new offering in technical vocational education are summarized to show the important activities and the lead-time needed to get a new offering under way. An analysis of evaluative criteria is presented to show the degree of agreement between the two study groups.

Explanations of Statistical Treatment and Characteristics of the Study Sample

Statistical Analysis of Data

The explanation of the statistical treatment of data in this section is intended to be made as simple as possible. The Spearman Rank Order Method has been used. This type of analysis is thought to be appropriate when a relatively small number of scores are being related. The variables are expressed in rank order, rather than raw scores. This method is used only when the comparisons involve similar data received from both the community college and state department administrators. This type of analysis lends itself to an interesting graphic demonstration. The following illustration is used to introduce the procedure and method of computing the coefficient of correlation by the Spearman Rank Order Method.

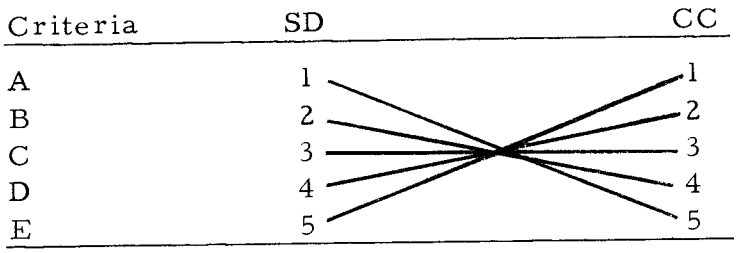
Figure 1. Spearman rank order method--(sample).



p = +1.00 A perfect positive correlation

$$p = 1 - \frac{6\Sigma D^2}{N(N^2 - 1)}$$

Figure 2. Spearman rank order method--(sample).



p = -1.00 A perfect negative correlation
p = Coefficient of correlation
Σ = The sum of
D = Difference between ranks
N = Number of paired ranks
SD = State department rank order
CC = Community college rank order

Magnitude of the Coefficient

General criteria for the evaluation of the significance of coefficients.

Coefficient	Relationship
± .00 to ± .20	Negligible
± .20 to ± .40	Low or slight
± .40 to ± .60	Moderate
± .60 to ± .80	Substantial or marked
± .80 to ± 1.00	High to very high

Characteristics of the Study Sample

The data reported in this study come from questionnaires received from the state directors of ten western states and the administrators of technical vocational education in 56, or 42 percent, of the 134 public community colleges operating in these same ten states. All ten states responded to questionnaires making a 100 percent return, and 56 of the 61 which were selected returned questionnaires for a 92 percent response (Table B-1). The year technical vocational education was started in the community colleges surveyed ranged from prior to 1940 to as recent as 1962. The range in institutional experience with operating occupational curriculums was scattered rather evenly over the years (Table B-3).

Technical Vocational Curriculums Offered and Enrollment in the Community Colleges

Curriculums Offered by Community Colleges

In the fall of 1966 the 56 community colleges which participated in this study were offering a wide variety of curriculum titles in technical vocational education. These offerings consisted of 151 different occupational classifications in 14 different categories which have been divided into two major divisions. The divisions of engineering related and nonengineering related curriculums each have been subdivided into seven related fields with an additional broad general miscellaneous category for each group. This basic list of curriculums was found in the Brunner study and has been used throughout this research. In his 1962 national survey, Brunner found 159 curriculums, or 8 more than were reported in this study. The 151 found in this study is estimated to be a good sampling. The following analysis is a treatment of data reported by the administrators directly responsible for the technical vocational offering in the 56 community colleges.

The 151 curriculums were reported being offered a total of 873 times, with 331 or 38 percent of them in the major division of engineering related in 1966. This was a 31 percent increase over the total offering in this division in 1962. Twelve schools were providing no engineering related curriculums in 1962, and two of these were

still not providing an offering in this division in 1966. Ten of the 56 schools accounted for 48 percent of the total offering in 1962. By 1966 the total offering in this group had increased from 253 to 331 curriculums. However, these same ten schools accounted for only 39 percent of the offering. The actual increase in these ten schools was four curriculums in three schools. Therefore it is concluded that nearly all growth in this division came from the bulk of the community colleges that were providing a minimal or no offering in this division in 1962 (Table B-4). The engineering related curriculums most often mentioned (top 12) as being offered in 1962 consisted of 71 percent of the total recorded of this type that year. This same group in 1966 made up 65 percent of the total showing a 6 percent decrease in the number offered in the top 12. It appears that some of the curriculums being offered only a few times in 1962 were increasing in number in 1966, while the top 12 were not being repeated as often. This means the top 12 group are still the predominate offering with some gain in the kind of curriculums not in the top 12 (Table B-6).

The same type of data for the nonengineering related offering shows that 542 curriculums were offered by the 56 schools, consisting of 62 percent of the total technical vocational offering. This means that for every one engineering related curriculum being offered, there were nearly two nonengineering related. The latter group nearly doubled in growth from 1962 to 1966. There were ten

community colleges with no offering in this division in 1962, and all ten were providing nonengineering related curriculums by 1966. The same ten schools mentioned above with nearly half the engineering related offering in 1962 were providing a good percentage of the offering in this division. This percentage of 47 percent in 1962 for these ten schools was reduced to 35 percent by 1966. Therefore it is concluded that nearly all growth in this category came from schools with a minimal or no offering in 1962.

In summary it appears that most of the growth in the number of curriculums offered in both divisions is coming from schools which had little or no technical vocational offering in 1962. It also appears that nonengineering related curriculums are growing nearly twice as fast as the engineering type (Table B-4).

New Curriculums Being Planned

The study schools were planning to start 129 new curriculums between 1967 and 1970. Nearly half of this number, involving seven curriculum titles, were currently being offered in the top 12. The three states of California, Oregon, and Washington, with 43 or 77 percent of the study schools, were offering 89 percent of the total offering. The community colleges in these same three states were planning to start 98, or 76 percent, of all new curriculums (Table B-11).

Enrollment in Technical Vocational Education

The questionnaire sent to the community college administrators requested enrollment data on both the lower division transfer and technical vocational education enrollment. It was suggested in a cover letter that data of this kind should be provided by that person in each community college who usually keeps records of this type. The request sheet was made the last page of the questionnaire so it could be detached and given to the proper person. The net result of this procedure was what appeared to be fairly reliable data on 36 of the 56 schools surveyed. Only those responses that looked as though they were lifted from Federal reports or similar reports were used in the following enrollment comparisons. Since most of the reporting of enrollment at the community college level is based on fall term, day and night, full and part-time registrations, the same limitation was used in this study. Since enrollment figures requested are "head count" numbers, it should be mentioned that all data comparisons are based on this method of counting.

Much is left to be desired when it comes to an analysis of enrollment data reported by community colleges. The writer holds that statistics of this type are highly misleading and most often incorrect. The only reason for reporting such data is to indicate a trend or show some kind of growth in a broad, general way.

The study region consisting of the ten western states reported an enrollment count of 642, 360 students in all 134 public community colleges in 1966. The enrollment nationally that year was 1, 316, 980 in all public community colleges. The study region was educating approximately half of the country's public community college students (Table B-12). This study sample found 224, 910 students or 35 percent of the public community college enrollment in the ten state region. This was 17 percent of the national figure. For the same year (1966) 36 community colleges reported similar data in this study and made estimates to an anticipated enrollment for 1967, 1968, and 1969.

When the size of each community college, based on enrollment, is compared to the national average, the schools in this study have a tendency to be larger. However, the sample schools are estimated to be more typical of the region than of the country (Table B-14).

Enrollment figures for 1964, 1965, and 1966 show the technical vocational student body is about 32 percent of total enrollment in these 36 community colleges. This ranged from a total of 26 technical vocational studentat at one school to 4, 262 students at another. The percentage of enrollment that was technical vocational in a single school ranged from a low of 4 to a high of 75. These same 36 schools reported a total of 126, 493 enrollments for the three years mentioned above and anticipated an increase of 35, 053 enrollments for the three combined years of 1967, 1968, and 1969. When compared with the

aggregate enrollment in the lower division transfer student body, only a slight or negligible increase is shown. This means simply that enrollments are expected to grow in technical vocational education at about the same rate as total enrollment (Table B-15). However, as shown above, 129 new curriculums are planned for the same period which are expected to attract additional enrollments just to maintain an equal footing with total growth. If the addition of new curriculums actually produces additional enrollment, this may be the answer to the accelerated expansion of technical vocational education alluded to in the literature. Just how well this growth in enrollment can be justified with the growth in the work force and general population is unknown. Technological changes may be causing more enrollment growth than real need for additional workmen in the work force. Research in this direction may prove beneficial to society.

Practices in Curriculum Development

Minimum Standards for Curriculum Approval

In the administration of a public community college there are two legal authorities or boards which can grant approval to operate a specific program of technical vocational education. If federal funds are used, the state board for vocational education or their appointed representative may grant approval. If this board decides to extend

this approval function, local community college boards may be allowed to approve program operations. All of these procedures and regulations are made a part of the State Plan for Vocational Education. This plan must be approved by the U.S. Office of Education before states may share in the federal appropriations. Different rules and regulations may be used where state appropriations are requested and where these funds are in excess of federal match money. This procedure has been in operation to varying degrees since the passage of the National Vocational Education Act in 1917. Generally, control of both state and federal funds is in the hands of the State Directors of Vocational Education in each state. State level requirements imposed on the schools requesting these funds vary from state to state depending largely on the philosophy of the State Director and the basic provisions detailed in each state plan. The State Department of Education can place controls or restrictions upon the community college administration by requiring an approval of curriculums, course content, qualification of instructors, and a variety of other criteria.

Out of the 56 community college administrators responding to questionnaires, 45, or 80 percent, actually were aware of the state department minimum standards for curriculum approvals. There were 11 college administrators who were not aware of these standards in three states where the state directors indicated approvals were necessary. One other community college administrator indicated

approval was needed, and his state director said it was not. A comparison of this kind simply shows that either the state director is not communicating well with the community college administrators or the latter are not keeping themselves informed on such matters. A third possibility is that this minimum standard of approval procedure is not required or strictly enforced in all states.

Criteria used for formal approval of curriculums in a majority of the states were: 1) new curriculums or new courses or modification of existing courses must be based on employment opportunities, actual or anticipated, 2) each technical vocational curriculum must have an occupational advisory committee, 3) the community college board must approve all new curricular offerings prior to seeking state approval, 4) some evidence of source and extent of potential student enrollment must accompany each new curriculum or course application for approval, 5) each application for a new or different course must include what business or industry groups have endorsed or been consulted about the curriculum.

All but three community colleges in the study have institutional requirements for technical vocational curriculum approvals. The most significant criteria used are those found in the upper quartile (Appendix B-18). The criteria used at the community college level were: 1) all new courses or curriculums must have the appropriate departmental or divisional approval, 2) each technical vocational

curriculum must have an occupational advisory committee, 3) new curriculums or new courses or modifications of existing courses must be based on employment opportunities, actual or anticipated, 4) degree requirements are specific and well defined, 5) some evidence of sources and extent of potential student enrollment must accompany each new curriculum committee, 6) all new programs or modifications of existing programs must have approval of a faculty curriculum committee.

The coefficient of correlation shown in Figure 3 shows a very high relationship exists in the criteria used by both administrative groups for technical vocational curriculum approvals.

Figure 3. Curriculum approval comparisons.

Criteria	SD	CC
New offerings based on employment	1	1
Must have advisory committee	2	2
College board approvals	3	3
Source of student enrollment	4	4
Business and industry groups consulted	5	5
Degree requirements	6	6
No duplication of existing courses	7	7
Must have course outlines	8	8

$N = 8 \quad \Sigma D^2 = 22 \quad p = +.96$
Data source: Table B-18 and C-2

Sources of Help in Curriculum Development

In an attempt to further technical vocational education the federal government has for years appropriated funds. In recent years the

amounts of these appropriations have increased considerably (Vocational Act of 1963). The U. S. Office of Education has published many helpful informational bulletins and papers on technical vocational education. Curriculum materials have been developed and others planned by the Division of Manpower Development and Training in the U. S. Office of Education (Appendix E). State Department of Education personnel assigned to vocational education are helping in the development of curriculum materials. However, the major responsibility for technical vocational education curriculum development appears to be at the local community college level. Administrators in charge of this type of education seek help from many sources.

One question to each study group asked the source of help used in the past and to evaluate each source. A coefficient of correlation was calculated on the responses to see how well they agree on sources. Figure 4 shows a $p = +.80$ or a high relationship in sources found helpful.

Figure 4. Sources of help for curriculum development.

Source	SD	CC
U. S. Office of Education	1	1
Community Colleges	2	2
Professional Publications	3	3
State Departments of Education	4	4

$N = 4 \quad \Sigma D^2 = 2 \quad p = +.80$
Data sources: Tables B-19 and C-4

The most significant source of help for the State Department administrator was that found in the U.S. Office of Education. The community college was found to be helpful to the state department and ranked equal to professional publications and better than other state departments of education. However, the latter three criteria were not ranked very high. The same four sources of help were suggested to the community college administrators. "Other community colleges" was ranked the highest, and the other three were scored about the same (Table B-19).

All ten state departments of education were reported to be helping the community colleges with curriculum development. The most important types of assistance given include providing procedures for the establishment and use of advisory committees and copies of curriculum materials developed by various agencies of government or other community colleges (Table C-4).

The community college administrator not only rates other community colleges as his most helpful source but values this source the greatest. He finds the state department as a source least helpful but valued this source greater than the other two mentioned (Table B-19). Had industry or commercially prepared materials been suggested on the questionnaire, either or both may have received a greater score. The coefficient of correlation is $p = +.80$ which may or may not be significant, depending on how a person wishes to evaluate it. It may

be important to know that both groups are not looking at the same source for help.

On the other hand the information obtained from a variety of sources may produce a deadlock or conflicting justification for a program. Industry as a source of help could possibly be the most important of all others suggested. How often the U.S. Office of Education looks to industry for help in curriculum development is unknown. It seems likely that if one community college looks to another for curriculum suggestions and ready made materials, the result will be that, sooner or later, all schools will be offering the same things. The coefficient of correlation resulted in a pure chance relationship when the sources are ranked as to value (Figure 5). For this reason, and because there appear to be a number of other sources listed by the community college administrators, the validity of this question and data reported are questioned by the writer.

Figure 5. Value of sources in curriculum development.

Source	SD	CC
U.S. Office of Education	1	1
Community Colleges	2	2
Professional Publications	3	3
State Departments of Education	4	4

$N = 4 \quad \Sigma D^2 = 10 \quad p = .00$
Data sources: Table B-20 and C-4

Someone at whatever level is appropriate should be looking

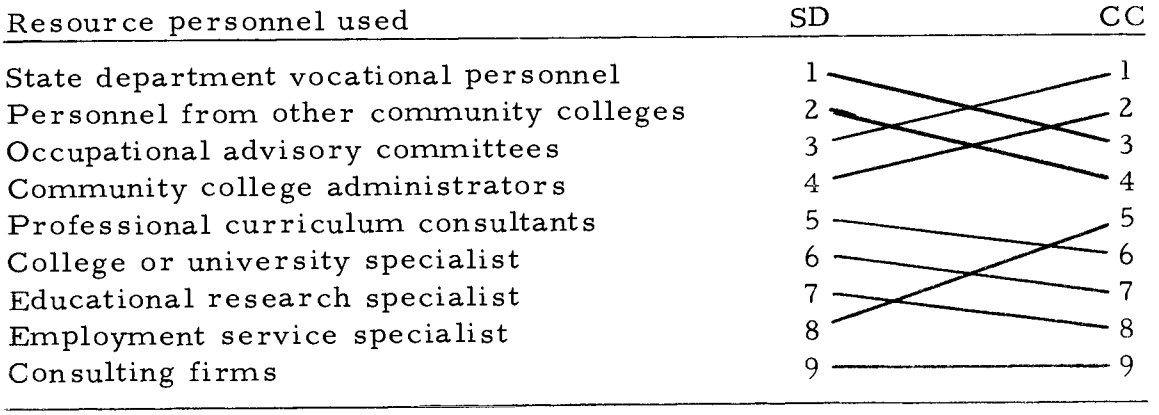
deeper into the real needs in the world of work. Perhaps educators at the local, state, and federal level should all work together on the determination of which curriculums and how many should be offered. The literature suggests the U.S. Department of Labor is interested in this problem and seems determined to become involved in its solution.

Resource Personnel Used in Curriculum Development

In the last question on sources of help found useful in curriculum development, the community college administrators provide a good list of other sources (Table B-19). The state administrators did not suggest others but were found to be using some of the same sources as the community college administrators. Another questions specifically about resource personnel was asked to better come to grips with this aspect of curriculum development. Here again a suggested list was given and others requested. However only the community college administrators were able to suggest additional resource personnel. Figure 6 shows the coefficient of correlation on this topic.

