AN ABSTRACT OF THE THESIS OF

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Title: A STUDY OF PROFESSIONAL EDUCATION COMPETENCIES

OF PUBLIC SCHOOL DISTRICT VOCATIONAL EDUCATION

LEADERS

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Abstract approved:
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The Purposes of the Study

The primary purpose of this study was to identify common pro-

fessional education competencies needed by public school district

vocational education leaders. Other purposes were to (1) determine

if significant differences existed in vocational education leadership

competencies among respondents as categorized by state, type of

position held, proportion of time devoted to teaching, and number of

teaching subordinates, (2) identify the method recommended by

respondents for preparing individuals to perform each competency

included in the study, and (3) formulate implications to be considered

in the development of teaching strategies and curriculum for the prep-

aration of public school district vocational education leaders.

The Procedures

The data were collected with a mail survey questionnaire

developed through a review of literature and a field test. Public

school district vocational education leaders responded to the question-

naire regarding the level of proficiency (complete, considerable,

moderate, slight, no proficiency) necessary for each of the 98 compe-

tencies in relation to their job. Likert-type scale values of 5 to 1

were assigned to the responses. Respondents also selected a method

(course work, internship, a combination of course work and intern-

ship) for preparing personnel to perform each competency.

The study utilized a population from the four western states of

Arizona, California, Colorado, and Washington. One hundred and

three of the 112 public school districts which met predetermined

criteria agreed to participate in the study. A sample of 200 vocational

education directors and department heads was randomly selected

from the participating districts. Usable data were received from 147

respondents. The data were analyzed with the analysis of variance F

statistic and the Q- and R-factor analytic techniques.

Selected Findings

Statistical comparisons using the one-way classification analysis

of variance were made on respondents who were grouped by state,

position held, proportion of time devoted to teaching, and number of

teaching subordinates. Respondents grouped by state were alike in their rating of all 98 competencies. Differences were detected with the remaining groups, leaving 62 common competencies.

The Q-technique factor analysis revealed that all respondents generally resemble one another with regard to values assigned to the professional education competencies in the study.

The R-technique factor analysis was used to group competencies for development of teaching strategies and curriculum. A five-factor solution extracted 59 competencies that had factor loadings greater than $\pm$ .50. The five factors were identified as follows:

1. Factor I: Program Management

2. Factor II: Program Planning, Development, and Evaluation

3. Factor III: State Criteria Interpretation

4. Factor IV: Staff Management

5. Factor V: Staff Relations

For each of the 98 competencies, a majority of the respondents selected a combination of formal course work and internship as the preferred method of preparing vocational education leaders to perform the competencies in the study.

Selected Conclusions

The review of literature, the questionnaire, and the results of the statistical analysis provided the basis for the following conclusions:

1. Sixty-two competencies were similar for all respondents and make up the common competencies.

2. Competencies related to Staff Management and Staff Relations received relatively high mean scores and low standard deviations, indicating general agreement that a high level of proficiency is needed.

3. Competencies related to Program Management and Program Planning received relatively low mean scores and high standard deviations, indicating a difference of opinion among the respondents concerning the level of proficiency, but generally it was considered to be low.

4. Respondents grouped by state were alike in their rating of all 98 competencies.

5. A combination of formal course work and internship was the preferred method of preparing vocational education leaders to perform the competencies in the study.

Selected Recommendations

The following three selected recommendations are offered in view of the findings and conclusions of the study:

1. Where identifiable groups are involved in vocational education leadership training, responses of individuals representing that group in this study should be examined. Those

competencies rated high by that group should receive preference in curriculum planning.

2. Experimentation should be conducted with the identified competencies to compare the effectiveness of the individualized, performance-based method of instruction and the traditional method of instruction.

3. A composite data analysis should be completed on the concurrent studies by Baltimore (1972), Martin (1972), and Sundstrom (1972) to ascertain similarity of results. If strong similarities exist, it is recommended that the western states cooperate in establishing vocational education leadership programs with a common competency base.

A Study of Professional Education Competencies
of Public School District Vocational
Education Leaders

by

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A STUDY OF PROFESSIONAL EDUCATION COMPETENCIES OF PUBLIC SCHOOL DISTRICT VOCATIONAL EDUCATION LEADERS

I. INTRODUCTION

Background of the Problem

Vocational education programs have existed in the United States for more than 170 years. For many years, however, programs were very limited. In the early days a few proponents tried to attract followers and support, but experienced very modest success. With the passage of the Smith-Hughes Act in 1917, a gradual increase in programs and enrollment began.

The Vocational Education Act of 1963, however, provided the impetus for tremendous growth. During the decade of the 1960's, total enrollment in vocational education programs nearly tripled, soaring from 3.7 million in 1960 to 10.6 million in 1970. According to Russo (1969), Chief of the Division of Vocational Education Planning and Education Branch, United States Office of Education, this rapid growth will continue at least through 1975, when a predicted 14 million students will be enrolled.

The rapid development of vocational education has not taken place without the creation of problems. The General Report of the Advisory Council on Vocational Education issued by the United States Office of Education (1968) states that leadership development must

keep pace with the general growth of vocational education. Advances are being made, but the national need is not being met.

Statement of the Purpose

The purpose of this study is to identify the common professional education competencies which are necessary for administrators of vocational education at the public school district level and to identify a recommended method, be it course work, on-the-job experience, or a combination of course work and on-the-job experience, of preparing individuals to perform each competency.

The major objectives of this study are

1. To determine common professional education competencies needed by public school district leaders of vocational education.

2. To formulate implications to be considered in the development of teaching strategies and curriculum for the preparation of public school district vocational education leaders.

3. To determine if significant differences exist in vocational leadership competencies among respondents as categorized by (a) state, (b) type of position held, (c) proportion of time on the job devoted to teaching, and (d) number of teaching staff members under their supervision.

4.   To identify the method recommended by the respondents for preparing individuals to perform each competency included in the study.

Definition of Terms

The following definitions are included for purposes of standardizing the use of terms in the study. Other terms or phrases used in the report are considered to be self-explanatory.

Internship - A planned on-the-job experience under the guidance and supervision of recognized leaders in the operation and direction of vocational education programs. As used in this paper, the interships shall be directed to administrative and/or leadership positions.