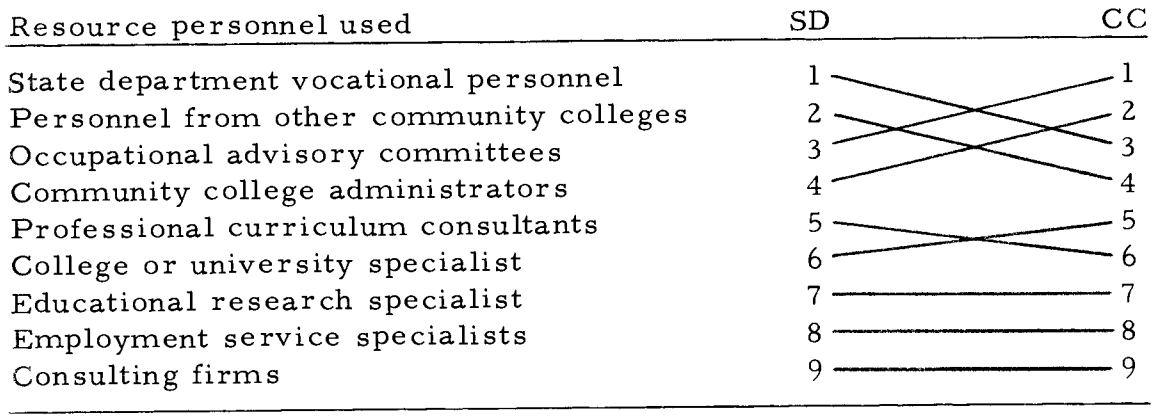
Both groups of administrators were asked to evaluate these resource personnel as to those which were the most helpful in curriculum development. A coefficient of correlation is shown in Figure 7 on the response to this question.

Figure 6. Frequency of use of resource personnel.



N = 9 $\Sigma D^2 = 28$ p = +.77
Data sources: Tables B-21 and C-5

Figure 7. Estimated value of resource personnel used.



N = 9 $\Sigma D^2 = 18$ p = +.85
Source of data: Tables B-22 and C-6

The coefficient of correlation on the frequency of use indicates that both groups compare favorably with a p = +.77. They both use the top four resource personnel but differ only in how often. The state department uses its own personnel and that of the community colleges most often, while the community college uses the occupational

advisory committe and the community college administrator most often. There appears to be a sharp difference in the apparent utilization of the employment service specialist. Those resource personnel used less frequently and least valued are the college and university specialist, educational research specialist, and consulting firms.

In the questionnaire to the community college administrators, three other resource personnel sources were suggested. The community college faculty was suggested and outscored all other sources mentioned as to frequency of use but was given a value less than occupational advisory committees. The faculty curriculum committee and industry educational specialists were used to some extent and valued at about midway on the scale.

Faculty Participation in Curriculum Development

A large majority of the community college administrators expect the faculty to develop their own curriculum materials (Table B-24). Of the 49 administrators who responded to this question, 43 or 84 percent said "Yes." Only six administrators said "No" the faculty were not expected to develop curriculum. It was suggested that some help was being provided the staff. Types of help suggested were in the general area of extended contracts, special assignments from time to time, and manpower supplied in the way of typing, duplicating, and the like. Other more specific kinds of help supplied the

faculty are covered under the heading of resources provided the faculty or staff in curriculum development.

Resources Provided the Faculty or Staff in Curriculum Development

It was found that State Department of Education staff and the community college faculty were expected to develop technical vocational curriculum. The comparison made here is on the basis of what items have been furnished these people or what resources are available to support curriculum development. One state used the word "limited" to describe the resources provided its staff, and seven community colleges were providing no curriculum development resources to the faculty. There were seven items suggested to aid the respondent and others requested. The following calculation of the coefficient of correlation will show how each group responded to the question.

Figure 8. Curriculum development resources provided.

Resources furnished	SD	CC
Time to visit colleges	1	1
Time to visit industry	2	2
Reference materials	3	3
Assistance of research apecialist	4	4
Professional library	5	5
Assistance of curriculum specialist	6	6
Extra pay for extra work	7	7

$N = 7 \quad \Sigma D^2 = 26 \quad p = +.54$

Data sources: Tables B-25 and C-7

The coefficient of correlation is not high. However, time to visit community colleges with programs of interest and to visit business and industry rank rather high. Desk copies of reference materials and the professional library appear to be next. The use of a research or curriculum specialist and extra pay for curriculum development outside of a regular work assignment ranked low in both cases. Other resources which merit mentioning are advisory committees, summer employment for the teachers, expenses to attend meetings, conventions, and workshops.

Budgeted Expenditures for Curriculum Development

Another way to approach the problem of determining the emphasis placed on curriculum development is to find out if there are funds available for the activities and how these funds are used. Both administrative groups were asked if a budget allocation was designated for curriculum development. There were five states, or just half, that provided such an allocation. Less than half (20 community colleges) were providing a budgeted amount for curriculum development.

A coefficient of correlation was calculated by comparing the types of expenditures suggested in the questionnaire. The result was $p = -.60$. Perhaps the fact that they relate at all is accounted for by their being suggested as possibilities on the questionnaire. The most often scored expenditure at the state level, "employment of community

college personnel," did not appear in the community college questionnaire. Of the remaining four on the state department level, "employment of a curriculum specialist" ranked highest. Two of the five states were contracting with other agencies on special projects and providing a curriculum library, while only one state was actually allocating funds to each vocational service in any specific amount. It should be rewarding to know that both groups are not spending their funds on the same kind of work.

Figure 9. Types of expenditures for curriculum development.

Types of expenditures	SD	CC
Employing a curriculum specialist	1	1
Providing a curriculum library	2	2
Contracting for special projects	3	3
Allocating funds to each department	4	4

$N = 4 \quad \Sigma D^2 = 14 \quad p = -.60$
Data sources: Tables B-23 and C-7

The community colleges were making expenditures mainly for curriculum library. Other expenditures including allocating each department a specific amount, contracting with other agencies on special projects, or occasional employment of a curriculum specialist. A variety of other expenditures suggested by the community college administrators indicated that nearly anything that appears profitable will be tried. Some of the most likely suggested were summer employment of staff to revise or develop curriculum, released time from

regular assignment, travel to meetings or visits to community colleges with programs of interest, and specific grants for requests to develop new courses of study. All of the latter group involve expenditures of a kind that invest time or money on the teaching staff of the community college.

State Department Assistance to Community Colleges

A question asked of the state department administrators specifically deals with the kinds of assistance the state staff are giving the community college administrators in curriculum development. All ten state directors agreed that they should and were providing assistance to the community colleges. The two most important were:

1. Procedures for the establishment and use of advisory committees,
2. Curriculum materials developed by various agencies of the government or other community colleges.

The majority were assisting the community college administrators by:

3. Funds to support the development of new technical vocational curriculums,
4. Employment security data that would be useful in determining new program needs,
5. Procedures for conducting a community survey,

6. State-wide studies made by the State Department of Education,
7. Pertinent findings and research conducted by the State Research Coordinating unit,
8. Names and availability of persons knowledgeable of curriculum development (consultants).

The kind of assistance least often given include:

9. Abstracts of innovations or imaginative approaches to curriculum development found in the literature,
10. A specialist in school building construction who can aid in the development of technical vocational facilities.

Changes in Curriculum Development

The community college and state department administrators were asked to describe any curriculum development changes that had occurred during the past few years. It was impossible to suggest what these changes might be. A space was provided for the respondent to describe briefly if a change had occurred. It was assumed the reason for each change would be implied in the nature of the change. The community college administrators were either more willing to respond to this question or fewer changes had actually occurred at the state department level.

Changes in Curriculum Development at the Community College Level

The major changes reported by the community college administrators can be explained in the one general concept of participation. Greater use of faculty committees, industry advisory committees, and the individual faculty member is reported most often. The apparent desire to involve the faculty more fully leads to the conclusion that much of what is offered by the community colleges in technical vocational education was established without faculty approval. Indications are that where faculty have been involved the procedures are becoming more formalized. Criteria for curriculum approvals and responsibilities expanded toward greater control by the curriculum committee. Perhaps this is due to reports that technical vocational curriculums are increasing in number and importance in the total offering at the community college level. One institution administrator suggested involvement of faculty in a significant way is valuable. However, it severely limits the ability of the college to meet changing needs, and in many cases blocks the orderly development of this kind of education.

The use of industry advisory committees to a greater extent appeared several times as a change in recent years. The need here seems to be that of a better or closer working relationship with the employing industry. In an earlier discussion of frequency of use and

value of helpful sources in curriculum development, the community college administrator ranked the occupational advisory committee number one. Like the state department administrator, he ranked in first position the need for new offerings to be based on employment. The industry committee is close to the problems of employment and can help the administrator develop the kind of content in the course offerings which produces a graduate more nearly suited to conditions at the time of initial employment.

Expansion of technical vocational education indicated as a change in recent years leads one to believe that community colleges are responding to the need in this area referred to in the literature. A more "comprehensive curriculum" and a "balanced community college concept" are phrases which indicate that more stress is being placed on a total offering that will serve a more diversified student body.

Changes in Curriculum Development at the State Department Level

Some states have recently created a separate administrative arrangement at the state level, namely, Washington and Colorado. This arrangement is implied by Arizona. How well the present technical vocational education personnel at this level work out a cooperative agreement with the existing officials who administer the federal vocational education acts is still unknown. Since these acts provide funds for both the high school and post high school, some division of

funds or priority system is needed to maintain balance and provide direction where the needs indicate they should be emphasized.

Half of the state department administrators indicated no major change in curriculum development had occurred during recent years. The remainder gave very little information in response to this question. A single word which might describe the situation at the state level is "organization." The state department administrator is trying to become more closely involved with the problems of curriculum development in the community colleges and to assist in every way possible. Since much of the work connected with administration of the federal acts requires the usual record keeping functions, formal approvals, and the like, it appears problematical that this level of administration will exert much leadership in curriculum development at the community college. This is an assumption rather than a finding and will vary from state to state based on the philosophy of the state director of vocational education and his position in the scheme of things. It is suggested that research is needed which will predict more adequately the best possible organization and activities for the state department that will result in better curriculum development.

Planning, Implementing, and Evaluating the Curriculum

Planning Activities Used by Community College Administrators

Once the decision is made to establish a new curriculum in a school, certain planning activities are needed in order to prepare for the new addition. These activities usually have two major aspects vital to curriculum planning. Both require involvement of the faculty, administration, board, labor, and management. Sometimes large segments of the community become involved.

The first important aspect of planning is to find out just what it is that should be offered in the curriculum. The course titles, content, objectives or behavior outcomes, and equipment, facility and faculty needs must be determined. Secondly, the support or justification needed to get a new curriculum approved by the state department requires data which will show employment opportunities and work-force needs on local, state, and national levels.

What these planning activities are and how often they were used is assumed to shed some light on the most desirable approach to planning the new curriculum. Ten possible ways of obtaining the needed data and involvement were suggested in the questionnaire. Not one administrator was willing to suggest others (Table B-31). The top five, or most often used, approaches were found to be the following:

1. Organize an occupational advisory committee to make a

study and recommend a program,

2. Determine the need for a curriculum by making a community survey,
3. Use employment service data for justification of program,
4. Make a preliminary study of the need, but not a survey as such,
5. Ask faculty member or department to make a study of need.

The least often used approaches to planning a new curriculum are:

6. Contact governmental agencies such as welfare, labor, for justification of program,
7. Ask the State Department of Education to assist in determining the need for a program,
8. Turn all curriculum requests over to the faculty curriculum committee,
9. Ask the State Research Coordinating Unit for help in making a study of need,
10. Hire outside specialists to make a study of need and recommend a program.

The direction that a planning study would take in each approach could be different. The variety of conceivable possibilities was considered just too much to be expected in a study of this type. Perhaps there is a need for further research in this area.

Implementing the New Curriculum

The amount of time needed to get a new technical vocational curriculum underway is very important to the community college. Generally new courses or additional offerings start at the beginning of the fall term of school. One question asked of the community college administrators suggested several activities and required the respondent to give the approximate length of time needed to perform each activity. The time periods were in months, and five possibilities for scoring were given. The range in the time periods was: one or less months, 2-4 months, 4-7 months, 8-12 months, and 12 or more months. The scores were averaged by totaling the months and dividing the number of responses to obtain an approximate time in months to complete each activity (Table B-32). The implementing activities are detailed by month and type on pages 112 and 113.

Evaluation of Technical Vocational Education

In order to keep the technical vocational program in harmony with the needs of students and employing industry, it is necessary to continuously evaluate the total program. No criteria were found in the literature being used for this purpose. High school level criteria were suggested by the writer and it was the administrators' job to evaluate the appropriateness of each by indicating "Excellent," "Good," or "Poor" (Tables B-33 and C-12).

Figure 10. Evaluative criteria comparisons.

Evaluative criteria	SD	CC
Materials appropriate to instruction	1	1
Instructor integrates job conditions	2	2
Employers approve of graduates ability	3	3
Worker skills and knowledge is taught	4	4
Activities are adapted to individual differences	5	5
Teachers understand the vocational curriculum	6	6
Curriculum reflects student or labor needs	7	7
Businessmen support the curriculum	8	8
Program adjusted to follow-up	9	9
Staff is trained in teaching methods	10	10
Counselors are informed about the curriculum	11	11
Instructors visit employed students	12	12
Teaching staff has work experience	13	13
Related courses are taught	14	14
Laboratory time meets needs	15	15
Equipment is adequate	16	16
Follow-up studies are conducted	17	17
Follow-up study reports are distributed	18	18
Facilities are planned for the curriculum	19	19
Instructor strives to improve community attitudes	20	20
Teaching staff understands students	21	21
Facilities are appropriate	22	22
Student achievements publicized	23	23
Advisory committees are used	24	24
Progress records are kept	25	25
Tests are given to show progress	26	26
Storage facilities are provided	27	27
Teachers have general education	28	28

$N = 28 \quad \Sigma D^2 = 63 \quad p = +.49$

Data sources: Tables B-33 and C-12

A coefficient of correlation of $p = +.49$ is viewed as a moderate relationship. To improve this factor it becomes necessary to point out the criteria which created the greatest disagreement. The criterion which stated that advisory committees were used extensively was ranked seventh by the community college administrators and

24th by the state department. Other criterion ranking tenth with community college administrators was the one stating that progress records are kept indicating the extent of student achievement. This criterion was placed 25th by state department administrators. It should be pointed out that agreement on each criterion may not be as important as it appears here in the ranking. The fact that the criteria were acceptable at all and ended up in the "Excellent" or "Good" value factor ranking is enough justification for suggesting the utilization of these evaluative criteria just as they are in this study.

The respondent was not given the opportunity to suggest other criteria. The length of the questionnaire was a problem and it appears that other criteria would not have been given if the space were provided. The most important aspect of this question was how well the criteria given were appropriate to evaluating a community college level technical vocational program.

Summary

This chapter is an analysis of data and findings of the study. Data from both questionnaires are brought together and compared by using the Spearman Rank Order Method. This method is thought to be appropriate when a relatively small number of scores are being related. A coefficient of correlation is calculated on the data where both questionnaires requested the same information. The study shows

a 100 percent sample of state directors of vocational education and a 92 percent sample of the community college administrators who agreed to participate in the study. This sample is considered good for this type of study.

A review of the curriculums offered in the 56 community colleges shows that for every one engineering related curriculum being offered there were nearly two nonengineering related. The latter group nearly doubled in growth from 1962 to 1966. New curriculum titles which were started during this period were in schools which had a minimal or no technical vocational offering in one of the groups in 1962. The top 12 curriculums in either major group continued to dominate the offering in 1966. However, the new curriculums started were not generally from this top 12 group.

The three states of California, Oregon, and Washington with 43, or 77 percent, of the schools in the study were offering 89 percent of the total technical vocational offering in the study. These same three states plan 98, or 76 percent, of all new curriculums reported to start between 1967 and 1970.

Enrollment figures from 36 community colleges show that technical vocational enrollment is approximately 32 percent of total enrollment and is likely to remain about the same up to 1970.

State department of education administrators agree basically with community college administrators on criteria for new course or

curriculum approvals. This criteria should consist primarily of data to support the new offering based on advisory committee consultation and employment needs of business and industry with appropriate faculty involvement and approvals.

The community college faculty and state department staff are expected to develop curriculum. Sources of help for both groups consist of materials available through the U.S. Office of Education, materials from other community colleges, professional publications, and what assistance can be given by the state department of education vocational education staff. Resource personnel consist mainly of advisory committees, state department and community college personnel.

Funds allocated for curriculum development are used primarily to employ community college personnel, employment of a curriculum specialist, contracting for special projects, and allocating funds to each department. Other important types of expenditures reported by the community college administrators were summer employment of staff to revise or develop curriculum, released time from regular assignment, travel to meetings, or visits to community colleges with programs of interest.

All ten state departments of education were reported helping the community colleges in curriculum development. The most important types of help included procedures for establishing an advisory

committee and for conducting a community survey, curriculum materials developed by other agencies, employment service data, and funds to support curriculum development activities.

Changes in curriculum development in recent years reported by the community college administrators show a greater use of faculty committees, industry advisory committees, and greater involvement of individual faculty members. The state departments of education reported changes in curriculum development guidelines, working out arrangements with state community college boards, and contracting with several community colleges for the funding of curriculum development laboratories.

The planning of a new curriculum requires the use of advisory committees, community surveys, employment service data, and faculty participation. The implementing activities overlap some with planning and indicate that it takes a minimum of nine months leadtime to prepare for the new offering. Evaluation of the curriculum is a continuous process and is based on a number of different criterion. These criteria are grouped into the general headings of administration and supervision, teaching staff, instructional program, physical provisions, school-community relations, and follow-up. Both administrative groups differ some on the ranking of these criteria but rate them all in the "Excellent" or "Good" category when they were asked how well each was appropriate for the successful operation of a

technical vocational program.