Leaders of Vocational Education - Those professional vocational education personnel who have the combined responsibility of the administration, supervision, coordination, consultation, and teacher education of vocational education at the public school district level. For purposes in this study the terms "leader" and "administrator" are used synonymously.

Professional Education Competency - Refers to a specific knowledge, understanding, ability, or expected behavior needed by an administrator or leader in the performance of his or her job.

Proficiency - A level or degree of expertness required to perform a professional education competency.

Task Analysis - A systematic process that involves breaking an actual job down into a set of logically related tasks required for the successful completion of the job.

Vocational Education - As used in this study encompasses such terms as occupational education and technical education. It refers to courses, programs, guidance, performance objectives, and related instructions based upon competencies designated to prepare the learner for entry into an occupation or advancement in a current occupation.

Importance of the Study

Federal legislation in the form of the Vocational Education Act of 1963 and the subsequent amendments to that act in 1968 provide a clear mandate for the development of leaders in vocational education. Prior to the Vocational Education Act of 1963, leadership activities had received only token attention nationwide. It was assumed that people with the interest and potential would rise to supply part of the need for leadership, but suddenly the demand for sophisticated personnel in leadership positions made this practice unsatisfactory and new catalysts were needed.

In the General Report of the National Advisory Council on Vocational Education (U.S.O.E., 1968), recommendations to the Secretary of Health, Education, and Welfare included the following

. . . that the Act recognize the need and provide support for professional and paraprofessional staff recruitement, preparation, and upgrading at all levels, including leadership administration, teacher education and counseling and guidance on a state, regional, and national basis (p. 201).

The passage of the 1968 amendments to the Vocational Education Act of 1963, with their greatly increased funding and broadened designation of services to be performed, has placed even greater stress upon the leadership in vocational education.

Tennyson (1971) states, "at the moment there is in most states a leadership void with respect to career development in the schools" (p. 56). The success of comprehensive programs in career development rests upon the leadership which can be drawn from the several disciplines represented in education.

The National Advisory Council on Vocational Education continued in its general report,

> . . . that among teachers recruited up through the ranks, many are very able individuals who rise to leadership positions, frequently without the opportunity to acquire an understanding of the nature of our society and its needs. They need help in gaining an understanding of the total educational enterprise and the social and economic conditions of our society. They also need to develop the skills of an effective educational leader (p. 149).

Following the Leadership Development Institute for Vocational and Technical Education Personnel in the Western States, TenPas (1969) wrote of a critical need for vocational-technical leaders who function from a sound theory of leadership, who have direction and

consistency in their behavior, and who implement conscious,

intellectual, rational decision-making.

Schaefer (1966), in a symposium at Rutgers University con-

cerning the advanced degree and vocational education leadership,

stated

> Vocational and Technical Education has always been faced
> with changing situations, but never has the change been so
> constant, powerful, and full of hazards. The flowing of
> technology, societal unrest, and labor market upheavals
> has accelerated at a speed far greater than innovations
> to keep vocational-technical educators apace. It is long
> overdue that a "new breed" of leadership be developed
> (p. 7).

Loomis (1971) asserts that leadership development must match

programmatic needs. Leaders in vocational education need to be able

to identify, analyze, and overcome such problems as (1) the preju-

dices that educators and the public have for non-academic endeavors,

(2) the failure of educators, students, and others to relate academic

and career goals, (3) the need to provide effective learning experi-

ences for students in low-income families and minority groups,

(4) the need for development of teacher-education programs which

match projected needs, and (5) the growing demand by the public for

improved management practices in the schools, including planning

and evaluation--or accountability. Obviously, these concepts have

large scope and skills in systems analysis, program-budgeting,

management by objectives, cost-benefit analysis, and individualization

of instruction principles will be needed by leaders.

The California State Department of Education (1970) pointed out that the need for such competencies is as essential to vocational leaders as it is to other types of leaders. In addition, such competencies must be relevant to the job in which the leader finds himself; hence, they should be based upon job (task) analysis or other procedures for validating job performance demands and standards.

In discussing manpower trends in the 1970's, Lamar (1971) stressed the need for vocational education to establish a continuing program of professional development. "The conceptualizing, planning, and information systems are dependent upon people--persons with specialized competencies" (p. 35).

Davies (1969) pointed out how American education needs to move from a system that emphasizes meeting requirements, passing courses, and accumulating credentials to one which values performance. The final test should not be something written for two hours in a room, but how a person performs. This is an alien concept in most schools and colleges, but we are not going to revitalize the system until education personnel become comfortable in a performance-based climate.

The Oregon Board of Education (1971) adopted significant changes in Oregon's rules for teacher preparation and licensing to become effective October 15, 1972. Changes in the rules reflect this trend toward recognizing competency.

1. Teacher education institutions will be able to waive part or all of the current course requirements in accordance with an individual candidate's previous experience and demonstrated competency.

2. As educational institutions prepare and license school administrators, professional skills, education, and experience not directly related to or contingent upon teaching experience, or training as a classroom teacher, will be considered.

Identified competencies also provide a basis for the development of curricula to prepare vocational education teachers. Two examples are cited.

The Division of Vocational, Adult, and Community College Education, Oregon State University (1970), prepared a Proposal For Change which outlined the necessity and procedures for developing a relevant, performance-based teacher education curriculum. This proposal was funded, and a performance-based continual progress curriculum is being developed.

Oregon State University and the University of Missouri were selected by The Ohio Center for Vocational and Technical Education (Cotrell, 1970) as cooperating teacher education institutions to assist in the development and evaluation of vocational teacher education curricula. The performance-based curricula being developed will

emphasize the application of core, individualized, and cooperative

education concepts. Modules of instruction in selected pedagogical

curricula which will incorporate specific performance goals,

appropriate learning strategies and sequences, and performance

evaluation techniques will be developed and evaluated.

Summary

The growth of vocational education in the United States has had

increasing momentum since the passage of the 1963 Vocational Educa-

tion Act. This rapid growth over a period of less than 10 years has

placed a burden on our universities to prepare vocational education

leaders.

Several authors (USOE, 1968; Russo, 1969; Tennyson, 1971)

have expressed the opinion that despite an increased number of

leadership development programs, adequate numbers of leaders are

not being prepared. Davies (1969) and Campbell (1971) suggest that

administrator competencies be defined in behavioral terms to enable

training institutions to better fulfill this void.

If educational institutions are to develop performance-based

programs, however, competencies must first be identified. This

study is an attempt to identify professional education competencies of

public school district vocational education leaders[1], and will therefore

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[1]A companion study by Martin (1972) utilizing community colleges is
being conducted concurrently with this study.

contribute to the design and development of curriculum content that

could improve the extent and quality of vocational leader education.

II. REVIEW OF RELATED LITERATURE

The study was directed toward the identification of common professional education competencies of public school district vocational education administrators; however, the review of literature revealed a lack of research at this level of educational administration. Therefore, studies, articles, and texts considered to be closely related to the problem at hand were examined. The review of literature was directed toward the following areas:

1. Recent significant developments in vocational education administrator preparation and training.

2. Innovative approaches, such as performance-based programs, in the development of curriculum for the preparation of vocational education administrators.

3. Identification of professional education curriculum content from mailed survey data analyzed by the factor-analytic technique.

Growth and Development of Vocational Education

The growth and development of vocational education in the United States has been largely determined by two factors (Bolger, 1964); (1) the needs of the marketplace, and (2) Federal support. During the period between the Civil War and the First World

War, the development of education which eventually became known as
vocational was promoted by educators who were convinced that the
curriculum of the secondary school was ignoring the manpower and
economic needs of the day. There was no intention of abolishing the
curriculum designed for those who would go to college, but of
supplementing those courses with others which would prepare students
for specific occupations.

The few vocational schools established during the late 1700's
and early 1800's generally failed to survive (Roberts, 1971). Among
these were the technical institutes, trade and business schools, and
the secondary schools of agriculture. A largely agricultural country
saw little need for techniques to make the best use of a soil rich and
plentiful; and, since the country could prosper simply by being a
producer of raw materials rather than a processor, there was no need
to be concerned with developing skills.

By 1862 and the signing of the Morrill Land-Grant Act by
President Lincoln, the trend had begun to change. The need for
engineers was increasing because of changes in industry brought
about by the Industrial Revolution. The need for trained agricultural
workers to develop the country's agricultural resources was being
recognized. The Act provided that public lands be granted to each
state for the support of at least one college. These colleges were to
provide courses in agriculture and mechanical arts as well as other
scientific and classical studies.

Although there was no strong endorsement of the Morrill Land-Grant Act, including no particular support by President Lincoln, it became evident by the 1900's that the colleges were helping agriculture and industry as earlier programs had not done (Bolger, 1964). As time went on, these colleges were able to promote a scientific attitude toward farming and to bring mechanical skills to the point of qualification as engineering skills.

For the next 50 years, however, the number of high school students and the number of high school graduates doubled every 10 years. The high school became the terminal point of education for most Americans.

Because of this constantly growing reservoir of educated youth, colleges have constantly raised the level of their courses. Bolger (1964) continues by saying

> By the time of the First World War, the country had been put on the spot vocationally. The colleges had abandoned a great deal of the vocational training they had been happy to assume in an earlier time, and the high schools had not stepped in to fill the breach. The need for specialized occupational training was greater than ever because of a more highly industrialized society and wartime demands, but no one was filling it (p. 15).

In 1914, under the leadership of Charles A. Prosser, a Commission on National Aid to Vocational Education was created to study the vocational education situation and make recommendations to Congress. According to Rumpf (1971), the Commission's report set

the stage for legislation that was to determine the direction of vocational education for nearly 50 years.

The Commission recommended federal and state assistance to vocational education below college grade. Teacher salary and training costs were to be federally supported. A minimum of 50 percent of the instruction time for students enrolled in reimbursed vocational education programs was to be given to practical work on a useful and productive basis. An independent federal board was to establish the programs in cooperation with the states, by-passing the Office of Education.

These recommendations resulted in passage of the Smith-Hughes Act of 1917. The initial $7 million was to be authorized and appropriated annually and indefinitely. Categorical aid was provided to the states on a matching basis for support of agriculture, industrial, trade, and home economic programs of less than college level, and for vocational teacher training. Vocational education in the secondary schools received tremendous impetus from this funding (Venn, 1964).

Since the passage of the Smith-Hughes Act, vocational education in the United States has been characterized by federal support (Roberts, 1971). Between 1917 and 1946 several laws designed to provide additional support to vocational education were passed, appropriating some $47 million annually. All were terminal in nature, but each contributed to the general growth of vocational education.

The first in the series of terminal legislation was the George-Reed Act of 1929, adding funds to the Smith-Hughes appropriations for agriculture and home economics programs until 1934. The George-Ellzey Act of 1934 was then passed, providing additional support for trades and industry training. This act was succeeded in 1936 by the George-Dean Act. Distributive occupation training on a part-time basis was added to the list of programs to receive support.

In 1946 the George-Barden Act superseded the George-Dean Act. A permanent authorization of funds was provided again for the same areas as the Smith-Hughes Act, but distributive occupations now received support as a full-time program. The states were also allowed greater flexibility in the use of funds.

After World War II it became apparent (Draper, 1967) that vocational education, even with the supporting legislation, was not adequate to meet the demands brought about by such developments as

The increasing skill requirements.

The development of new fields of employment.

The changes in manpower requirements.

The need for more effective use of manpower.

The desire to reduce unemployment.

Subsequent legislation has generally been directed toward these factors.

The National Defense Education Act of 1958 brought the first

significant additions to vocational education legislation since its inception in 1917. Funds were made available for the training of individuals to prepare them as highly skilled technicians in fields necessary for national defense. These NDEA provisions became Title III of the George-Barden Act.

In 1961, President Kennedy, at the suggestion of the American Vocational Association, appointed a Panel of Consultants to make a comprehensive study of vocational education and then recommend improvements. Many suggestions were accepted by Congress and written into the Vocational Education Act of 1963.

The Vocational Education Act of 1963 was significant not only in the resulting increase of federal funds for vocational education, but also in its broadening of the definition of vocational education (Roberts, 1971). Previous funding categories were expanded to encompass a wider range of occupations. Such training could be offered at both the high school and post-secondary levels for any occupation requiring less than a baccalaureate degree. Of particular importance was the placing of emphasis on groups of people needing training rather than on occupational field training needs.