The administrators of technical vocational education at the community colleges and the state directors of vocational education agree basically on many points. The areas of substantial or high agreement were: criteria for curriculum approvals, sources of help for curriculum development, and frequency of use and value of resource personnel. Moderate agreement was found in the type of resources provided the faculty and staff at both levels, and evaluative criteria suggested for the determination of a successful technical vocational offering. There was no agreement at all on the value of sources for curriculum development. The types of expenditures for curriculum development had a moderate negative correlation which was shown to be a desirable factor in that both groups were not spending their funds for the same type work.

VI. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter has three major purposes: 1) to summarize the study by showing the problem, procedures used, participants in the study, the significance of the literature to the solution of this problem, and to summarize the findings from both questionnaires that answer questions posed in the original problem, 2) to summarize the conclusions which the literature and questionnaires reveal about the problem, and 3) to suggest recommendations both for the improvement of curriculum development and for further study in the area of curriculum planning, implementing, and evaluating.

Summary

The problem in this study deals directly with current practices in curriculum development in technical vocational education in the community colleges of the western states. Two questionnaires were constructed for the study. One was designed for community college administrators of technical vocational education, and one for the state directors of vocational education. Questionnaires were returned by the state directors of Alaska, Arizona, California, Colorado, Idaho, Montant, Oregon, Utah, Washington, and Wyoming. There were 56 community college administrators who returned questionnaires.

The 1962 U.S. Office of Education study made by Ken Brunner

was used to identify the curriculum titles, divisions, and subdivisions used in this study. The parallel movements of vocational education and the community college were summarized to establish a historical setting.

Issues and trends in technical vocational education were recorded to emphasize the importance of technical vocational education and the role the community college plays in this type of occupational education. A brief description of the findings will point out the main points of the study.

In stating the problem in the study eight specific questions were asked. Each question deals with a different aspect of curriculum development. A summary of the response to these questions is reported here.

Community colleges, state departments of education, and the U.S. Office of Education were found to be active in technical vocational curriculum development. Both administrative groups surveyed suggest the community college is basically responsible for the development of curriculum. The community college and state department administrators and boards must approve new offerings especially where state or federal funds are requested.

Major changes in curriculum development that have occurred in recent years indicate a more extensive use of advisory committees. Other changes at the community college level suggest greater

involvement of faculty and attempts at strengthening or expanding the technical vocational offering. State departments are producing guidelines, working out cooperative arrangements with state community college boards, and contracting or funding curriculum laboratories. All ten states were reported helping the community colleges as their vocational directors felt they should.

The community college administrator in his efforts to develop curriculum found information from other community colleges his most important source. Curriculum materials found in the professional literature and from the state department or U.S. Office of Education ranked high in value. Other important sources of assistance in curriculum development were advisory committees, faculty, local surveys, and attendance at professional meetings.

Expenditures made from budgeted funds for curriculum development were reported in less than half of the community colleges and 50 percent of the state departments. Professional libraries, summer employment, release time to work on curriculum, travel time and expenses, contracting with other agencies, and employment of a curriculum specialist took most of the funds budgeted for this purpose. A big majority of the college administrators and all the state vocational directors expect faculty and staff to develop curriculum materials as a part of their regular assignment.

Enrollments and the number of technical vocational curriculums

were increasing in the study region. This growth is occurring in the curriculum titles most often offered in the engineering and nonengineering related divisions. The latter nearly doubled in the past five years. Technical vocational students number approximately one-third of the study bodies and this ratio is expected to remain constant for the next three years. California, Oregon, and Washington plan to start most of the new offerings the next three years.

Planning activities used by most of the community college administrators involve organizing an occupational advisory committee to make a study and recommend a program, making a community survey to determine the need for a curriculum, using employment service data for justification of a program, and by asking a faculty member to make a study of need for the curriculum.

It takes from four to nine months to implement a new technical vocational offering which involves working out all the curriculum details, recruiting students, employment of an instructor, and purchasing equipment and supplies.

Evaluative criteria used for many years to determine a successful high school vocational program can be used to evaluate a community college level technical vocational program.

Conclusions

The conclusions to this study are listed below in the same

general order as the data appears in the chapters which support these conclusions.

Conclusions from the Review of the Literature

Several conclusions can be drawn from a review of the literature and related studies. The most important are reported in this summary. They are as follows:

1. The federal government has taken increasing interest in the promotion and finance of vocational education the past 50 years.
2. The vocational acts passed over the years have been expanded to include a greater number of occupations or fields of work designed to serve larger numbers of students.
3. The community or junior college administrator has been reluctant to include technical vocational education in the total school offering.
4. The technical vocational offerings in the community college have grown slowly over the years.
5. Vocational education of college grade has become more acceptable to the community college administrator as the institution has emerged from the junior or transfer function to the community concept of serving all the people in the service area.

6. Master planning of technical vocational education should take into account the offerings of all post-high school public and private institutions.
7. The issues in community college technical vocational education are primarily related to the problem of the responsibility of the community college for this type of education.
8. Trends in technical vocational education indicate the community college is the most logical institution to expand this type of education. This depends largely on how well the leaders of these institutions come to understand the problems and deal effectively with them.
9. The future of technical vocational education indicates that this type of education will expand as automation, new breakthrough in science, and other technological changes take place.
10. The federal government is determined to expand technical vocational education. If the public schools do not produce this expansion within the present educational framework other agencies will be given this assignment.

Conclusions from Community College Questionnaires

A number of conclusions can be taken from the data reported by the technical vocational education administrators in the community

colleges. They are as follows:

1. The number of curriculums and enrollment are growing in technical vocational education. This growth compares favorably with total growth in enrollment.
2. New courses and curriculums must be approved by either the community college administration or board or both.
3. Community college administrators of technical vocational education seek help in curriculum development in many ways. However, they find materials from other community colleges most helpful.
4. The community college faculty are expected to develop curriculum materials as part of their regular assignment.
5. Occupational advisory committees are the greatest help to the community college administrator in curriculum development.
6. Expenditures for curriculum development at the community college level consist most of providing a professional library and for special projects or assignments. Few community colleges provide a budget allocation for curriculum development.
7. Community college administrators are trying to help the faculty develop technical vocational programs.
8. The community college administrators believe the

community college is the best location for curriculum development. Some activities could be shared with the State Department of Education and a university based curriculum development center.

9. The organization of an occupational advisory committee to assist in making a community survey is the best way to plan a new curriculum.

10. The activities performed in implementing a new offering require the better part of a full school year.

11. Criteria used to evaluate high school level vocational education will serve just as well to evaluate post-high school technical vocational education.

12. Faculty members are being involved more in curriculum development.

Conclusions from State Director of Vocational Education Questionnaires

The data received from state directors of vocational education provide evidence to support several conclusions. They include:

1. The state department of education vocational administrator or the board want to approve all new technical vocational courses or curriculums, especially where state or federal funds are to be requested for support of these offerings.

2. Requests for approval of new offerings made to the state department of education require the same information needed for community college approval.
3. The vocational education staff in the state department are helping the community college administratros develop technical vocational curriculum materials.
4. The major kinds of assistance given to the community college administrator by the state department include procedures for the establishment and use of advisory committees, copies of curriculum materials developed by other community colleges, funds to support curriculum development and employment service data.
5. The state department of education staffs are expected to develop technical vocational curriculum materials.
6. Resource personnel used by the state department staff in curriculum development include other department vocational staff, community college persons, and occupational advisory committees.
7. Some state departments allocate funds for curriculum development. These funds are used primarily to employ a curriculum specialist, provide a professional library and for contracting with other agencies for special projects.
8. The state department administrator believes the community

college is the best location for curriculum development. Some activities could be shared with the state department and a university based curriculum development center.

9. The vocational research coordinating units in most states contribute very little to technical vocational curriculum development.

10. State department administrators of vocational education believe that general education provided the technical vocational student should be specially designed to fit his needs.

11. State department administrators believe that high school level evaluative criteria can be used to evaluate the post-high school technical vocational offering.

12. Recent changes in curriculum development at the state department level include producing guidelines, working out arrangements with state community college boards, and contracting with community colleges by funding curriculum laboratories.

Recommendations

This study has revealed much about the practices and procedures used in the development of technical vocational curriculums. There are several areas where it would improve the curriculums offered to change some of these practices. Recommendations are made

to three major groups: 1) The U.S. Office of Education, Division of Vocational Education, 2) the state departments of education, and 3) to the community college chief administrators.

1. The U.S. Office of Education is eager to respond to the challenge of expanding technical vocational education. The Division of Vocational Education in this office is producing curriculum materials. It is recommended that:

   a. The U.S. Office delegate the curriculum development function downward to the community college level where it is believed curriculum development belongs.

   b. Funds being used at the U.S. Office of Education level be expanded, earmarked, and used to finance curriculum laboratories at the community college or curriculum development centers at the university level, thus placing these activities closer to the community college.

   c. Funds available to the U.S. Office of Education be used to develop leadership conferences, seminars, workshops, or summer institutes where the community college administrators can attend and learn the best procedures in curriculum development.

   d. Greater emphasis be placed on curriculum development as a means of improving the technical vocational

offering specifically at the community college level.

e. The U.S. Office of Education appoint a task force of community college administrators, faculty, and board members to master plan a method for advancing technical vocational education in the community colleges of the country.

2. The state departments of education in the various states are reacting to the federal acts and promoting technical vocational education in their respective states. It is recommended that:

a. The State Department of Education delegate downward the major portion of technical vocational curriculum development to place it closer to the community college level.

b. Funds being used at the state department of education level be earmarked, expanded, and used to finance curriculum laboratories at the community college level.

c. Funds available to the state departments of education be used to stimulate curriculum research and development at the university level.

d. The state departments assist the U.S. Office of Education in establishing leadership conferences, seminars, workshops, and summer institutes by urging the

community college technical vocational administrators to attend these meetings.

e. The state departments of education use their professional staff in a consulting and advising way as opposed to actual working on curriculum development.

f. The state departments of education seek out and make available lists of highly qualified persons that could be used by the community colleges on an advisory or consulting basis.

3. The community college administrators of vocational education are basically responsible for technical vocational education curriculum development. It is recommended that:

a. The community college administrator take every possible chance to improve his knowledge and skill in the development of curriculum materials. This means attendance at conferences, seminars, workshops, and summer institutes where curriculum matters are discussed and emphasized.

b. The community college administrator urge his chief administrator to allocate funds specifically for curriculum development as an important activity as opposed to hiding it under some other budget heading or expecting the faculty to do this work as part of their regular

assignment.

c. The community college administrator seek out those faculty members who are highly qualified and encourage them to become active in curriculum development.

d. The community college administrator establish a curriculum development laboratory where faculty can become involved in actually developing curriculum. This laboratory will serve as an operating base for a total faculty in-service program.

e. The community college administrator look upon curriculum development as a major part of his job which requires the best he can give it as opposed to a task needed only to gain community college or state department approvals for a new offering.

Recommendations for Further Research

This study indicates that further research is needed in the practices of curriculum development in technical vocational education. Curriculum development is one of the many activities which require planning, implementing, and evaluating the technical vocational offering. The expectation of good curriculum planning is that student behavioral outcomes will be in harmony with the objectives of the curriculum. Therefore it is recommended that research is needed that

will isolate good teaching practices and instructional procedures best suited to teaching technical vocational subjects.

This study found that no new curriculum titles emerged between 1962 and 1966. Furthermore no new curriculum titles were included in the technical vocational curriculums planned to start between 1967 and 1970. If technology, automation, and new breakthroughs in science are creating a change in the employment requirements of workers it would appear that new and different curriculum titles would appear. It is therefore recommended that further research be undertaken to isolate these new types of work, and to indicate how this may be included in the community colleges.

The idea of a unviersity based curriculum development center was suggested in this study. The response to this idea was encouraging since no state in the study region had such a center. It is recommended that further research is needed to outline procedures for the establishment of curriculum centers as well as the qualifications of the staff, their duties and responsibilities, and potential financing.

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APPENDICES

APPENDIX A

Date

Name
Address
City and State

Dear Sir,

Mr. Dick Boss, a former community college president, is working under my direction on a study of curriculum practices in the technical vocational aspects of the community colleges of the western states as a part of his doctoral requirements. We will very much appreciate your help in this study.

The questionnaire, which can be easily checked, will be sent to the administrator in your college who is responsible for the supervision of technical vocational education or that person whose duties require given direction to and leadership in the curricula designed to prepare persons for employment upon graduation in professional, semi-professional, technical, and skilled-level fields of agriculture, business, industry, health, home economics, and public service.

We hope you will accept this invitation to participate and provide the necessary information requested on the attached form. Please return attached page in the enclosed self addressed envelope.

Sincerely yours,

Lester M. Beals
Professor of Education

COMMUNITY COLLEGE TECHNICAL VOCATIONAL EDUCATION

STUDY PRELIMINARY QUESTIONNAIRE

to

COLLEGE ADMINISTRATORS

Will your institution participate?

Yes_____

No_____

If yes, will you give the name and title of the person to whom the questionnaires should be sent.

NAME_____

TITLE_____

ADDRESS_____

_____

Will you send us a copy of your 1966-67 catalog.

Date

Name
Address
City and State

Dear Sir,

The attached letter and preliminary questionnaire form were mailed to you about two weeks ago. Since your reply has not reached our office, we have decided to write again.

You may have given this item to a colleague or misplaced it with your other items of work. You may simply have decided not to participate. Whatever the case, we hope you will respond favorably to this inquiry; since your school was selected on a predetermined basis and is vital to this study.

The questionnaire form will be easily scored so that little time is actually required.

We will appreciate your cooperation.

Sincerely yours,

Lester M. Beals
Professor of Education

Enclosure

LMB:lj

March 22, 1967

To: Technical Vocational Education Administrators
Community Colleges

The encolosed questionnaire is being sent to administrators of technical vocational education in select community colleges of the ten western states. Your college administrator has agreed to participate in the study. He gave your name as the person I should contact to represent your institution.

The questionnaire has been constructed for easy and fast scoring. The items require mostly a simple check or circle of suggested answers. Those who have previously reviewed the material say it takes about thirty-five minutes to mark.

The last page dealing with enrollment can be detached and given to your registrar or admission office wherever enrollment figures are maintained. Other items require your opinions, judgements or views on matters dealing with curriculum practices at your institution.

I greatly appreciate your contribution to this study.

Sincerely,

Richard D. Boss

Enclosure

Date

Name
Address
City and State

Dear Sir:

One of our doctoral candidates, Dick Boss, is making a study of curriculum procedures in technical-vocational education in the community colleges of the western part of the United States. Your college was included in the study and a questionnaire sent to _____ _____. In accordance with your recommendations, Mr. _____ has not returned the questionnaire, as of this date, and we would like very much to have your institution included. It would be very much appreciated if he could be reminded about this so that we could have a completed questionnaire within the next week or so. If the questionnaire has been inadvertently lost, please let us know and we will send another one at once.

I trust that everything is going well with you.

Sincerely,

Lester Beals,
Professor of Education

June 6, 1967

LETTER TO STATE DIRECTORS OF VOCATIONAL EDUCATION

I am presently making a study of current practices in curriculum development of technical vocational education at the post-high school level with special concern for the community-junior college. This study is in connection with my doctoral program at Oregon State University.

The questionnaire is easily scored and deals primarily with opinions, views and judgements related to the assistance which the State Departments of Vocational Education provide the community or junior college administration in the planning, implementation and evaluation of organized occupational curriculums--no special data will need to be gathered.

Dr. Wm. G. Loomis, our Oregon State Director of Vocational Education is very interested in this project. He suggested that you may want to suggest someone other than yourself--a person with all-service responsibilities or with a multi-service viewpoint--to score the questionnaire.

My purpose in writing is twofold: (1) Will you participate in the study? , and (2) If yes, to whom should we send the questionnaire?

Very truly yours,

Enclosure

Richard D. Boss

PLEASE RETURN THIS PORTION

PLEASE SIGNIFY:

(1) Will you participate in the study? ____Yes ____No

(2) To whom shall we send the questionnaire?

Name_____

Title_____

Address_____

_____ Zip Code_____

THANK YOU

July 1, 1967

TO: Technical Vocational Education Administrators
State Departments of Education

The enclosed questionnaire is being sent to administrators of technical vocational education in select state departments of education. Your state vocational education director has agreed to participate in the study. He gave your name as the person I should contact to represent your state office.

The questionnaire has been constructed for easy and fast scoring. The items require mostly a simple check or circle of suggested answers. Those who have previously reviewed the material say it takes about thirty-five minutes to work.

I greatly appreciate your contribution to this study.

Sincerely,

Richard D. Boss

Enclosure

Date

Name
Address
City and State

Dear Sir,

One of our doctoral candidates, Dick Boss, is making a study of curriculum development procedures in technical vocational education as it applies to community colleges. Your state department was selected as one to score a questionnaire on state level participation.

A questionnaire is enclosed for your consideration. I trust that you or some member of your staff will score and return this questionnaire to Mr. Boss.