In 1968, Congress amended the 1963 Vocational Education Act. The George-Barden Act was repealed, and only the funds authorized by the Smith-Hughes Act were retained, with the stipulation that expenditures be in compliance with the new law. The purpose of the

1968 law was to provide vocational offerings so that persons of all ages in all communities would have access to vocational training or retraining. The traditional occupational category stipulations were removed.

Rumpf (1971) wrote about the 1968 Amendments in the Encyclopedia of Education. Permanent authorization was provided for in the basic grant programs to the states; these were mainly like those supported under the 1963 Vocational Education Act, which allowed support for any occupation not considered to require a baccalaureate degree. Special funds were set aside for programs for the disadvantaged and handicapped as well as for post-secondary programs. Other parts of the law provided the authorization of funds for exemplary programs, consumer and homemaking education, cooperative vocational education, work-study, demonstration residential schools, curriculum development, research, and pre-service and in-service development of professionals.

The support authorized by the 1968 Amendments has provided a continuing incentive for increasing expenditures of state and local funds. Total expenditures have been increasing rapidly since passage of the 1963 Vocational Education Act. Bolger (1964) estimates that for every dollar spent on vocational education by the Federal Government, the state and local governments spend about $4.50. In 1970, $1.84

billion was spent for vocational education in the United States. The

United States Office of Education has predicted that by 1975 total

expenditures will reach the $4 billion mark (see Figure 1).

The impact of the 1963 and 1968 legislation on vocational educa-

tion enrollment is revealed by the United States Office of Education in

a publication entitled Trends in Vocational Education. Enrollment in

vocational education programs more than doubled--from 3.7 million

people in 1960 to nearly 8 million in 1969. The U.S.O.E. has

predicted that 13.5 million Americans of high school age or older will

be enrolled in vocational education programs by 1975 (see Figure 2).

This recent increase in vocational education programs has

resulted in a critical need to recruit and train personnel. Russo

(1969), Chief of the Division of Vocational Education Planning and

Education Branch of the United States Office of Education, estimates

that some 2,000 additional supervisors, administrators, specialists,

and teacher trainers will be required in vocational education at the

state level by 1975. By the same date, about 2,500 similar personnel

will be needed at the local level, a total increase of more than 4,500.

The General Report of the Advisory Council on Vocational

Education (U.S.O.E., 1968) emphasizes this need by stating

> Vocational education, like other areas, must provide
> extensive leadership development to parallel the general
> growth of vocational education, to match the increase in
> scope of the variety of persons served, and support the vast
> range of occupational preparation for which vocational
> education is provided (p. 149).
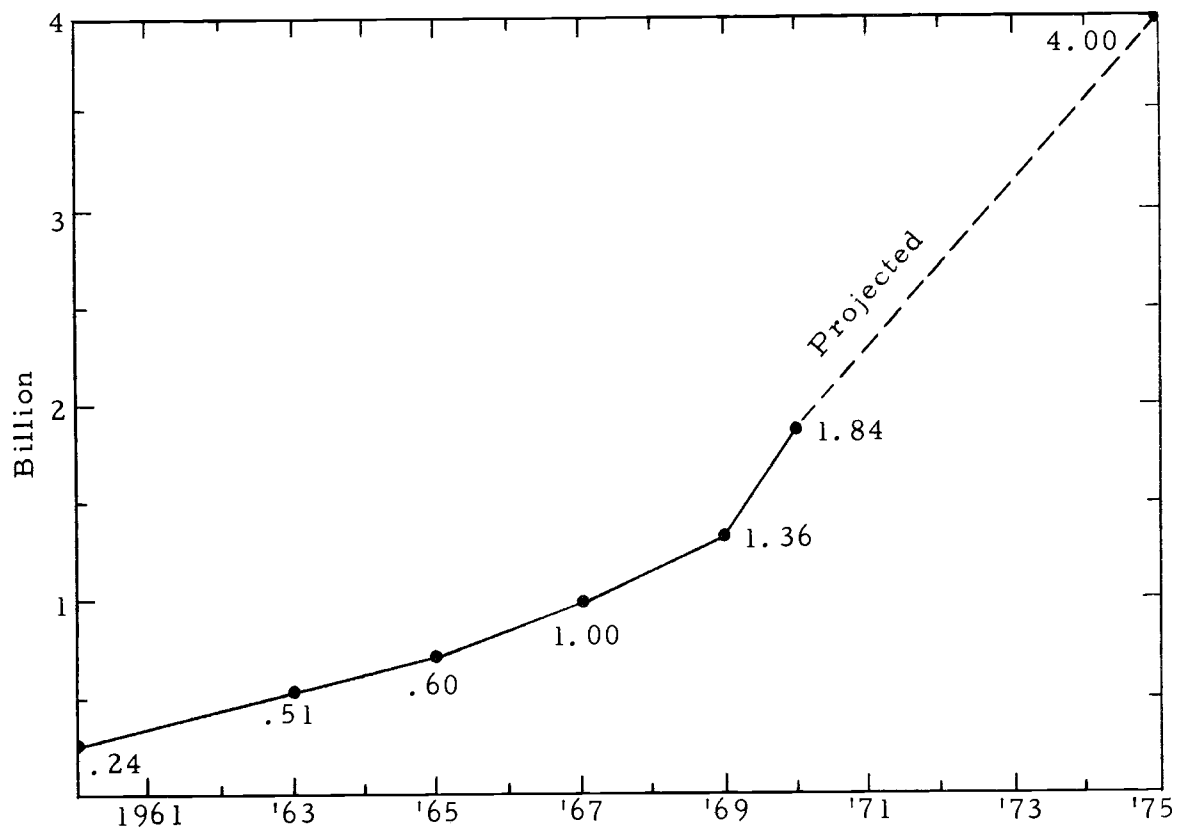
Figure 1. Total expenditures of federal, state, and local funds for vocational education in the United States (U.S.O.E., 1971, p. 16).
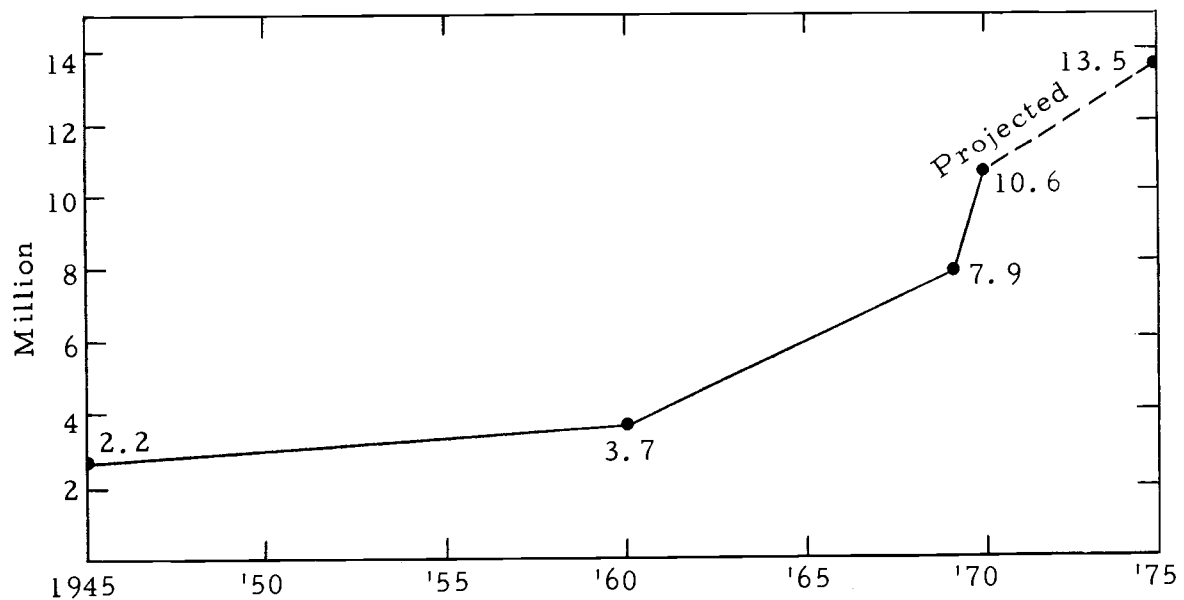
Figure 2. Enrollment in vocational education programs in the United States (U.S.O.E., 1971, p. 3, 4).