Sincerely,

Lester Beals
Professor of Education

Enclosure

QUESTIONNAIRE

Community College Administrators of Technical Vocational Education

Name of Institution _____ Number _____

Address _____ Date Mailed _____

Name of Respondent _____ Date Received _____

Title _____

This questionnaire is designed to sample opinions, views, and judgments of the community college administrator of Technical Vocational Education. It deals with current practices in curriculum development in technical vocational education at the post high school level with special concern for the community college.

"Technical vocational education" is defined as preparing persons for employment in semiprofessional, technical, and skilled fields of agriculture, business, industry, health, home economics, and public service.

"Curriculum" will concern any question of what to teach in the school. This study also deals with such problems as enrollment, length of training, use of resource people, source of curriculum materials, and criteria for the planning, implementation, and evaluation of the curriculum. (Note: It may be helpful to check your registrar or admissions office for enrollment.)

INSTRUCTIONS

This study seeks data on organized occupational curriculums only. It is concerned with whole curriculums, not individual courses. For purposes of this study, an organized occupational technical vocational curriculum is one which meets all five of the following criteria.

1. High school graduation (or its equivalent or age 18), but no work beyond the high school level, is required for admission to the curriculum, which extends from one to three years beyond the high school.
2. The curriculum is a series of required and elective courses constituting an integrated program prescribed by the institution to assist in the general education and training of the individual, but more particularly, in his training as a future practitioner in a given occupation or cluster of occupations. A group of courses, even though all of them be in a given occupational area, does not necessarily constitute a curriculum.
3. Individual courses in the curriculum may be credited toward a bachelor's or first professional degree for transfer; however, the curriculum as an organized program is designed to educate or train primarily for occupational competence, rather than for transfer or degree credit. The objectives of the curriculum itself should be considered rather than the intentions of the students involved.
4. Completion of the curriculum requires at least <u>one</u> but less than <u>four</u> years of full-time attendance. A "year" means an academic year of approximately <u>nine</u> months.
5. The curriculum leads to a certificate, diploma, associate degree, or other formal award signifying that the student has completed an organized program in an occupational area; or the state grants a license or other formal recognition, without examination, to all graduates of the curriculum.

1. The following list of engineering-related occupational curriculums were found, by the U.S. Office of Education (OE-54012-62), to be offered in the community colleges in the fall of 1962. Please check those which were offered at your institution in 1962 and 1966. Please circle the number of years in length.

Curriculum	Fall of 1962	Fall of 1966	Length of Curriculum (Circle No. of Years)		
Aircraft design or drafting	____	____	1	2	3
Aircraft maintenance	____	____	1	2	3
Airport operation & management	____	____	1	2	3
Airframe & power plant mechanic	____	____	1	2	3
Architectural technology	____	____	1	2	3
Building & construction technology	____	____	1	2	3
Chemical technology	____	____	1	2	3
Civil technology, general	____	____	1	2	3
Civil drafting & design	____	____	1	2	3
Road construction	____	____	1	2	3
Structural engineering technology	____	____	1	2	3
Surveying	____	____	1	2	3
Electrical technology, general	____	____	1	2	3
Electrical construction & wiring	____	____	1	2	3
Electronics, general	____	____	1	2	3
Computer laboratory	____	____	1	2	3
Instrumentation	____	____	1	2	3
Radio and TV Repair	____	____	1	2	3
General Engineering technology	____	____	1	2	3
Industrial technology	____	____	1	2	3
Technical sales	____	____	1	2	3
Mechanical technology, general	____	____	1	2	3

Curriculum	Fall of 1962	Fall of 1966	Length of Curriculum (Circle No. of Years)		
Air conditioning, heating & refrigeration	____	____	1	2	3
Automotive technology	____	____	1	2	3
Diesel technology	____	____	1	2	3
Mechanical drafting and machine design	____	____	1	2	3
Watchmaking	____	____	1	2	3
Tool and die design	____	____	1	2	3
Mechanics, other	____	____	1	2	3
Metallurgical technology	____	____	1	2	3
Naval and marine technology	____	____	1	2	3
Nuclear reactor or atomic materials technology	____	____	1	2	3
Petroleum technology	____	____	1	2	3
Environmental health or sanitary technology	____	____	1	2	3
Welding technology	____	____	1	2	3
Food processing technology	____	____	1	2	3
Optical technology	____	____	1	2	3
Photographic technology	____	____	1	2	3
Wood technology	____	____	1	2	3

2. List all the engineering related organized occupational curriculums offered by your institution which have not been included in the list of Question 1. Please give the year instituted and circle the number of years in length.

Curriculum Title	Year Instituted	Length of Curriculum (Circle No. of Years)		
_____	_____	1	2	3
_____	_____	1	2	3
_____	_____	1	2	3

3. The following list is of nonengineering related occupational curriculums which were being offered in the community colleges in the fall of 1962. Check those which were offered at your institution in 1962 and 1966. Please circle the number of years in length.

Curriculum	Fall of 1962	Fall of 1966	Length of Curriculum (Circle No. of Years)		
Animal Science	____	____	1	2	3
Dairy technology	____	____	1	2	3
Horticulture & floriculture	____	____	1	2	3
Industrial agriculture	____	____	1	2	3
Agriculture, general	____	____	1	2	3
Accounting & financial management	____	____	1	2	3
Executive assistant	____	____	1	2	3
Hotel or restaurant management	____	____	1	2	3
Publishing & printing management	____	____	1	2	3
Secretarial, general	____	____	1	2	3
Secretarial, legal	____	____	1	2	3
Secretarial, medical or dental	____	____	1	2	3
Medical or dental office assistant	____	____	1	2	3
Secretarial, technical or engineering	____	____	1	2	3
Technical office assistant	____	____	1	2	3
Real estate and insurance	____	____	1	2	3
Retail sales, purchasing or merchandising	____	____	1	2	3
Transportation & traffic management	____	____	1	2	3
Beauty shop management	____	____	1	2	3
Business, general	____	____	1	2	3
Commercial art & advertising	____	____	1	2	3
Fashion design	____	____	1	2	3

Curriculum	Fall of 1962	Fall of 1966	Length of Curriculum (Circle No. of Years)		
Interior decorating	____	____	1	2	3
Photography	____	____	1	2	3
Radio & TV program production	____	____	1	2	3
Publishing & printing technology	____	____	1	2	3
Other applied, fine and graphic arts	____	____	1	2	3
Forestry technology	____	____	1	2	3
Dental assistant	____	____	1	2	3
Dental hygiene	____	____	1	2	3
Dental laboratory technician	____	____	1	2	3
Medical or biological laboratory technician	____	____	1	2	3
Nursing, practical or vocational	____	____	1	2	3
Nursing program	____	____	1	2	3
X-ray technology	____	____	1	2	3
Home economics or homemaking	____	____	1	2	3
Clothing and textiles	____	____	1	2	3
Food administration	____	____	1	2	3
Data processing	____	____	1	2	3
Programmer	____	____	1	2	3
Industrial or labor relations	____	____	1	2	3
Fire protection technology	____	____	1	2	3
Police technology	____	____	1	2	3

4. List all the nonengineering related organized occupational curriculums offered by your institution which have not been included in the list of Question 3. Please give the year instituted and circle the number of years in length.

Curriculum Title	Year Instituted	Length of Curriculum (Circle No. of Years)		
_____	_____	1	2	3
_____	_____	1	2	3
_____	_____	1	2	3

5. What new technical vocational curricular offerings are you planning to start in the next three years? (Please specify)

Curriculum Name	Anticipated Length in Years		
_____	1	2	3
_____	1	2	3
_____	1	2	3

6. Does your State Department of Education establish minimum standards for curriculum approval?

Yes_____ No_____

7. Does your institution have formal requirements for curriculum approval (recognized as board or administrative policy)?

Yes_____ No_____

If yes, check the following criteria which are a part of these requirements.

If no, check the following criteria used in program planning, implementing, and evaluating as a matter of routine practice.

a. _____ All new programs or modifications of existing programs must have approval of a faculty curriculum committee

b. _____ All new courses or curriculums must have the appropriate departmental or divisional approval

c. _____ Each technical vocational curriculum must have an occupational advisory committee

d. _____ The community college board must approve all new curricular offerings

e. _____ Each technical vocational curriculum must have an identifiable budget allocation for equipment and supplies

f. _____ All curriculum courses must have written course outlines approved by the State Department of Education

g. _____ Degree requirements are specific and well defined

h. _____ New curriculums or new courses or modification of existing courses must be based on employment opportunities, actual or anticipated

i. _____ Some evidence of source and extent of potential student enrollment must accompany each new curriculum or course application for approval

j. _____ Evidence must be shown that new courses will not duplicate other courses

k. _____ Each application for a new or different course must include what business or industry groups have endorsed or been consulted about the program

l. _____ Other, specify_____

_____

8. What changes were made in your curriculum development procedures during the past few years? It is difficult to suggest what changes might have occurred; so please describe as briefly as possible.

_____

_____

_____

_____

_____

_____

9. Do you find curriculum materials from outside sources helpful in developing your school program?

Yes_____ No_____

If yes, please check source used in the past.

Also, please rank the sources as to value by giving the most important source number one, and so on.

		Value
a. _____	United States Office of Education	_____
b. _____	State Department of Education	_____
c. _____	Other Community Colleges	_____
d. _____	Professional Publications	_____
e. _____	Other, please specify_____	_____
f. _____	_____	_____
g. _____	_____	_____

10. Is your institution providing curriculum development resources to the faculty?

Yes_____ No_____

If yes, which of the following items are furnished?

a. _____ Professional library

b. _____ Desk copies of reference materials

c. _____ Research specialist

d. _____ Consultants

e. _____ Curriculum specialist

f. _____ Time to visit other schools

g. _____ Extra pay for curriculum development

h. _____ Summer employment to work on curriculum materials

i. _____ Time to visit business or industry

j. _____ Other, please specify_____

_____

11. Does your institution provide a budget allocation for curriculum development in technical vocational education?

Yes_____ No_____

If yes, how are these funds expended? Please check those that apply.

a. _____ Employing a curriculum specialist

b. _____ Contracting other agencies for special projects

c. _____ Providing a curriculum library

d. _____ Allocating each department a specific amount

e. _____ Other, please specify_____

_____

12. Check how often your institution has utilized the following resource personnel in curriculum development within the past three years. Please rank the top five, which were the greatest help to you in curriculum development. Use number one to indicate which of the five was most helpful.

Resource Personnel	Very Much	Some	Seldom	None	Ranking Top 5
a. Your college faculty members	_____	_____	_____	_____	_____
b. Your college administrator	_____	_____	_____	_____	_____
c. Occupational advisory committees	_____	_____	_____	_____	_____
d. Professional curriculum consultants	_____	_____	_____	_____	_____
e. Faculty curriculum committee	_____	_____	_____	_____	_____
f. State Department of Education vocational personnel	_____	_____	_____	_____	_____
g. Industry educational specialist	_____	_____	_____	_____	_____
h. Technical vocational personnel from other community colleges	_____	_____	_____	_____	_____
i. College or university specialist	_____	_____	_____	_____	_____

Resource Personnel	Very Much	Some	Seldom	None	Ranking Top 5
j. Employment service specialist	____	____	____	____	____
k. Educational research specialist	____	____	____	____	____
l. Consulting firms	____	____	____	____	____
m. Others, please specify					
_____	____	____	____	____	____
_____	____	____	____	____	____
_____	____	____	____	____	____

13. Some states have a Central Curriculum Development Center, usually located at one of the university campuses, with a professional staff for technical vocational curriculum development, instructional materials development, and audio-visual aids procurement and distribution. Does your state have a similar center?

Yes_____ No_____

14. If a Curriculum Development Center were established in your state, or if you have a Center presently, where would you prefer the following activities carried out?

CC Community College Level
SD State Department of Education Level
CDC Curriculum Development Center Level
O Other (Please specify under "m" below)

Please check the appropriate column.

	CC	SD	CDC	O
a. Technical vocational education curriculum research				
b. Regional studies of employment opportunities				
c. Curriculum organization and refinement				

		CC	SD	CDC	O
d.	Course construction and course outlines				
e.	Lesson planning				
f.	Development of audio-visual aids				
g.	Development of achievement tests				
h.	Development of follow-up procedures				
i.	Selection of text books				
j.	Development of course "handouts"				
k.	Development of promotional materials				
l.	Laying out building plans and specifications				
m.	Other, please specify_____				

15. A good many community colleges require all technical vocational students to take a minimum number of course units in general education. This requirement is usually met by: (1) taking college transfer courses, or (2) by taking courses especially designed for the technical vocational student. Which of the two methods is used by the majority of your students? (Please check one.)

a. _____ College transfer (lower division) courses

b. _____ Specially designed courses

16. Do you believe the courses taken by the majority of your students comprise the most appropriate general education for the technical vocational student?

Yes_____ No_____

17. Are your technical vocational students permitted to take lower division (transfer) courses as part of their program of studies?

Yes_____ No_____

If yes, are any of these courses required?

Yes_____ No_____

18. Does your institution have an instructional materials center where audio-visual aids and the like are developed for the instructor?

Yes_____ No_____

19. Is your faculty required to develop its own curriculum materials?

Yes_____ No_____

20. Is this requirement considered part of the regular teaching assignment or is extra time given for this activity?

a. _____ Part of regular teaching assignment

b. _____ Given extra time for curriculum materials development

c. _____ Others, please specify_____

_____

_____

21. In the planning stages of a new technical vocational curriculum which of the following activities are being used by your institution? Please circle the number of the statement which most nearly represents how often the activity is being used by your institution.

Activity	Often or Always	Frequently	Seldom or Occasionally	Never
a. Determine the need for a curriculum by making a community survey	1	2	3	4
b. Make a preliminary study of the need, but not a survey as such	1	2	3	4
c. Turn all curriculum requests over to the faculty curriculum committee	1	2	3	4
d. Use Employment Service data for justification of a program	1	2	3	4
e. Contact governmental agencies such as welfare, labor, for justification of a program	1	2	3	4
f. Ask the State Department of Education to assist in determining the need for a program	1	2	3	4
g. Ask the State Research Coordinating Unit for help in making a study of need	1	2	3	4
h. Hire outside specialists to make a study of need and recommend a program	1	2	3	4
i. Ask a faculty member or department to make a study of need	1	2	3	4
j. Organize an occupational advisory committee to make a study and recommend a program	1	2	3	4
k. Other, please specify_____	1	2	3	4

_____

22. Implementing, or getting a new technical vocational curriculum started, requires time to prepare. How far in advance of the starting date are the following activities usually performed? Please circle the number under the advanced time period which best represents your practices.

Implementing Activity	Advanced Time Needed in Months				
	1 or less	2-4	5-7	8-12	Over 12
a. Complete curriculum designed with course descriptions and objectives developed	1	2	3	4	5
b. State Department of Education approval to start a new program curriculum	1	2	3	4	5
c. Occupational advisory committee appointed and deeply involved in the project	1	2	3	4	5
d. Leaflets or booklets describing the program published and available to prospective students	1	2	3	4	5
e. All courses approved by the State Department of Education	1	2	3	4	5
f. Instructor needs determined	1	2	3	4	5
g. Instructors hired and on duty	1	2	3	4	5
h. Instructor given proper teacher training and certified	1	2	3	4	5
i. Building space needs estimated	1	2	3	4	5
j. Building space designated and available	1	2	3	4	5
k. All equipment and supplies itemized and budgeted for	1	2	3	4	5
l. All equipment purchased, installed, and ready for use	1	2	3	4	5
m. Source of students determined	1	2	3	4	5
n. Students recruited, screened, and ready to begin	1	2	3	4	5
o. Job opportunities isolated in sufficient number to provide placements for the number of students to be enrolled	1	2	3	4	5
p. Lesson plans developed for each course	1	2	3	4	5

Implementing Activity	Advanced Time Needed in Months				
	1 or less	2-4	5-7	8-12	Over 12
q. Audio-visual aids itemized and availability known	1	2	3	4	5
r. Other, please specify_____	1	2	3	4	5

_____

23. The following criteria for the evaluation of a technical vocational program have been suggested. Circle the number which most nearly represents your opinion, judgment, or view as to the appropriateness of each criterion for the successful operation of a technical vocational program.

Evaluative Criteria Suggestions	Indicator of Successful Program		
	Excellent	Good	Poor
Administration & Supervision			
a. Budgetary provisions for the technical vocational curriculum are adequate	1	2	3
b. Business people in the community show an interest in, and a desire to support the technical vocational education curriculum	1	2	3
c. Supervisory personnel are utilized extensively to assist the technical vocational curriculum developed	1	2	3
d. Advisory committees are used extensively	1	2	3
e. Time allotments for shop and laboratory technical vocational courses meet instructional needs	1	2	3
Teaching Staff			
a. The teaching staff are well trained in methods of teaching technical vocational courses	1	2	3
b. The teaching staff of technical vocational subjects have extensive work experience	1	2	3

Evaluative Criteria Suggestions	Indicator of Successful Program		
	Excellent	Good	Poor
Teaching Staff (Continued)			
c. The teaching staff have a good understanding of the educational needs and guidance of youth	1	2	3
d. The teaching staff of vocational technical subjects have extensive general education preparation	1	2	3
Instructional Program			
a. The technical vocational curriculums offered reflect student and community needs	1	2	3
b. The qualith of instructional materials is appropriate to the instructional program	1	2	3
c. Beginning worker knowledge, skills, and attitudes are taught	1	2	3
d. Tests are given to determine the degree to which students are developing attitudes, knowledges, and skills commensurate with the needs of the occupations	1	2	3
e. The instructor actually integrates the on-the-job conditions with classroom and individual instruction of each student	1	2	3
f. Related courses are taught to support the major technical vocational core	1	2	3
g. Employer-employee relations are taught as a subject or as part of other courses	1	2	3
h. Progress records are kept that will indicate the extent of student achievement	1	2	3
i. The students are effectively guided in the use of instructional materials	1	2	3
j. The instructional activities are adapted to individual differences of students	1	2	3

Evaluative Criteria Suggestions	Indicator of Successful Program		
	Excellent	Good	Poor
Physical Provisions			
a. Facilities are adequate for technical vocational education subjects	1	2	3
b. The classrooms, laboratories, and shops show evidence of being planned for technical vocational activities	1	2	3
c. The facilities are used properly by the students and instructor	1	2	3
d. Storage facilities are provided and used	1	2	3
e. The equipment is adequate to teach the number of students enrolled	1	2	3
f. The supplies are adequate in meeting the needs of both the students and instructor	1	2	3
g. Audio-visual aids and equipment are adequate	1	2	3
School-Community Relations			
a. The counselors are informed about the place of the technical vocational curriculum in the total school offering	1	2	3
b. The teachers in the school understand and appreciate the technical vocational curriculum	1	2	3
c. Outstanding achievements of the technical vocational curriculum are publicized in the school and community	1	2	3
d. The students of the technical vocational programs are held in good repute by the business, parent, and school community	1	2	3
e. The instructor strives to improve community attitudes toward the technical vocational curriculum	1	2	3
f. There is evidence to indicate the employers approve of the ability of the graduates of technical vocational curriculums	1	2	3

Evaluative Criteria Suggestions	Indicator of Successful Program		
	Excellent	Good	Poor
Follow-up			
a. Organized follow-up studies are conducted by the instructor and records kept on the results	1	2	3
b. The instructor often visits companies employing former students	1	2	3
c. The instructor counsels former students	1	2	3
d. The instructional program is adjusted in light of findings of the follow-up activities	1	2	3
e. Reports on follow-up studies are made to the school administrator, advisory committee, and school guidance counselors	1	2	3

24. Year technical vocational curriculums were first offered at your institution, _____ year.

25. Number of fall term students enrolled in technical vocational curriculums and lower division transfers at your institutions the past three years, day and night. (A part-time student is one carrying less than 75 percent of the normal load as defined by your institution.)

Division of School	Fall Term Enrollment (Head Count)		
	1964	1965	1966
Lower Division (For Transfer)			
Full-time			
Part-time			
TOTAL			
Technical Vocational Programs			
Full-time			
Part-time			
TOTAL			

26. Number of fall term students anticipated for the next three years, day and night. Please give your best estimate.

Division of School	Fall Term Enrollment (Head Count)		
	1967	1968	1969
Lower Division (For Transfer)			
Full-time			
Part-time			
TOTAL			
Technical Vocational Programs			
Full-time			
Part-time			
TOTAL			

QUESTIONNAIRE

State Directors of Technical Vocational Education

Name of State _____ Number _____

Address _____ Date Mailed _____

Name of Respondent _____ Date Received _____

Title _____

This questionnaire is designed to sample opinions, views, and judgments of the State Director of Technical Vocational Education in the ten states of the study. It deals with current practices in curriculum development in technical vocational education at the post-high school level with special concern for the community-junior college.

"Technical vocational education" is defined as preparing persons for employment in semi-professional, technical, and skilled-level fields of agriculture, business, industry, health, home economics, and public service.

"Curriculum," in this study, will concern questions regarding the planning, implementation, and evaluation of the organized occupational curriculum courses offered to a student preparing for entry employment. Particular emphasis is placed on what role the State Department Staff play in assisting the community-junior college in curriculum development.

INSTRUCTIONS

In scoring this questionnaire, please consider the over-all relationship of the State Vocational Education Department to the community-junior college administration in cooperative endeavor to provide the student with educational experiences that will make it continually possible for the student to enter the work-world and progress on

the job.

This study seeks data on organized occupational curriculums only. It is concerned with whole curriculums, not individual courses. For purpose of this study, an organized occupational technical vocational curriculum is one which meets all five of the following criteria:

1. High school graduation (or its equivalent or age 18), but no work beyond the high school is required for admission to the curriculum, which extends from one to three years beyond the high school.
2. The curriculum is a series of required and elective courses constituting an integrated program prescribed by the institution to assist in the general education and training of the individual, but more particularly, in his training as a future practitioner in a given occupation or cluster of occupations. A group of courses, even though all of them be for a given occupational area, does not necessarily constitute a curriculum.
3. Individual courses in the curriculum may be credited toward a bachelor's or first professional degree for transfer; however, the curriculum as an organized program is designed to educate or train primarily for occupational competence, rather than for transfer or degree credit. The objectives of the curriculum itself should be considered rather than the intentions of the students involved.
4. Completion of the curriculum requires at least <u>one</u> but less than <u>four</u> years of full-time attendance. A "year" means an academic year of approximately <u>nine</u> months.
5. The curriculum leads to a certificate, diploma, associate degree, or other formal award signifying that the student has completed an organized program in an occupational

area; or the state grants a license or other formal recognition, without examination, to all graduates of the curriculum.

1. Does your state have any public supported community or junior colleges offering technical vocational curriculums? (as defined on pages 230 and 231).

Yes_____ No_____

If yes, are some of these curriculums supported with funds under your deparmental supervision?

Yes_____ No_____

If yes, does your department establish minimum standards for curriculum approved for technical vocational offerings at the community or junior colleges? Please score below.

	Yes	No
a. All public community or junior college technical vocational offerings must be state approved	_____	_____
b. Only curriculums supported by state and federal funds must be approved	_____	_____

c. Other, please specify_____

_____

2. Does your State Department have formal requirements for curriculum approval? (Recognized as state board or departmental administrative policy.)

Yes_____ No_____

If yes, please check the following criteria which are a part of these requirements.

If no, check the following criteria which are used in program planning, implementing, and evaluating as a matter of routine practice.

a. _____ Each technical vocational curriculum must have an occupational advisory committee

b. _____ The community college board must approve all new curricular offerings prior to seeking state approval

c. _____ All curriculum courses must have written course outlines approved by the State Department of Education before the classes are held

d. _____ Degree requirements must be approved by the State Department of Education

e. _____ New curriculums or new courses or modification of existing courses must be based on employment opportunities, actual or anticipated

f. _____ Some evidence of source and extent of potential student enrollment must accompany each new curriculum or course application for approval

g. _____ Evidence must be shown that new courses will not duplicat other courses in the institution

h. _____ Each application for a new or different course must include what business or industry groups have endorsed or been consulted about the curriculum

i. _____ Other, please specify_____

_____

_____

(If additional space is needed use reverse side of this sheet.)

3. What changes were made in your curriculum development procedures during the past few years? It is difficult to suggest what changes might have occurred, so please describe as briefly as possible.

_____

_____

_____

_____

_____

4. Does your State Department staff help the community colleges in the development of technical vocational curriculums?

Yes_____ No_____

If yes, does your staff find curriculum materials from outside sources helpful in developing this curriculum?

Yes_____ No_____

If yes, please check sources used in the past. Also, please check the two sources you believe to be the most helpful.

	Source Used:	Check two most helpful
a.	United States Office of Education Publications	_____
b.	Other State Departments of Education Materials	_____
c.	Community college materials	_____
d.	Professional Publications	_____
e.	Other, please specify_____	_____
f.	_____	

5. Does your state provide curriculum development resources to your state supervisors of technical vocational education?

Yes_____ No_____

If yes, which of the following items are furnished?

a. ____ Professional library

b. ____ Desk copies of reference materials

c. ____ Research specialist

d. ____ Consultants

e. ____ Curriculum specialist

f. ____ Time to visit community colleges with programs of interest

g. ____ Extra pay for curriculum development outside of regular work assignment

h. ____ Time to visit business or industry

i. ____ Other, please specify_____

j. ____ _____

6. Does your state provide a budget allocation for curriculum development in technical vocational education?

Yes_____ No_____

If yes, how are these funds expended? Please check those that apply.

a. ____ Employing a curriculum specialist

b. ____ Contracting other agencies for special projects

c. ____ Providing a curriculum library

d. ____ Allocating each service or a specific amount

e. ____ Employment of community college personnel to develop curriculum materials

f. ____ Other, please specify_____

g. ____ _____

h. ____ _____

7. Check how often your state has utilized the following personnel in curriculum development within the past three years. Please check the top five as those of the greatest help to you in curriculum development.

Resource Personnel	Very Much	Some	Seldom	None	Check Top 5
a. Community college administrators	____	____	____	____	____
b. Occupational advisory committees	____	____	____	____	____
c. Professional curriculum consultants	____	____	____	____	____

Resource Personnel	Very Much	Some	Seldom	None	Check Top 5
d. State Department of Education vocational personnel	____	____	____	____	____
e. Industry educational specialist	____	____	____	____	____
f. Technical vocational personnel from community colleges	____	____	____	____	____
g. College or university specialist	____	____	____	____	____
h. Employment service specialist	____	____	____	____	____
i. Educational research specialist	____	____	____	____	____
j. Consulting firms	____	____	____	____	____
k. Others, please specify	____	____	____	____	____
_____	____	____	____	____	____
_____	____	____	____	____	____

8. Some states have a Central Curriculum Development Center, usually located at one of the university campuses, with a professional staff for technical vocational curriculum development, instructional materials development, and audio-visual aids procurement and distribution. Does your state have a similar center?

Yes_____ No_____

9. If a Curriculum Development Center were established in your state or if you have a Center presently, where would you prefer the following activities carried out? Please check the appropriate column. (Key: CC = Community College Level; SD = State Department of Education Level; CDC = Curriculum Development Center Level; O = Other (Please specify under "m" below)).

	CC	SD	CDC	O
a. Technical vocational education curriculum research				
b. Regional studies of employment opportunities				
c. Curriculum organization and refinement				
d. Course construction and course outlines				
e. Lesson planning				
f. Development of audio-visual aids				
g. Development of achievement tests				
h. Development of follow-up procedures				
i. Selection of text books				
j. Development of course "handouts"				
k. Development of promotional materials				
l. Laying out building plans and specifications				
m. Other, please specify_____				
_____				

10. A good many community colleges require all technical vocational students to take a minimum number of course units in general education. This requirement is usually met by: (1) taking college transfer courses, or (2) by taking courses especially designed for technical vocational students. Which one of these two methods do you prefer? (please check one)

a. ____ College transfer (lower division) courses

b. ____ Specially designed courses

11. Do you believe the State Department of Education should assist the community college administrator of technical vocational education in curriculum development?

Yes_____ No_____

If yes, please check the following items which have been furnished to the community college administrators by your department during the past three years.

a. ____ Procedures for conducting a community survey

b. ____ State-wide studies made by the State Department of Education

c. ____ Employment security data that would be useful in determining new program needs

d. ____ Pertinent findings and research conducted by the State Research Coordinating unit

e. ____ Procedures for the establishment and use of advisory committees

f. ____ Names and availability of persons knowledgeable of curriculum development (consultants)

g. ____ Funds to support the development of new technical-vocational curriculum

h. ____ Curriculum materials developed by various agencies of the government or other community colleges

i. ____ A specialist in school building construction who can aid in the development of technical vocational facilities

j. ____ Abstracts of innovations or imaginative approaches to curriculum development found in the literature

k. ____ State Department consultants who visit the community college to assist in developing curriculum materials

l. ____ A periodic evaluation of existing program (annual or semi-annual where a written report is sent to the community college president)

12. Does your state have a research coordinating unit that assists in research needed for curriculum development in technical vocational education?

Yes_____ No_____

If yes, which of the following functions are performed by this unit?

a. ____ Write research proposals for Federal funding

b. ____ Write curriculum proposals for state department approval

c. ____ Write proposals for local studies

d. ____ Gather data and complete research projects for the state department

e. ____ Consult with state Director of Vocational Education in determining appropriate state level research projects

f. ____ Screen applications from community colleges on proposed research needed in the local community where state or federal funds are requested

g. ____ Provide a technical vocational education curriculum research reviewing and clearing house and report pertinent findings to community colleges

h. ____ Other, please specify_____

_____

13. The following criteria for the evaluation of a technical vocational program have been suggested. Circle the number which most nearly represents your opinion, judgment, or view as to the appropriateness of each criterion for the successful operation of a technical vocational program.

Evaluative Criteria Suggestions	Indicator of Successful Program		
	Excellent	Good	Poor
Administrative and Supervision			
a. Business people in the community show an interest in, and a desire to support, the technical vocational education curriculum	1	2	3
b. Advisory committees are used extensively	1	2	3
c. Time allotments for shop and laboratory technical vocational courses meet instructional needs	1	2	3

Evaluative Criteria Suggestions	Indicator of Successful Program		
	Excellent	Good	Poor
Teaching Staff			
a. The teaching staff of technical vocational subjects are well trained in methods of teaching technical vocational courses	1	2	3
b. The teaching staff of technical vocational subjects have extensive work experience	1	2	3
c. The teaching staff have a good understanding of the educational needs and guidance of youth	1	2	3
d. The teaching staff of vocational technical subjects have extensive general education preparation	1	2	3
Instructional Program			
a. The technical vocational curriculums offered reflect student or labor force needs	1	2	3
b. The quality of instructional materials is appropriate to the instructional program	1	2	3
c. Beginning worker knowledge, skills, and attitudes are identified and taught	1	2	3
d. Tests are given to determine the degree to which students are developing attitudes, knowledges, and skills commensurate with the needs for entry employment	1	2	3
e. The instructor actually integrates the on-the-job conditions with classroom and individual instruction of each student	1	2	3
f. Related courses are taught to support the major technical vocational curriculum	1	2	3
g. Progress records are kept that will indicate the extent of student achievement	1	2	3
h. The instructional activities are adapted to individual differences of students	1	2	3

Evaluative Criteria Suggestions	Indicator of Successful Program		
	Excellent	Good	Poor
Physical Provisions			
a. Facilities are appropriate for technical vocational educational subjects	1	2	3
b. The classrooms, laboratories, and shops show evidence of being planned for technical vocational activities	1	2	3
c. Storage facilities are provided and used	1	2	3
d. The equipment and supplies provided are sufficient to teach the number of students enrolled	1	2	3
School-Community Relations			
a. The counselors are informed about the place of the technical vocational curriculum in the total school offering	1	2	3
b. The teachers in the school understand and appreciate the technical vocational curriculum	1	2	3
c. Outstanding achievements of the technical vocational curriculum are publicized in the school and community	1	2	3
d. The instructor strives to improve community attitudes toward the technical vocational curriculum	1	2	3
e. There is evidence to indicate the employers approve of the ability of the graduates of technical vocational curriculums	1	2	3
Follow-up			
a. Organized follow-up studies are conducted by the instructor and records kept on the results	1	2	3
b. The instructor often visits companies employing former students	1	2	3

Evaluative Criteria Suggestions	Indicator of Successful Program		
	Excellent	Good	Poor
c. The instructional program is adjusted in light of findings of the follow-up activities	1	2	3
d. Reports on follow-up studies are reported to the school administrator, advisory committee, and school guidance counselors	1	2	3

APPENDIX B

Table B-1. Number of questionnaires sent and returned and percentages of returns.

Group	Number sent	Number of returns	Percentage of returns
Community College Administrators	61	56	91.8
State Directors of Vocational Education	10	10	100.0
Totals	71	66	95.0

Seventy-nine community colleges originally were asked to participate.

Table B-2. Number of questionnaires sent to community college administrators in the western states and percentage of returns.

State	Number of community colleges	Number of questionnaires		Percentage returned
		Sent	Returned	
Alaska	6	2	1	50.0
Arizona	6	1	1	100.0
California	76	28	25	89.2
Colorado	6	4	4	100.0
Idaho	3	2	2	100.0
Montana	2	2	2	100.0
Oregon	10	6	6	100.0
Utah	3	2	2	100.0
Washington	17	13	12	92.3
Wyoming	5	1	1	100.0
Totals	134	61	56	91.8

Table B-3. Year technical vocational education curriculums were instituted in the community colleges participating in this study.

Year started	Number responding[1]	Percent responding
Since 1960	14	25.0
1950 to 1960	9	16.1
1940 to 1949	14	25.0
Prior to 1940	11	19.6
Totals	48	85.7

[1] No response on eight returns.

Table B-4. Summary of technical vocational curriculums offered in 1962 and 1966 with percent change as reported by community college administrators.

Technical or semiprofessional curriculums	Number offered 1962	Number offered 1966	Percent change
A. Engineering Related Curriculums			
Aeronautical Technology	8	10	25.0
Architectural and Civil Technology	25	30	20.0
Building and Construction Technology	15	16	6.7
Drafting and Design	25	32	28.0
Electrical Technology	60	77	28.3
Industrial Technology	21	21	----
Mechanical Technology	70	102	45.7
Broad General and Miscellaneous Technologies	29	43	48.2
Totals	253	331	30.8
B. Nonengineering Related Curriculums			
Agricultural and Forestry	24	45	87.5
Applied, Fine, and Graphic Arts	50	63	26.0
Business and Commerce	163	245	50.3
Education	3	13	333.3
Health Services	72	97	34.7
Home Economics	25	26	4.0
Industrial and Labor Relations	4	4	----
Broad General and Miscellaneous	22	49	122.7
Totals	363	542	49.3
Grand Total	616	873	41.7

Table B-5. Number of curriculums being offered by community colleges in each state in this study.