The report goes on to say, "Despite the significant development in leadership activity, the extent of such activity does not measure up to the national need" (p. 150).

Preparing Leadership Personnel

Rapidly expanding programs in vocational education during the 1960's and 1970's required and will continue to require competent leadership. This leadership must be founded on a base of preparation dealing with individual potential, contemporary training methods, and the cooperative involvement with the community at large. Effective leadership, then, cannot be delegated to an individual by a mere stroke of the pen as indicated in the following excerpt from an editorial by Baughman (1968):

> A Brigadier General of the Northern Army was captured by opposing forces in the heat of the Civil War, seriously depleting the Union Army's leadership capacity. One of Lincoln's advisors admonished, "We can't carry on the war without generals. You'd better make a promotion now; create a new leader to replace the lost one." "You may be right," Lincoln agreed. "A simple stroke of the pen will take care of the promotion but that won't make the man a leader. Leaders create themselves" (p. 248).

Suehr (1968) suggests that the future of learning institutions may depend on finding how best to prepare educational administrators. If man has improved the material terms of his existence, he has been less able to solve the human problems--interpersonal, interracial, international--of crime and mental illness, of purposelessness and

frustrated potential. Suehr goes on to say that this situation challenges

departments of educational administration to select and educate

individuals for more effective discovering, integrating, and applying

of new knowledge. And, since educational administrators have unique

contacts with human life at a formative stage, certainly programs to

prepare such administrators should not rank below those of other

professions.

In a paper presented to the University Council for Educational

Administration, Goldhammer (1968) points out that implicit in the call

for greater knowledge utilization in education is the need for adminis-

trators who are prepared for specialized roles in the schools. Pro-

grams for educational administrators must be designed specifically to

prepare the educational leaders, the program developers, the diag-

nosticians, and the implementors needed in today's schools.

Goldhammer presents some thoughts on how preparatory programs

should be revamped to train the administrator as "the clinician who

can deal effectively with educational programs as devised to achieve

specific educational objectives" (1968, p. 180). At one point

Goldhammer says

> . . . the essential elements of the preparatory program for
> administration with various levels of responsibility must be
> clearly defined. The needs of the contemporary educational
> administrator and leader cannot be met by having him take
> "courses about ------." The components of the needed
> administrative preparatory program today include: knowledge-
> building experiences, skill-building experience, diagnostic
> experiences, experiences in the application of knowledge and

data in concrete situations, experiences in the interpretation of knowledge and its "reduction" for specific application to discrete problems and communities (p. 181).

Goldman (1971) explained that the requirement of two years of graduate academic training in administration will serve a number of purposes, one of which is to enable prospective candidates to attain a solid foundation in one or more of the social sciences. Schools of Education around the country will increasingly seek for their Educational Specialist Certificate programs candidates who have received their master's degrees in fields other than education entirely; for example, sociology, psychology, economics, anthropology, political science, urban development, linguistics, communications, and social welfare. A second requirement will be that the year of study leading to the Educational Specialist Certificate be a full-time endeavor and that it include a carefully planned, supervised, and evaluated internship.

The preparation program itself will involve the following elements:

1. Formal classwork

2. Interdisciplinary seminars

3. Internship

4. Independent study and research

Five years before Goldman spoke of requirements in administrator preparation and the necessity for internship, Swanson (1966)

studied vocational-technical education in the public schools of

Missouri. One of his recommendations with particular significance

for organization and administration was that 10 internships to prepare

leadership for vocational education in Missouri be developed and

maintained jointly by the State Division of Vocational Education, the

University of Missouri, and the local school districts.

According to Kaufman (1966), leaders in the field of vocational

and technical education should have training in the field of economics

so that (1) they can understand the implications of a dynamic society

which calls for new skills, (2) they can develop the appropriate

curricula to meet these new demands, (3) they are capable of making

intelligent decisions among the many demands which are made for

funds for programs, (4) they are competent to develop and understand

research conducted in their areas in order to develop appropriate

vocational and technical education plans.