State	Engineering related 1962	Engineering related 1966	Nonengineering related 1962	Nonengineering related 1966	Total 1962	Total 1966	Increase
Alaska	1	1	1	1	2	2	--
Arizona	0	2	0	6	0	8	8
California	160	168	267	350	427	518	91
Colorado	19	20	21	25	40	45	5
Idaho	3	14	2	7	5	21	16
Montana	0	0	1	4	1	4	3
Oregon	28	49	14	54	42	103	61
Utah	4	7	4	6	8	13	5
Washington	36	67	51	85	87	152	65
Wyoming	2	3	2	4	4	7	3
Totals	253	331	363	542	616	873	257

Table B-6. Top twelve engineering related occupational curriculums offered in the community colleges in this study.

Curriculum	Number offered in the fall term 1962	1966	Increase
Electronics, General	30	35	5
Automotive Technology	27	34	6
Welding Technology	18	26	8
Civil Technology, General	16	21	5
Mechanical Drafting and Design	14	18	4
Building Construction Technology	14	15	1
Engineering Technology, General	12	14	2
Electrical Technology	7	8	1
Technical Sales	15	13	-2
Radio and TV Repair	11	12	1
Civil Drafting and Design	9	12	3
Architectural Technology	7	6	-1
Totals[1]	180	214	33

[1] The remaining 29 curriculums were offered from one to six times and made up 73 or 28.9 percent of the 1962 total offering. Thirty-eight curriculums made up 117, or 35.3 percent, of the 1966 total offering.

Table B-7. Top twelve nonengineering related occupational curriculums offered in the community colleges in this study.

Curriculum	Number offered in the fall term 1962	1966	Increase
Secretarial, General	40	45	5
Nursing, Practical or Vocational	31	38	7
Business, General	29	34	5
Data Processing	15	29	14
Police Technology	16	27	11
Retail Sales Purchasing or Merchandising	15	24	9
Accounting and Financial Management	18	21	3
Real Estate and Insurance	12	21	9
Nursing, Associate Degree	15	19	4
Home Economics	16	16	--
Photographic Technology	14	19	5
Dental Assistant	10	13	3
Totals[1]	231	306	75

[1] The remaining 47 curriculums were offered from one to ten times and consisted of 132, or 36.4 percent, of the 1962 total offering. Seventy-six curriculums made up 236, or 43.5 percent, of the 1966 total offering.

Table B-8. Curriculum data comparisons.

Item	Engineering related curriculums	Nonengineering related curriculums	Total
Total 1966 offering	331	542	873
Total 1962 offering	253	363	616
Increase	78	179	257
Percent Increase	30.8	49.3	41.7
Top twelve offerings 1966	214	306	520
Percent of 1966 offering	64.7	56.5	59.6
Percent of the new offering found in the top twelve	42.3	41.9	42.0

Table B-9. Number of curriculums planned to start between 1967 and 1970 by community colleges in this study.

Engineering related curriculums	Number in each category	%	Nonengineering related curriculums	Number in each category	%
Aeronautical Technology	6	9.4	Agricultural and Forestry	11	16.9
Architectural and Civil Technology	3	4.6	Applied, Fine, and Graphic Arts	5	7.7
Building Construction Technology	--	----	Business and Commerce	11	16.9
Drafting and Design	6	9.4	Education	2	3.1
Electrical Technology	9	14.1	Health Services	16	24.6
Industrial Technology	--	----	Home Economics	2	3.1
Mechanical Technology	27	42.2	Industry or Labor Relations	1	1.5
Broad General or Miscellaneous	13	20.3	Broad General or Miscellaneous	17	26.2
Totals	64	100.0		65	100.0

Table B-10. Top twelve occupational curriculums planned to start between 1967 and 1970 by the community colleges in the study.

Curriculum[1]	Number of times given	Percent of total
Engineering Related		
Airframe and Power Plant Mechanic	4	6.6
Automotive Technology	7	11.5
Electronics	6	9.8
Welding Technology	8	13.1
Metal Technology	4	6.6
Air Conditioning and Refrigeration	4	6.6
Nonengineering Related		
Fire Science	4	6.6
Cosmetology	3	4.8
Data Processing	6	9.8
Dental Assistant	4	6.6
Forestry	5	8.2
Agriculture	6	9.8
Totals	61	100.0

[1] The remaining sixty-eight curriculums equal 52.7 percent of the new curriculums planned.

Table B-11. Number of new technical vocational curriculums planned to start between 1967 and 1970 by community colleges in the study as reported by the community college administrators.

State	Number of curriculums offered 1966	New curriculums planned to start next 3 years	Percent increase
Alaska	2	4	200.0
Arizona	8	5	62.5
California	518	51	9.8
Colorado	45	12	26.7
Idaho	21	4	19.0
Montana	4	4	100.0
Oregon	103	24	23.3
Utah	13	--	-----
Washington	152	25	16.4
Wyoming	7	2	28.6
Totals	873	131	15.0

Table B-12. Enrollment in public community colleges and percentages of enrollment represented by institutions in the study - October 1966.

State	Total enrollment all community colleges[1]	Institutions represented in the study	
		Enrollment	Percent
Alaska	2,870	542	18.9
Arizona	22,501	1,086	4.8
California	515,910	163,912	31.8
Colorado	8,383	7,019	83.7
Idaho	6,216	5,079	81.7
Montana	621	621	100.0
Oregon	22,649	14,107	62.3
Utah	2,542	1,872	73.6
Washington	56,602	28,113	49.7
Wyoming	4,066	2,559	62.9
Subtotal	642,360	224,910	35.0
All other states	674,620	---	----
Grand Total	1,316,980	224,910	17.1

[1] Source: The 1967 Junior College Directory, American Association of Junior Colleges. Enrollment is head count, day and evening, full and Part time.

Table B-13. Enrollment figures of the community colleges surveyed compared to state and national figures.

	Public community colleges in all states	Public community colleges in 10 western states	Percent in 10 western states
Enrollment of 1966	1,316,980	642,360	42.1
Enrollment in Study Schools	224,910	224,910	100.0
Percent in Study Schools	17.1	35.0	
Number of Public Community Colleges	498	133	26.7

Table B-14. Size of community colleges surveyed in this study based on enrollment - October 1966.

Sizes of institutions[1]	Number of schools in this group	Percent of total	National average
1,000 or less	15	26.8	47.2
1,001 to 3,000	17	30.4	31.1
3,001 to 6,000	11	19.6	11.2
6,001 to 9,000	5	8.8	4.8
9,001 to 12,000	4	7.2	
12,001 or more	4	7.2	5.7
Totals	56	100.0	100.0

[1] Source: The 1967 Junior College Directory, American Association of Junior Colleges. Publicly supported schools only.

Table B-15. Enrollment comparisons of lower division transfer to technical vocational education in community colleges as reported by administrators.[1]

Year	Lower division transfer	Technical vocational	Percent technical vocational
Actual			
1964	82,376	38,091	31.6
1965	96,977	43,975	31.2
1966	95,164	44,427	31.8
Totals	274,517	126,493	31.5
Estimated			
1967	100,262	49,405	49.3
1968	107,862	53,711	41.4
1969	115,445	58,430	33.6
Totals	323,571	161,546	33.3
Grand Totals	595,086	288,039	32.6

[1] Thirty-six of the fifty-six community college administrators reported complete data.

Table B-16. Number of community colleges showing the percent of the enrollment which was technical vocational education - October 1966.

Percent of enrollment technical vocational	Number of community colleges	Percent of total
5% or less	1	2.7
6 to 15%	3	8.3
16 to 25%	13	36.1
26 to 35%	6	16.7
36 to 45%	5	13.9
46 to 55%	2	5.6
56% or more	6	16.7
Totals	36	100.0

Table B-17. Number of community college administrators aware of State Department of Education minimum standards for curriculum approval.

States surveyed	Community college administrators reporting		
	Yes	No	Percent
Alaska	1	-	100.0
Arizona	1	-	100.0
California	20	5	80.0
Colorado	2	2	50.0
Idaho	2	-	100.0
Montana	2	-	100.0
Oregon	6	-	100.0
Utah	2	-	100.0
Washington	8	4	66.7
Wyoming	1	-	100.0
Totals	45	11	80.4

Table B-18. Criteria used for approval of technical vocational curriculums by community colleges as reported by administrators (data from 53 community colleges).

Rank	Criteria ranked in order of greatest use	Number of community colleges using criteria	Percent of total
1.	New curricula or new courses or modifications of existing courses must be based on employment opportunities, actual or anticipated	51	91.0
2.	Each technical vocational curriculum must have an occupational advisory committee	51	91.0
3.	Degree requirements are specific and well defined	49	87.5
4.	The community college board must approve all new curricular offerings	44	78.6
5.	Some evidence of source and extent of potential student enrollment must accompany each new curriculum or course application for approval	44	78.6
6.	Evidence must be shown that new courses will not duplicate other courses	40	71.4
7.	Each application for a new or different course must include what business or industry groups have endorsed or been consulted about the curriculum	36	64.3
8.	All curriculum courses must have written course outlines approved by State Department of Education	36	64.3
Other,[1] see remarks below			

[1] Other criteria given:

a. Must be a college grade course--must satisfy requirements set forth in California Administrative Code. Title 5, Sec. 131.5 (C)
b. Course must be approved by curriculum committee.
c. Recommendations of Northwest Accrediting Agency.
d. Subject to a practical veto by any faculty member.

Table B-19. Sources found helpful to community college administrators in developing new technical vocational curriculums.

Rank	Sources used by community college staff	Total schools reporting	Percent of total
1.	Community Colleges	50	89.3
2.	United States Office of Education	43	76.8
3.	Professional publications	40	71.4
4.	State Departments of Education	40	71.4
	Other sources reported[1]		

[1] Other

a. Industry
b. Advisory committee
c. Laymen
d. Faculty
e. Commercial materials
f. Engineering company
g. Local surveys
h. Private schools
i. Professional organizations
j. Participation in "Leadership Seminar on Vocational Technical Education" at Oklahoma State University, 1966

Table B-20. Value of sources found helpful to community college administrators in developing new technical vocational curriculums.

Rank	Sources used by community college staff	Number of schools responding and value of the sources: High (10)	(8)	(6)	(4)	Low (2)	Value factor
1.	Community colleges	23	10	10	3	-	68.2
2.	State Departments of Education	6	15	6	9	1	45.4
3.	United States Office of Education	4	10	12	10	5	43.2
4.	Professional publications	5	9	11	8	4	40.7

Table B-21. Frequency of use of resource personnel utilized by community college administrators in curriculum development from 1963 to 1966.

Rank	Resource personnel used	Frequency of use: Very much (10)	Some (8)	Seldom (6)	Use factor (0-100)
1.	Occupational advisory committee	40	10	3	89.2
2.	Community college administrators	23	17	11	77.1
3.	State department vocational personnel	12	29	8	71.4
4.	Technical vocational personnel from other community colleges	6	18	18	55.7
5.	Employment service specialists	5	17	12	46.0
6.	Professional curriculum consultant	2	7	16	30.7
7.	College or university specialist	--	--	20	28.5
8.	Educational research specialist	--	3	12	17.1
9.	Consulting firms	1	3	4	10.3

Table B-22. Estimated value of resource personnel used by community college administrators in curriculum development from 1963 to 1966.

Rank	Resource personnel used	Number of community colleges responding: High (10)	(8)	(6)	(4)	Low (2)	Value factor (0-100)
1.	Occupational advisory committees	16	16	12	3	1	66.8
2.	Community college administrators	8	9	9	9	2	43.9
3.	State department vocational personnel	3	5	4	12	12	29.6
4.	Technical vocational personnel from other community colleges	3	1	3	5	5	15.4
5.	Employment service specialist	1	1	1	3	6	8.5
6.	Professional curriculum consultant	--	1	3	2	3	7.1
7.	College or university specialist	1	--	2	4	--	6.7
8.	Educational research specialist	1	--	1	--	--	2.8
9.	Consulting firms	--	1	--	1	2	2.8

Table B-23. Types of expenditures made from budgeted funds for curriculum development by community colleges.

Rank	Types of expenditures	Number of community colleges reporting[1]	Percent of total
1.	Providing a curriculum library	11	45.8
2.	Allocating each department a specific amount	6	25.0
3.	Contracting other agencies for special projects	4	16.6
4.	Employing a curriculum specialist	3	12.6
	Other expenditures[2]		

[1] There were 20, or 35.7 percent, of the 56 community colleges that budgeted funds for curriculum development.

[2] Other expenditures:

a. Allocated on request of department chairman
b. Curriculum studies--summer project where instructors are paid for hours to develop or revise curriculum
c. The vocational education coordinator assumes this as part of his duty
d. Teacher employment for development and release time
e. Subscriptions for technical magazines, handbooks, etc.
f. Release time of one or more instructors
g. Release time for vocational-technical director and vocational-technical staff
h. Coordinator to travel, research, and seek consultation as needed
i. Some specific grant requests to develop new courses of study
j. Open-end budget based on current need

Table B-24. Number of community colleges which require faculty to develop their own curriculum materials as reported by community college administrators.

States	Number of community colleges		
	Yes	No	Percent yes
Alaska	1	-	100.0
Arizona	--	-	0.0
California	16	5	76.2
Colorado	4	-	100.0
Idaho	2	-	100.0
Montana	2	-	100.0
Oregon	5	1	83.3
Utah	2	-	100.0
Washington	10	-	100.0
Wyoming	1	-	100.0
Totals	43	6	84.3

Other remarks[1]

[1] Others:

a. Some are 10-month contracts for development of curriculum
b. Some special assignments are made from time to time
c. Sometimes manpower is supplied (typing, etc.)

Table B-25. Curriculum development resources furnished the community college faculty as reported by their administrators.

Rank	Resources furnished by community colleges	Number of community colleges reporting[1]	Percent of colleges reporting
1.	Time to visit community colleges with programs of interest	44	78.6
2.	Professional library	44	78.6
3.	Desk copies of reference materials	43	76.8
4.	Time to visit business or industry	40	71.4
5.	Extra pay for curriculum development outside of regular work assignment	15	26.8
6.	Curriculum specialist	7	12.5
7.	Research specialist	6	10.7
	Other resources furnished[2]		

[1] Seven community colleges wereproviding no curriculum development resource to the faculty.

[2] Others:

a. Technical vocational advisory committee
b. Encourage industry to employ teachers in summer and encourage teachers to accept such employment
c. Encouragement by granting credit to faculty for summer employment in their field
d. Time and expenses to attend meetings. conventions, etc. --scored two times
e. Summer workshops in cooperation with State Department vocational education
f. Also state teacher-trainer help from State
g. Salary credit for work in industry in summer

Table B-26. Number of community colleges which provide an instructional materials center where teaching aids are developed for the faculty.

States	Yes	No	Percent yes
Alaska	1	-	100.0
Arizona	--	-	-----
California	14	9	60.9
Colorado	2	2	50.0
Idaho	1	1	50.0
Montana	--	2	100.0
Oregon	3	3	50.0
Utah	1	1	50.0
Washington	5	6	46.1
Wyoming	--	1	100.0
Totals	27	25	51.9

Four school administrators omitted this question.

Table B-27. Opinions of community college administrators concerning desirable location of curriculum development activities.

Curriculum activities	Community colleges	%	State department of education	%	Curriculum development center	%	Total scores[1]
Technical vocational education curriculum research	25	42.4	17	28.8	15	25.4	57
Regional studies of employment opportunities	13	24.1	22	40.1	16	29.6	51
Curriculum organization and refinement	37	67.3	6	10.9	9	16.4	52
Course construction and course outlines	44	75.9	9	15.5	3	5.2	56
Lesson planning	48	90.6	2	3.8	1	1.8	51
Development of audio-visual aids	19	31.7	14	23.3	24	40.0	57
Development of achievement tests	19	34.5	14	25.5	20	36.4	53
Development of follow-up procedures	21	35.0	23	38.3	14	23.3	58
Selection of text books	48	90.6	3	5.6	--	----	51
Development of course "handouts"	43	76.8	6	10.7	5	8.9	54
Development of promotional materials	37	60.7	10	16.4	12	19.7	59
Laying out building plans and specifications	34	57.6	15	25.4	8	13.6	57

[1] Several administrators scored more than one location for an activity.

Table B-28. Types of general education courses provided the technical vocational student in community colleges surveyed.

States	College transfer courses	Specially designed courses	Number of Schools responding
Alaska	1	--	1
Arizona	-	--	--
California	7	16	23
Idaho	-	2	2
Montana	2	--	2
Oregon	1	5	6
Utah	1	1	2
Washington	5	7	12
Wyoming	1	--	1
Totals	18	31	49
Percent of all schools	32.1	61.2	87.5

Table B-29. Number of community college technical vocational administrators who believe the general education courses taken by the majority of their technical vocational students are appropriate.