In a presentation to Education Professions Development (EPDA)

Directors of Programs in Educational Administration, Culbertson

(1968) implied that the underlying projections for the development of

preparatory programs for educational administrators are the assump-

tion that differences between education and business will be eroded by

growing interaction between the two sectors. Leaders in both sectors

are thinking increasingly in common terms of "investment," "input-

output," "social responsibility," and "social benefit." Flow of

management talent between the two sectors represents another key point on the education-business interface. In both sectors, goal setting, based upon research, will be increasingly influenced by interaction between education and business.

In accord with these important trends, Culbertson suggests that those responsible for planning programs for the training of educational administrators must (1) set new objectives for leadership development, (2) adopt a perspective which is both national and future oriented, and (3) incorporate activities adapted from the private sector, including identification of manpower needs, a national computer-based inventory of available leadership and support personnel, improved allocation of training resources, program design incorporating systematic evaluation, and training objectives more clearly oriented to specific administrative responsibilities and qualifications.

Culbertson (1968) says that public education, which traditionally has not competed effectively for leadership talent, will attract large numbers of society's most highly gifted and idealistic young leaders in the future because of an ever-increasing trend toward humanistic ideals. With a substantial infusion of outstanding talent, school systems could become more adaptive, exciting, and creative, and this, in turn, could increase the attractiveness of leadership careers in education for talented young people.

Culbertson (1968) goes on to say that as institutions limit and more clearly define their objectives, quality will be further enhanced through program differentiation. This means, for example, that research personnel and practicing educational administrators work in different environments, do different things, and require different competencies, and therefore need different preparation. It could be that universities and school districts will accept the fact that prospective educational leaders cannot be totally prepared in one-year, two-year, three-year, or even four-year programs in universities. Culbertson continues to say that by acting upon this proposition a variety of experimental approaches to continuing education, which go beyond conferences, institutes, and seminars, could be developed. These might include the following:

1. Individually oriented continuing education programs tailored to the learning needs of selected leaders in given school districts.

2. Travel study tours to provide opportunities for administrators to visit and study "lighthouse" developments and/or outstanding demonstrations of leadership in either the private or public sector.

3. Groups composed of professors, administrators, and other leaders to "live-in" a school district for a number of weeks; to study in depth selected problems there and concepts

bearing upon them; and to search for bases for attaining
better solutions to problems studied; and

4. Special ways of transmitting significant ideas and concepts
to large populations of on-the-job educational leaders
through video and/or audio tapes.

After presenting a general overview of the many changes in
secondary education, McGowan (1969) focuses on a highly selected
number of changes that have particular meaning for school adminis-
trators. Significant ramifications of educational technology are
discussed with emphasis on information systems, computer-assisted
instruction, and data processing in school management. The emerg-
ing role of the school administrator as a management specialist
rather than an authority figure receives attention along with the
related topics of systems analysis, interaction analysis, group organ-
ization, and decision-making. McGowan implies that the function of
a school administrator is to stimulate and secure action for per-
formance of the educational task. In very recent times this could be
accomplished by the assertion of authority. Administrative position
carried with it certain status and power which could be effectively
used. Today authority is regarded differently, and in the light of
present history, offers a most inadequate base from which to operate
effectively.

McGowan feels that the authoritarian approach today is being put

to question because people have been educated to the idea of personal

liberty, the right to question, the right to protest. This is a transi-

tional period between the administrator of enterprise from an author-

ity base to administrator from a competency base. Decision-making

is no longer the prerogative of an individual chief because of vested

authority. These days an individual is granted decision-making rights

primarily because he has demonstrated the competency required to

render good decisions. The author concludes by saying that where

decision-making is still being performed by individuals relying mainly

on authority, it proves disruptive. Where decision-making is per-

formed by individuals whose competence is respected, it is productive.

Argyris (1967) supports McGowan by predicting that organiza-

tions of the future will depend less upon coercive power and more on

competence. Once the basis of action shifts toward competence and

knowledge the leader will assume a participative style; he will be

more accepting of new challenges, taking risks and expanding compe-

tencies. Argyris asserts that the authoritarian leadership style of the

past was more consistent with the traditional structure, a structure

where power was used as the major force to get compliance, and was

usually accompanied by the use of guilt and exhortation.

Significant Methods and Programs for Preparing Vocational Administrative Personnel

The literature points out a definite trend in leadership

development, that of stressing more practical preparatory processes as opposed to theory. Suehr (1968) suggested that departments of educational administration are challenged to select and educate individuals for more effective discovering, integrating, and applying of new knowledge. Much has been said about internship or on-the-job training; independent study and research; broad-based preparatory programs that include study in other fields such as psychology, sociology, economics, etc. Yet the efforts to prepare vocational education leaders is slow in adapting to changing conditions and demands.

Simulation (Role Playing)

Simulation exercises focusing on the development of personnel and technical skills of supervision and decision-making are presented by Rice (1970) as the first in a series of projects designed to develop, test, and disseminate simulation materials to train state vocational leaders. The exercises incorporate three dimensions of supervisory behavior: functions, goals, and processes. They were developed from actual case histories and problems submitted by present leaders of vocational education and may be used individually, as a group of four related exercises, or in combination.

Culbertson's (1968) Articulated Media Project (AMP) was designed to build prototype instructional materials for use in preparing

educational administrators in such a way that concepts and reality-oriented administrative situations were joined during the design process. Three different types of prototype materials were developed for the project: (1) a management bargaining game; (2) materials designed to generate and give meaning to a number of conceptual frameworks related to planned change, and (3) a set of two computerized, simulated administrative situations based on systems concepts. Expert opinion and feedback on the prototype materials was achieved through seminars with professors of educational administration at three large universities, from specialists in the areas where developments were achieved, and from graduate students of educational administration. Revisions were then made to the materials, and field trials were held. The results of these field trials were very encouraging, according to Culbertson, in that the materials demonstrated promise for filling a gap in existing preparatory and in-service programs for school administrators.

To prepare school administrators to exert more effective leadership in conceptualizing, analyzing, organizing, and administering public school vocational and technical programs, Sybouts (1967) developed simulated materials in the form of three "in-baskets" which consecutively communicate an awareness of the need of a more comprehensive program, provide knowledge about occupational preparation, and require application of the awareness and knowledge

gained. The materials were designed to utilize the setting of the simulated community and school district and were tested by 48 students in an eight-week block program in a graduate course for administrators and in a five-day workshop. The use of simulated materials was effective in increasing knowledge. Guidelines for using simulation suggest clearly that the instructor (1) identify objectives, (2) become thoroughly familiar with the materials, (3) use small groups to facilitate student interaction, (4) encourage active participation of all students, (5) permit student freedom to explore alternatives, (6) phrase questions to stimulate discussion, (7) use role playing, (8) provide immediate and meaningful follow-up activities which require the student to face the problem and confront the consequences of a decision, (9) allow adequate time to consider materials, and (10) be aware that simulation is not a panacea.

The apparent lack of instructional techniques and media designed specifically for use in special education administration preparation programs prompted Hudson (1968) to attempt the development of instructional materials. The simulation technique was selected in order to provide the trainee with an instructional approach which allows interaction similar to that of the special education administrator actually at work.

After an analysis of problem identification studies, descriptive competency reports and committee compilations of what constitutes

the role and function of the special education administrator, Hudson (1968) selected actual job-based problems as the core of tasks used to elicit decision-making. Situations representing a city, a school system, a community, a state, and a special education department within a school system were designed for each of 50 preselected problems. Tasks involved in-basket messages, telephone calls, and conferences requiring face-to-face interaction. Response forms were decisions and nondecisions along with stated reasons for each action.

It was concluded that these materials would be valuable as an adjunct to an advanced seminar in special education administration. The materials should be expanded to include more problematic situations, and even though the materials were developed from "real world" incidents and situations, they should be field tested as to their appropriateness as a media for training special education administrators.

In-service Leadership Development

The Extern programs at Oregon State University, University of Arkansas, University of Alabama, and University of Minnesota are designed to prepare vocational education coordinators, directors, and other leadership personnel, by combining a planned sequence of course work and directed field experience. The programs are built upon the basic teaching competencies of present personnel and provide

school districts an opportunity to give active support to their staff

members in becoming effective leaders for total vocational programs

in their respective districts. Each program consists of a three-

credit-hour summer workshop on the university campus and 14 to 18

Friday-Saturday weekend seminars during the following academic

year.

Each Extern program is a cooperative endeavor involving

respective local educational agencies, state boards of education, and

state universities. Individual state programs are cooperatively

planned and conducted by representatives of career education from the

state board of education and of the division of vocational education at

the university. Respective programs are administered by the division

of vocational education at each university, and externs are counseled

and supervised by staff members of the divisions. Local educational

agencies nominate candidates for each program. These agencies

provide financial support for the candidate to participate in the pro-

gram. The candidate is given the opportunity to assume a leadership

role in planning and evaluating comprehensive vocational programs in

their respective schools.

Miller (1972) reports that reasonably large numbers of leader-

ship programs in education have been operated under the titles of

workshops, seminars, and institutes. There have been local work-

shops, state workshops, regional workshops, and national workshops

devoted to developing educational administration and leadership

capabilities. The same is true of seminars and institutes. Only the

name seems to vary--not the events. Examples of programs falling

in these areas include (1) workshops for junior college administration

and presidents (Luskin, 1967; Medsker, 1967; Malik, 1969); (2)

seminars for elementary school principals (Peterson, 1968); and (3)

national seminars for specialized areas in education (APGA, 1968).

Vocational education has also had its share of leadership develop-

ment activities in these categories. The Center for Vocational and

Technical Education has sponsored a national leadership development

seminar for state directors of vocational education on an annual basis

(Allen, 1968; Ward, 1969). Each of these seminars has specific

objectives growing out of pressing issues in vocational education.

Topics have included problem identification and solution; developing

interpersonal competencies; assisting in group formation; long-range

planning; planning, programming and budgeting systems; and the

Delphi technique.

Federal grants have supported institutes for new and inexperi-

enced technical education administrators and were designed to develop

and improve the participants' understanding of technical education, the

technical education leadership role, and how this role related to pro-

gram planning and development of continued leadership potential

through in-service training (Miller, 1969). A formal evaluation

of the participants indicated an acquired ability to plan for implementa-

tion of positive program change, and the intent to provide a continua-

tion of leadership development activities. A more extensive project

(Worthington, 1970) sponsored a series of regional institutes and

training programs designed to help develop and train, on a long-range

basis, a cadre of project directors, who, in turn, would design and

direct training projects for experienced vocational educators.

Other seminars have been held to further develop the knowledge

and understanding of selected federal, state, and local educators who

have responsibility for vocational-technical programs. This was

accomplished by presenting information concerning vocational educa-

tion programs and procedures and providing opportunities for partici-

pants to observe and practice specific leadership skills (Green, 1966).

Similarly, leadership development seminars were sponsored by the

University of Maryland (Selland, 1969), Oregon State University

(Matthews, 1969), and Missouri University (Missouri, 1967).

Preservice Leadership Development

The University of Georgia Leadership Development Program

(Racster and Tolbert, 1969), divided into three phases, was conducted

over a period from November 1966 to June 1968. Twenty-one partici-

pants, including area vocational-technical school directors, coordina-

tors of post-secondary instruction, and supervisors of area vocational

high school programs, attended this 20-month training program. The

purpose was the training of qualified vocational educators for positions

as directors or coordinators of secondary or post-secondary pro-

grams.

Evaluation of the project indicates that the objectives were

generally accomplished. The trainees are more competent in leader-

ship positions as a result of the program; they have a working know-

ledge of a comprehensive program of vocational education as a basis

for planning local programs of vocational education; and they have an

understanding of administrative organizations and structures of voca-

tional education programs in their home states.

The Georgia program participants also gained new knowledge of

the duties and responsibilities of a vocational education administrator,

and they have acquired insight into professional problems with which

such an administrator must cope. They have gained a working know-

ledge of principles and practice related to vocational education

administration and means for using these in on-going programs of

vocational education.

The University of Michigan Leadership Development Program

(Wenrich, 1966) was conducted from 1964 through 1967. Each school

year 20 men were selected to participate in an eight-week summer

workshop and a year-long internship. The major objective of the

project was measurement of leadership behaviors of program trainees

and comparable non-trainees. It was also hoped to develop an objective

formula for the selection of men who would show the most effective

leadership behavior in future years.