State	Number of college administrators responding		
	Yes	No	Percent yes
Alaska	--	-	-----
Arizona	--	-	-----
California	16	8	66.7
Colorado	2	2	50.0
Idaho	1	-	100.0
Montana	1	1	50.0
Oregon	3	1	75.0
Utah	--	2	100.0
Washington	6	5	54.5
Wyoming	1	-	100.0
Totals	30	20	60.0

Table B-30. Number of community colleges which permit lower division courses compared to those which require lower division courses for technical vocational students.

State		Number of institutions permitting lower division courses		Number of institutions requiring lower division courses	
		Yes	No	Yes	No
Alaska		1	-	--	1
Arizona		--	-	--	-
California		25	-	15	10
Colorado		4	-	4	-
Idaho		2	-	--	2
Montana		2	-	2	-
Oregon		6	-	1	5
Utah		2	-	2	-
Washington		10	1	9	1
Wyoming		1	-	1	-
	Totals	51	1	34	19
	Percent	98.1	1.9	64.2	35.8

Table B-31. Activities used by community college administrators in the planning of a new technical vocational curriculum (56 institutions reporting).

Rank	Activity	Often or always (10)	Frequently (6)	Seldom or occasionally (2)	Never (0)	Ranking factor
1.	Organize an occupational advisory committee to make a study and recommend a program	26	17	5	1	66.4
2.	Determine the need for a curriculum by making a community survey	22	19	11	2	63.6
3.	Use employment service data for justification of program	19	19	11	3	58.2
4.	Make a preliminary study of the need, but not a survey as such	19	19	6	3	56.4
5.	Ask faculty member or department to make a study of need	12	25	12	2	52.5
6.	Contact governmental agencies such as welfare, labor, for justification of program	12	19	18	2	48.2
7.	Ask the State Department of Education to assist in determining the need for a program	6	22	18	3	40.7
8.	Turn all curriculum requests over to the faculty curriculum committee	17	5	9	16	38.9
9.	Ask the State Research Coordinating Unit for help in making a study of need	2	3	21	21	14.3
10.	Hire outside specialists to make a study of need and recommend a program	--	2	11	35	6.1

Table B-32. Estimated length of time needed by community college administrators to perform various activities in implementing a new technical vocational education curriculum.

Implementing activity	Advanced time needed in months[1]					
	1 or less	2-4	4-7	8-12	Over 12	Average months
Building space needs estimated	4	4	12	11	20	9
Occupational advisory committee appointed and deeply involved in the project	3	5	15	12	15	9
Complete curriculum designed with course descriptions and objectives developed	1	8	16	17	9	8
Source of students determined	6	5	20	11	11	7
All equipment and supplies itemized and budgeted for	2	11	17	13	9	7
Instructor needs determined	2	14	17	10	7	7
Job opportunities isolated in sufficient numbers to provide placements for the number of students to be enrolled	6	15	11	9	9	7
Building space designated and available	4	15	10	6	12	7
Leaflets or booklets describing the program published and available to prospective students	2	18	21	6	5	6
State Department of Education approval to start a new curriculum	11	14	13	6	2	6
Lesson plans developed for each course	16	15	8	7	6	5
Instructor given proper teacher training and certified	16	12	9	5	9	5
All courses approved by the State Department of Education	11	15	12	4	3	5
Instructors hired and on duty	20	19	6	4	2	4
Students recruited, screened, and ready to begin	11	22	12	3	2	4
All equipment purchased, installed, and ready to use	17	17	6	1	8	4
Audio-visual aids itemized and availability known	14	15	16	3	1	4

[1] The advanced time needed was averaged to determine the approximate number of months each activity required.

Table B-33. Appropriateness of each evaluative criterion for the successful operation of a technical vocational program based on the opinions of community college administrators in this study.

Rank	Evaluative criteria	Indicator of successful program[1] Excellent (10)	Good (7)	Poor (4)	Value factor (40-100)
1.	The technical vocational curriculums offered reflect student and community needs	46	8	1	92.8
2.	The teaching staff of technical vocational subjects have extensive work experience	4	13	-	91.3
3.	There is evidence to indicate the employers approve of the ability of the graduates of technical vocational curriculums	45	8	-	90.3
4.	Beginning worker knowledge, skills, and attitudes are taught	39	16	-	89.6
5.	The quality of instructional materials is appropriate to the instructional program	38	15	2	88.0
6.	Related courses are taught to support the major technical vocational curriculum	37	17	1	88.0
7.	Advisory committees are used extensively	36	18	1	88.0
8.	Time allotments for shop and laboratory technical vocational courses meet instructional needs	36	18	1	87.5
9.	The teaching staff of technical vocational subjects are well trained in methods of teaching technical vocational courses	34	20	1	86.4
10.	Progress records are kept that will indicate the extent of student achievement	34	19	2	85.8
11.	The instructor strives to improve community attitudes toward the technical vocational curriculum	39	11	3	85.5
12.	The counselors are informed about the place of the technical vocational curriculum in the total school offering	37	13	4	85.1
13.	The instructor actually integrates the on-the-job conditions with classroom and individual instruction of each student	34	17	4	84.8
14.	The instructional activities are adapted to individual differences of students	29	26	-	84.2
15.	The teaching staffs have a good understanding of the educational needs and guidance of youth	29	26	-	84.2

Table B-33. (Continued.)

Rank	Evaluative criteria	Indicator of successful program[1] Excellent (10)	Good (7)	Poor (4)	Value factor (40-100)
16.	Business people in the community show an interest in, and a desire to support the technical vocational education curriculum	32	20	1	82.8
17.	The equipment is adequate to teach the number of students enrolled	31	19	5	82.6
18.	The teachers in the school understand and appreciate the technical vocational curriculum	32	18	4	82.5
19.	The classroom, laboratories, and shops show evidence of being planned for technical vocational activities	30	20	5	82.1
20.	Facilities are adequate for technical vocational education subjects	30	20	5	82.1
21.	Outstanding achievements of the technical vocational curriculum are publicized in the school and community	29	21	4	80.8
22.	The instructional program is adjusted in light of findings of the follow-up activities	32	17	3	80.5
23.	Tests are given to determine the degree to which students are developing attitudes, knowledges, and skills, commensurate with the needs of occupations	26	25	4	80.5
24.	The instructor often visits companies employing former students	25	27	2	79.8
25.	Organized follow-up studies are conducted by the instructor and records kept on the results	26	24	4	79.2
26.	Reports on follow-up studies are reported to the school administrator, advisory committee, and school guidance counselors	30	15	6	76.6
27.	Storage facilities are provided and used	20	27	8	75.1
28.	The teaching staff of vocational technical subjects have extensive general education preparation	15	31	9	71.9

[1] An indicator value of ten was given "excellent," seven for "good," and four for "poor." The value factor was determined by multiplying the indicator value by the number of times it was scored; by adding all indicator values, dividing by the total number of times the criteria was scored, and multiplying by ten. The range was a high of 100 and a low of 60. This process is used merely to show value comparisons.

Table B-34. Synopsis of changes made in curriculum development during the past few years as reported by community college administrators.

Alaska: None

Arizona: None

California:

1. The one large overall college curriculum committee has been divided into three major subcommittees: a) occupational; b) fine arts and humanities; c) natural and applied sciences. After approval by subcommittee, the curriculum is approved by an overall committee.
2. "Certificate" programs have been instituted to complement AA degree programs in the same general area, i. e., secretarial training--essential skills in one year. Skills and general education, two years.
3. Must stress total program rather than specific courses on a piecemeal basis.
4. No radical changes.
5. In general, we have changed from the old line skill teaching--long classes to shorter, more technical classes.
6. Change in philosophy from the predominate transfer oriented curriculum to a balanced community college concept. This was brought about by the diverse needs of the post high school youth and the community.
7. Relatively new college--expanding work in "needed" vocational areas.
8. Internally, we have moved to a greater involvement of the faculty and departments in the process. Now the "faculty senate" is involved in a significant way in curriculum development. This has some value, but also severely limits the ability of the college to meet changing needs, and in many cases blocks the orderly development of vocational education.
9. All of the above checked items in #7 were formally instituted, as there have been very few vocational new courses or curricula started at Lassen College since it first began operating in 1926. The college had offered only liberal arts courses until Forestry, Gunsmithing, and Business were added. These three are really the only occupational centered curriculums we have at the present time. Correctional science and vocational agriculture were added in 1965-66.
10. New college-1966-Separation from unified school district created new responsibilities for all faculty members.
11. Multi-media teaching laboratories designing resources building for instructional materials--more on inservice education.
12. In the past three years the development procedures have not changed. There is no one in the present administration who had knowledge beyond that time.
13. Curriculum committee has been expanded and its responsibilities increased.
14. More participation by faculty committees. More involvement by request of lay advisory committee.
15. Criteria for curriculum approval have been refined and published. Additional advisory committees have been added where none was used before.

Table B-34. (Continued.)

California (continued):

16. Signature on curriculum forms of all members in the division. Signature of librarian on forms so library is aware of need for books in a curriculum. List of library books submitted with application. Special form to be filled out by technical division.

17. I believe our procedures have remained substantially constant. I feel the policies while comprehensive are realistic. I believe we are fundamentally based on citizens advisory groups from industry, trade, and vocational areas with augmenting, follow up, and review action based on: a) work experience programs, b) follow up of graduates, c) annual need scrutiny of programs based on budget considerations.

Colorado:

1. We have established a curriculum guide to assist in initiating new curriculums.

2. The necessity for approval of all new programs in all institutions of higher learning (public) by the commission of higher education. This commission was created by the legislature in 1964.

3. College has committed itself to development of more comprehensive curriculum--particularly in vocational-technical areas and has added and formalized a number of such programs in recent years.

Idaho:

1. A format including the above information was adopted approximately 1964; prior to this programs were developed verbally around an advisory committee.

Montana:

1. More faculty participation in planning course of study.

Oregon:

1. Refinements have occurred, only in use of advisory committees and use of faculty curriculum committee.

2. During this year, top administrative policy trend has been toward decentralization and relaxing of established curriculum development procedures.

3. Strive to keep informed of community-industrial needs, program here at colleges.

Utah:

1. The Division of Applied Arts was created in fall of 1965 with responsibility for curriculum. Formerly, little or no control of courses was exercised. Curriculums were largely high school level and industrial arts directed rather than vocational technology.

2. Curriculum committee formed, advisory committee formed.

Washington:

1. The course offerings were departmentalized and division chairmen selected. The office of the Dean of Instruction was created. A Curriculum Council chaired by the D. I. and membership of division chairmen, registrar, director of adult education, librarian, dean of students exists.

2. We have organized a curriculum committee to help in the development of all technical curriculums that we are offering or planning to offer. They work with the advisory committee in the planning stage and help to keep them updated.

3. All new curriculums must be approved by our institutional council made up largely of department heads of school. The local school board (K through 14) had overall control. The community colleges of Washington will now (July 1, 1967) have their own state and local boards. All vocationally approved curriculums must

Table B-34. (Continued.)

Washington (continued):

have a local advisory committee representing both management and labor.

4. More work with business and industrial groups; a faculty committee approval.

5. We are growing rapidly in the area of vocational-technical education. We had one program and 30 students in September 30, 1964. In September, 1967, we expect to have 14 programs and 1,000 students.

6. Complete revision of procedures to involve faculty more fully.

7. Procedure becomes more dependent on individual faculty members' veto, who use this to protect their vested interests.

8. Almost an entire program has come into existence since 1964, but all of these requirements existed prior to that.

9. Increased use of advisory committees; improved curriculum evaluation policies; updated course outlines; increased in-service training program.

10. A wide range of changes has been made to keep pace with industry. Math courses were restored to the technical division because transfer math was not practical in nature.

Wyoming: None

APPENDIX C

Table C-1. Types of minimum standards for technical vocational curriculum approval required by state departments of education.

State[1]	All public community junior college technical vocational offerings must be state approved		Only curriculums supported by state or federal funds must be approved	
	Yes	No	Yes	No
Alaska	x	-	-	x
Arizona	-	x	x	-
California	-	x	x	-
Colorado	x	-	-	x
Idaho	x	-	x	-
Montana	x	-	-	x
Oregon	x	-	x	-
Utah	-	x	x	-
Washington	x	-	x	-
Wyoming	-	x	-	x
Totals	6	4	6	4
Percent	60.0	40.0	60.0	40.0

[1] "In Alaska the community college functions under the provost of the University of Alaska. The resident director submits memorandum of agreement to the State Director of Vocational Education if he wishes Federal or State vocational monies." "In California there is course approval for all courses--but not curriculums. The State Department gives approval for all courses."

Table C-2. Criteria used by states for the formal approval of technical vocational curriculums and the number which require approval.

Rank	Criteria used for curriculum approval	Number of states using criteria: Yes	No[1]	Percent Yes
1.	New curriculums or new courses or modifications of existing courses must be based on employment opportunities, actual or anticipated	9	1	90.0
2.	Each technical vocational curriculum must have an occupational advisory committee	7	2	70.0
3.	The community college board must approve all new curricular offerings	7	-	70.0
4.	Some evidence of source and extent of potantial student enrollment must accompany each new curriculum of course application for approval	7	1	70.0
5.	Each application for a new or different course must include what business or industry groups have endorsed or been consulted about the curriculum	6	-	60.0
6.	Degree requirements must be approved by the State Department of Education	5	-	50.0
7.	Evidence must be shown that new courses will not duplicate other courses in the institution	5	1	50.0
8.	All curriculum courses must have written course outlines approved by the State Department of Education	4	1	40.0
	Other criteria used[2]			

[1] States reporting no formal approval, but were using the criteria in program planning, implementing, and evaluation.

[2] Other criteria used:

a. Teacher certification and funds anticipated
b. Teacher qualifications
c. Uniform proposal outline for all program approvals
d. All of the above criteria were used for three schools under the direction of the State Board. Five other schools must have their own Board approval
e. Course or curriculum must bear direct relationship to an analysis of an occupation or an occupational group

Table C-3. Sources found helpful to state staff in assisting community college administrators in curriculum development.

Rank[1]	Sources used by state staff	Number of states reported	Percent of total
1.	United States Office of Education	9	90.0
2.	Community Colleges	3	30.0
3.	Professional publications	3	30.0
4.	State Departments of Education	2	20.0
	Other sources reported[2]		

All ten states were helping the community colleges in curriculum development.

[1] Ranked in order of greatest value as reported by state staff.

[2] Other:

a. Commercially prepared materials
b. Industry developed materials

Table C-4. Kinds of assistance state departments of education have given community colleges in technical vocational curriculum development.

Rank	Kinds of assistance given[1]	Number of states responding	Percent of total
1.	Procedures for the establishment and use of advisory committees	10	100.0
2.	Curriculum materials developed by various agencies of the government or other community colleges	10	100.0
3.	Fund to support the development of new technical vocational curriculums	9	90.0
4.	Employment security data that would be useful in determining new program needs	9	90.0
5.	Procedures for conducting a community survey	8	80.0
6.	State-wide studies made by the State Department of Education	8	80.0
7.	Pertinent findings and research conducted by the State Research Coordinating unit	8	80.0
8.	Names and availability of persons knowledgeable of curriculum development (consultants)	7	70.0
9.	Abstracts of innovations or imaginative approaches to curriculum development found in the literature	5	50.0
10.	A specialist in school building construction who can aid in the development of technical vocational facilities	3	30.0

[1] All ten state directors of vocational education believe the State Department should assist community colleges in curriculum development.

Table C-5. Frequency of use of resource personnel utilized by state department staff in curriculum development from 1963 to 1966.

Rank	Resource personnel used	Frequency of use: Very much (10)	Some (8)	Seldom (6)	Use factor (0-100)
1.	State department vocational personnel	7	2	-	86
2.	Technical vocational personnel from other community colleges	6	2	-	76
3.	Occupational advisory committees	4	3	1	70
4.	Community college administrators	1	3	4	58
5.	Professional curriculum consultant	1	3	4	58
6.	College or university specialist	2	2	2	48
7.	Educational research specialist	1	3	2	46
8.	Employment service specialist	1	1	4	42
9.	Consulting firms	-	-	1	6

Table C-6. Estimated value of resource personnel used by state department staff in curriculum development from 1963 to 1966.

Rank	Resource personnel used	Number of states responding	Value factor[1]
1.	State department vocational personnel	9	60
2.	Technical vocational personnel from other community colleges	8	60
3.	Occupational advisory committees	8	60
4.	Community college administrators	8	30
5.	Professional curriculum consultant	8	30
6.	Employment service specialist	6	30
7.	College or university specialist	6	20
8.	Educational research specialist	6	10
9.	Consulting firms	1	0

[1] The top five resources were scored to determine the most valuable resource. The value factor represents the number of times each resource was selected times ten.

Table C-7. Curriculum development resources furnished state staff as reported by state directors of vocational education.

Rank	Resources furnished by state[1]	Number of states reporting	Number of states reporting
1.	Time to visit community colleges with programs of interest	10	100.0
2.	Time to visit business or industry	9	90.0
3.	Desk copies of reference materials	8	80.0
4.	Research specialist	7	70.0
5.	Professional library	7	70.0
6.	Curriculum specialist	2	20.0
7.	Extra pay for curriculum development outside of regular work assignment	1	10.0
	Other resources furnished[2]		

[1] All but one state was providing curriculum resources to its staff. This state used the word "limited" to describe its situation.

[2] Other resources:

a. Time to work on university campus to use university facilities
b. Funds for special projects
c. Assignment to pertinent vocational conferences

Table C-8. Number of states which provide a budget allocation for state level curriculum development and types of expenditures.

Rank	Types of expenditures	Number of states reporting[1]	Percent of total
1.	Employing a curriculum specialist	4	44.4
2.	Providing a curriculum library	2	22.2
3.	Contracting other agencies for special projects	2	22.2
4.	Allocating each department a specific amount	1	11.2
	Other expenditures[2]		

[1] Five states were providing a budget allocation and five were not.

[2] Other expenditures:

Employment of personnel from business or industry.

Table C-9. Summary of curriculum development activities and where they can best be carried out, based on the opinions of state directors of vocational education.

Curriculum activities	Community colleges	%	State department of education[1]	%	Curriculum development	%	Total scores[2]
Technical vocational education curriculum research	2	15.4	5	38.5	5	38.5	13
Regional studies of employment opportunities	2	25.0	2	25.0	3	37.5	8
Curriculum organization and refinement	2	16.7	3	25.0	6	50.0	12
Course construction and course outlines	6	46.2	1	7.7	5	38.5	13
Lesson planning	9	81.8	-	----	2	18.2	11
Development of audio-visual aids	4	26.7	2	13.3	8	53.3	15
Development of achievement tests	6	42.9	1	7.1	6	42.9	14
Development of follow-up procedures	3	25.0	6	50.0	3	25.0	12
Selection of text books	9	69.2	1	7.7	3	23.1	13
Development of course "handouts"	6	50.0	1	8.3	5	41.7	12
Development of promotional materials	7	46.7	5	33.3	3	20.0	15
Laying out building plans and specifications	5	38.5	4	30.8	3	23.1	13

[1] Nine state directors reported no central curriculum development center in their state. Oregon omitted this item.

[2] Several state directors scored more than one location for an activity.

Table C-10. Functions of state research coordinating units as reported by state directors of vocational education.

Rank	Function	Number of states reporting	Percent reporting
1.	Consult with state director of vocational education in determining appropriate state level research projects	9	90.0
2.	Gather data and complete research projects for the State Department	7	70.0
3.	Write research proposals for Federal funding	7	70.0
4.	Screen applications from community colleges on proposed research needed in the local community where state or federal funds are requested	6	60.0
5.	Write proposals for local studies	5	50.0
6.	Write curriculum proposals for State Department approval	3	30.0
7.	Provide a technical vocational education curriculum research reviewing and clearing house and report pertinent findings to community colleges	3	30.0
	Other[1]		

[1] Other:

a. "Have applied but not funded as yet."
b. "Research Coordinating Unit assistance in (c) and (e) above."
c. "Research Coordinating Unit helps with the designing of courses."
d. "Follows objectives of Research Coordinating Unit as was set forth at the first National Research Coordinating Unit Director's Conference."

Table C-11. Preference of general education courses provided the technical vocational student as reported by state directors of vocational education.

State	College transfer lower division courses	Specially designed courses
Alaska	x	-
Arizona	-	x
California	-	x
Colorado	-	x
Idaho	-	x
Montana	-	x
Oregon	-	x
Utah	-	x
Washington	-	x
Wyoming	-	x
Totals	1	9
Percent	10.0	90.0

Table C-12. Appropriateness of evaluative criterion for the successful operation of a technical vocational program based on the opinions of state directors of vocational education in this study.

Rank	Evaluative criteria	Indicator of successful program[1] Excellent (10)	Good (7)	Poor (4)	Value factor (40-100)
1.	The quality of instructional materials is appropriate to the instructional program	10	-	-	100
2.	The instructor actually integrates the on-the-job conditions with classroom and individual instruction of each student	9	1	-	97
3.	There is evidence to indicate the employers approve of the ability of the graduates of technical vocational curriculums	9	1	-	97
4.	Beginning worker knowlege, skills, and attitudes are taught	9	1	-	97
5.	The instructional activities are adapted to individual differences of students	9	1	-	97
6.	The teachers in the school understand and appreciate the technical vocational curriculum	9	1	-	97
7.	The technical vocational curriculums offered reflect student and community needs	8	2	-	94
8.	Business people in the community show an interest in, and desire to support, the technical vocational education curriculum	8	2	-	94
9.	The instructional program is adjusted in the light of findings of the follow-up activities	8	2	-	94
10.	The teaching staff of technical vocational subjects are well trained in methods of teaching technical vocational courses	7	3	-	91
11.	The counselors are informed about the place of the technical vocational curriculum in the total school offering	7	3	-	91
12.	The instructor often visits companies employing former students	7	3	-	91
13.	The teaching staff of technical vocational subjects have extensive work experience	6	4	-	88
14.	Related courses are taught to support the major technical vocational curriculum	6	4	-	88
15.	Time allotments for shop and laboratory technical vocational courses meet instructional needs	6	4	-	88

Table C-12. (Continued.)

Rank	Evaluative criteria	Indicator of successful program[1] Excellent (10)	Good (7)	Poor (4)	Value factor (40-100)
16.	The equipment is adequate to teach the number of students enrolled	6	4	-	88
17.	Organized follow-up studies are conducted by the instructor and records kept on the results	7	2	1	88
18.	Reports on follow-up studies are reported to the school administrator, advisory committee, and school guidance counselors	6	4	-	88
19.	The classrooms, laboratories, and shops show evidence of being planned for technical vocational activities	6	4	-	88
20.	The instructor strives to improve community attitudes toward the technical vocational curriculum	5	5	-	85
21.	The teaching staffs have a good understanding of the educational needs and guidance of youth	5	5	-	85
22.	Facilities are adequate for technical vocational educational subjects	5	5	-	85
23.	Outstanding achievements of the technical vocational curriculum are publicized in the school and community	4	6	-	82
24.	Advisory committees are used extensively	5	4	1	82
25.	Progress records are kept that will indicate the extent of student achievement	5	4	1	82
26.	Tests are given to determine the degree to which students are developing attitudes, knowledges, and skills commensurate with the needs of the occupations	4	5	1	79
27.	Storage facilities are provided and used	4	5	1	79
28.	The teaching staff of vocational technical subjects have extensive general education preparation	3	4	3	70

[1] An indicator value of ten was given "excellent," seven for "good," and four for "poor." The value factor was determined by multiplying the indicator value by the number of times it was scored; by adding all indicator values, dividing by the total number of times the criteria was scored, and multiplying by ten. The range was a high of 100 and a low of 60. This process is used merely to show value comparisons.

Table C-13. Synopsis of changes made in curriculum development during the past few years by state directors of technical vocational education.

Alaska:	The Business Education Post-Secondary Guideline just being proposed is our first attempt in Alaska to adopt a firm technical diversified curriculum. The guideline is being sent to the resident directors for approval before being presented to the university academic council in September.
Arizona:	We have a cooperative arrangement with the Arizona State Board for junior colleges for the procedure necessary for development of an approved vocational technical curriculum (consistent) with our Arizona State plan for vocational education.
California:	None
Colorado:	None
Idaho:	No major change.
Montana:	1. The institution of the survey technique as a basis for course establishment. 2. Curriculum committees. 3. Tying the course more closely to the allied job cluster.
Oregon:	No major changes.
Utah:	None
Washington:	1. Research coordinating Unit initiated. 2. More direct involvement between state and community college. 3. Major curriculum contracts let to individual community college. 4. Funding of curriculum labs in major centers.
Wyoming:	None

APPENDIX D

Number of Public and Private Controlled Community or Junior Colleges by State for USA-Agregate 1966

State	Number of community or junior colleges Public	Private	Total
Alabama	14	6	20
Alaska	6	1	7
Arizona	6	--	6
Arkansas	1	5	6
California	75	4	79
Colorado	6	--	6
Connecticut	7	8	15
Delaware	--	1	1
District of Columbia	--	3	3
Florida	24	3	27
Georgia	8	10	18
Hawaii	--	1	1
Idaho	3	1	4
Illinois	27	13	40
Indiana	1	1	2
Iowa	17	4	21
Kansas	16	5	21
Kentucky	10	8	18
Louisana	--	1	1
Maine	--	1	1
Maryland	12	6	18
Massachusetts	11	16	27
Michigan	19	4	23
Minnesota	14	4	18
Mississippi	19	9	28
Missouri	9	8	17
Montana	2	--	2
Nebraska	5	1	6
Nevada	--	--	--
New Hampshire	1	2	3
New Jersey	1	11	12
New Mexico	5	--	5
New York	34	33	67
North Carolina	9	13	22
North Dakota	4	2	6
Ohio	5	5	10
Oklahoma	11	5	16
Oregon	10	2	12
Pennsylvania	22	21	43

Continued.

State	Number of community or junior colleges Public	Private	Total
Rhode Island	1	2	3
South Carolina	--	6	6
South Dakota	--	2	2
Tennessee	--	7	7
Texas	33	14	47
Utah	3	--	3
Vermont	1	3	4
Virginia	13	10	13
Washington	17	--	17
West Virginia	1	3	4
Wisconsin	10	2	12
Wyoming	5	--	5
Totals	498	267	765
Percent	65.1	34.9	100.0

Source: The 1966 Junior College Directory, American Association of Junior Colleges.

APPENDIX E

STATUS OF OCCUPATIONALLY ORIENTED CURRICULUM MATERIALS AVAILABLE FROM THE OFFICE OF EDUCATION
January 1, 1967

Available Curriculum Materials

Distribution and Marketing

Food Service Industry: Training Programs and Facilities
Management Training for Small Businesses
Planning and Organizing an Export Trade Education Program
Seafood Merchandising
Study of Curriculum Development in the High School Cooperative Program
Training for Students in the Food Inudstry

Health Occupations

Guides for Developing Curricula for the Education of Practical Nurses
Organizing a Dental Assistant Training Program

Office Occupations Education

Electronic Business Data Processing
Peripheral Equipment Occupations

Technical Education

Careers in Technical Occupations
Chemical and Metallurgical Technologies
Chemical Technology
Civil and Highway Technology
Civil Technology, Highway and Structural Options
Determining Requirements for Development of Technical Abilities Through Extension Courses
Electronic Technology
Electronic Data Processing in Engineering, Science, and Business
Electrical and Electronic Technologies
Electrical Technology
Electronic Data Processing--I
Instrumentation and Automatic Control
Instrumentation Technology

Mechanical Drafting and Design Technology
Mechanical Technology: Design and Production
Occupational Criteria and Preparatory Curriculum
Patterns in Technical Education Programs

Home Economics

Clothing Maintenance Specialist
Companion to an Elderly Person
Family Dinner Service Specialist
Homemaker's Assistant
Hotel and Motel Housekeeping Aide
Management Aide in Low-Rent Public Housing Projects
Supervised Food Service Worker
Visiting Homemaker

Trade and Industry

Automotive Service Specialist
Course in Instrument Maintenance
Curriculum Materials for Trade and Industrial Education
Electrical Appliance Serviceman
Highway Engineering Aide
Industrial Radiographer
Machine Tool Operator, General, Entry
Occupational Information and Training Requirements in the Field of Drafting
Organization and Effective Use of Advisory Committees
Peacetime Radiation Hazards in the Fire Service
Orientation Unit--Instructor's Guide
Orientation Unit--Student Manual
Basic Course--Resource Manual
Basic Course--Instructor's Guide
Basic Course--Study Guide
Basic Course--Study Guide
Basic Course--Twenty-two Charts
Sheet Metal Worker
Three Dimensional Teaching Aids for Trade and Industrial Instruction

Agriculture

Farm Business Analysis
Farm Mechanics in Vocational Agriculture
Forestry Aide
Instruction in Farm Mechanics

Landscape Aide
Objectives for Vocational and Technical Education in Agriculture
Planning and Conducting a Program of Instruction in Vocational Agriculture for Young Farmers

Facilities and Equipment

Basic Planning Guide for Vocational and Technical Education Facilities
Buildings, Equipment, and Facilities for Vocational Agriculture Education
Planning Functional Facilities for Home Economics Education

Safety

Safety in Your Future
School Shop and Laboratory Safety--A Report of a Conference

Special Needs of Youth and Adults

Educationally Deficient Adults: Their Education and Training Needs
Summary of Major Points in Developing Programs for Persons with Special Needs
Youth We Haven't Served

Teacher Education

Guide for Part-Time Instructors--Distributive Education for Adults
Preparation of Occupational Instructors
Selection and Training of Part-Time Instructors of Distributive Education for Adults

Curriculum Materials Being Developed

I. Publications Being Processed for Printing by Government Printing Office

Automobile Service Station Attendant
Basic Instruction for Personal Employability
Cooks
Courses in Laser Technology
Distributive Education in the High School
Draftsman, Entry

Economics for Young Workers
Electrical Appliance Serviceman
Grain, Feed, Seed and Farm Supplies Technology
Libraries for Technician Education
Machine Tool Operator, General, Entry
Maintenance Man, Building
Mechanic, Electronic (Industrial)
Medical Laboratory Assistant
Pre-Technical Post High School Programs
Quantity Food Preparation--A Curriculum Guide (Revision)
Refrigeration, Mechanic
Stepping Up With Distributive Education
Tractor and Farm Implement Serviceman
Vending Machine Repairman
Water and Wastewater Technology

II. Publications in the Final Stage of Development

Agricultural Production Equipment Technology
Automobile Body Repair
Automobile Mechanic (Entry)
Business Data Processing Programmer--Analyst Occupations
Care and Guidance of Young Children
Computing and Accounting Office Occupations
Custodian, Building
Dry Cleaning and Pressing
Electronics Assembler
Electronics Mechanic (Entry)
Farm Buildings and Conveniences
Farm Business Management
Filing and Related Occupations
Food Processing Technology
Post Secondary Distributive Education
Homemaker-Home Health Aide
Miscellaneous Clerical Occupations
Numerical Control of Machine Tools--Part I, Point to Point Control
Nurse Aide
Organizing a Food Trade Training Program (Revision)
Ornamental Horticulture Technology
Power Sewing Machine Operator
Radio and Television Repariman
Role of Teacher Education in Distributive Education
Salesman
Small Engine Repair

Stenography, Secretarial, and Related Occupations
Typing and Related Occupations
Waiter and Waitress

III. Publications in the Preliminary Stage of Development Under Contract--Fiscal Year 1966

Air Conditioning, Heating, and Refrigeration
Architectural and Building Construction Technology
Courses in Diesel Technology
Dental Laboratory Technology (Apprentice related instruction)
Developing Occupational Experience Programs in Agriculture
Farm Crop Production Technology
Food Service Supervisor
Forestry Technology
Heavy Construction Equipment Mechanic
Information Communications Occupations
Instructor Training Within Industry
Materials Support Occupations: Transporting, Storing and Recording
Operation of a Local Program in Vocational Education
Organizing, Implementing, and Administering a School Shop and Laboratory Accident Prevention Program
Personnel, Training and Related Occupations
Scientific Data Processing Technician
Supervisory and Administrative Management Occupations
World of Work (Sound motion picture)
You and Your Job

IV. Materials in the Preliminary Stage of Development Under Contract--Fiscal Year 1967

Careers in Aviation (Filmstrip and supplementary material)

V. Fiscal Year 1967 - Contract Proposals Being Negotiated

Automotive Engine Repairman

VI. Curriculum Materials Suggested for Development in Fiscal Year 1967

Agricultural Occupations

Agricultural Chemical Technology
Agricultural Resources Technology

Arborculture
Dairy Products Technology
Farm Operation and Management
On-Farm Instruction--An Instructor's Guide

Distributive Education

Distributive Education for Adults--A Guide for Part-time Instructors
Distributive Education for Adults--Selection and Training of Part-time Instructors
Distributive Education--Facilities and Equipment
Distributive Education--Projects and Simulated Experience
Marketing

Health Occupations

Dental Hygiene Technology (A Suggested Two-year Curriculum Guide)
Dental Laboratory Technology
Health Occupations Curriculums--1964-65
Medical Laboratory Technology (A Suggested Two-year Curriculum Guide)
Nursing Home Management
Nursing Technology (A Suggested Two-year Curriculum Guide)

Home Economics Occupations

School Lunch Managers

Office Occupations

Cooperative Office Occupations Education Program
Medical and Para-Medical Office Education
Office Occupations Education for the World of Work
Office Occupations in the Aero-Space Industry
Program Management in Office Occupations Education

Technical Education Occupations

Electromechanical Technology
Electronic Data Processing I (Revision)
Mechanical Technology--Design and Production (Revision)
Microelectronics
Numerical Control of Machine Tools--Part II--Contouring System

Trade and Industrial Occupations

Aviation Mechanics--Airframe and Power Plant
Dental Laboratory Technician (A Suggested Guide for Training Apprentices)
Dental Laboratory Technician--Second Year Apprentice Related Instruction

Facilities and Equipment

Air Conditioning and Classroom Thermal Environment
Acoustical Environment of School Buildings
What's New in Interior Building Products
Validity for Elevators and Escalators in Vocational-Technical School
Divisible Educational Facilities
New Concepts in Electrical Layouts
Planning for Schools with Television
Advanced Planning Guide for Vocational and Technical Education Facilities

Teacher Education

New Directions and Innovations in Trade and Technical Teacher Education

Guidance

Guide to Effective Use of Occupational Information
Trends and Innovations in the Vocational Aspects of Guidance

Source: U.S. Department of Health, Education, Welfare, Office of Education, Division of Vocational and Technical Education, Division of Manpower Development and Training, Washington, D.C.