Training groups and control groups were established for three

school years: 1964-65, 1965-66, and 1966-67. In addition, during

the 1964-65 school year a third group was made up of trainees who

attended only the internship phase of the training program. The latter

group was used to examine the relative merits of the summer work-

shop.

Leadership scores for the experimental and control subjects

were measured by five variables

Position

Time spent in administrative duties

Functions

Vocational-technical role

Agent of change

Wenrich (1968) reported the 71 graduates of the University of Michigan

program for the school years 1964-67 were compared with the 48-

member control group which consisted of men interviewed but not

selected for training. Some study highlights were (1) an objective and

quantitative measure of leadership behavior was obtained; (2) the

selection procedure and training program accounted for impressive

gains in leadership behavior; (3) the combination of the eight-week

summer workshop and the year-long internship was superior to the internship alone. Also, a means for separating the effects of selection, such as random assignment to experimental and control groups, should be effected.

New York State (Law, 1967) conducted an intensive two-phase program in leadership training designed to fill the administrative needs of the state's proposed vocational schools. Approximately $1 million was spent on 45 persons who were selected on the basis of educational qualifications and leadership potential. State and federal money was used to subsidize each trainee's salary throughout his year in the program and for travel and college expenses.

The first phase was an on-campus exposure to a coordinated program of knowledge and experiences related to broadly identified competencies in these major areas

1. The administration and supervision of vocational education.

2. Occupational analyses and vocational curriculum development.

3. Current and projected concepts of vocational education.

4. Laws, regulations, and policies affecting vocational programs.

5. Plants and facilities for area vocational education programs.

6. Financial organization and fiscal management of area vocational programs.

The second phase of the New York State administrative leader-
ship program involved an eight-month field-directed study program.
For a majority of the persons involved, this was the actual develop-
ment of a new area program in a new situation. Typical tasks per-
formed included the preparation of five-year labor demand and
curriculum projections, the recruitement and selection of staff, and
the preparation of educational specifications, in fact, all of the details
associated with getting a new school off the ground.

In Oregon there is a race between program expansion and the
development of competent leaders (Daugherty, 1971). The void in
leadership development is being filled through the efforts of progres-
sive school districts, community colleges, the Oregon State Board of
Education, and Oregon State University's School of Education.
Together they have developed a program based on the internship
concept.

The concept of internship is not new to Oregon education. It has
been used in teacher training for the past ten years. But as a prepara-
tion program for vocational education administrators, the present
internship is innovative in that it is a marriage of administration
theory and day-by-day administrative problem-solving.

The Oregon program, now in its fifth year, has won praise and
strong support from business, industry, and education. The 12-month
internship period provides the flexibility required to adapt to

individual needs; assures broad exposure to administrative tasks, and allows the intern opportunity for in-depth work and sufficient contact with the rigors of administration to test his ability to cope.

The object of the program is to develop tested, qualified vocational leaders from which the educational system can select additional and replacement personnel. Long-range planning by Oregon educational institutions can be much more effective when leadership personnel are observable for a year and available for placement the following year.

Oregon State University is one of 11 original institutions (there are now seven more) supported by Part F, Section 552 of the Education Professions Development Act to prepare vocational education leadership personnel. The primary purpose of the Section 552 legislation is to create and sustain a flow of high-level manpower--specifically leadership personnel--to meet needs in all of the states. The legislation states that the program must be designed to further substantially the objectives of improving vocational education through providing opportunities for graduate training of vocational personnel.

Dr. Sidney Marland (1971), in a speech to the National Association of Secondary School Principals, said the following about the Office of Education efforts to help strengthen vocational-technical education in its most critical aspect--personnel:

. . . the Leadership Development Awards, is a doctoral-fellowship program under the Education Professions Development Act. It seeks to identify and train a cadre of leaders for the vocational-technical career education field.

As an initial move, we have made the first group of awards to 160 experienced vocational educators to enable them to undertake full-time study at the doctoral level. These men and women are attending 11 universities that emphasize career education. These institutions pay special attention to the needs of the disadvantaged and handicapped; they cooperate closely with industry, the states, and the local districts; and they have established close working relationships with the surrounding communities.

Their training, which lasts from two to three years, is essentially an intensive internship program with opportunities for research and exploration into the complexities of our constantly changing occupational structure.

These doctoral candidates, whom we expect to make a very constructive imprint on the world of career education, will not be cast adrift upon graduation to search out their own niche in that world. Their home states will develop plans for the most strategic use of their skills--in colleges and universities which prepare career educators, in state departments of vocational education, in community colleges, and at the local level for development of the entirely new approach that school systems must take to career education (p. 25).

The Junior College Leadership Program (California University, 1969), originally meant to supply administrative and research leadership for the growing number of colleges, has expanded its scope to include continuing development of administrators, a doctoral program for administrators and research-oriented educators, and a cooperative internship for instructors. The primary objective of the doctoral program in junior college leadership is to develop candidates with the potential of becoming chief administrators in junior colleges. However, some doctoral candidates have particular interests in becoming

leaders in the administration of student personnel services, curriculum and instruction, vocational-technical education, or other aspects of junior college administration. Individualized programs include courses in the Department of Education as well as in various academic departments of the university. They also include field and internship experiences. The student's specialized interests in administration are recognized as he selects seminar projects and a dissertation topic.

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Considerations in Preparing
Leadership Personnel

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One aspect of this study was directed toward the validation of a listing of common professional competencies for leadership and administrative personnel in vocational education at the public school district level. The validation of this listing is a logical way of obtaining much of the information essential for the design and development of a competency-based curriculum necessary for leadership training.

The identification of competencies which leaders must possess as they emerge from the training program is central to the issue of development of leadership traits for vocational educators. Campbell (1971) suggests that administrator competencies be defined in behavioral terms so that an evaluation of administrative performance or potential performance can be made.

The President's Panel of Consultants on Vocational Education

(U.S.O.E., 1963) had this to say about leadership

> The leadership of vocational education will determine both its quality and effectiveness. In a rapidly changing world, this leadership must be dynamic and forward-looking, able to adapt its thinking to the constantly changing situation which it faces. Capable leadership is always in short supply especially in the new fields (p. 162).

The literature in no way indicates that a "final" listing of

leadership competencies in vocational education at the various levels

has been completed. In fact, Gunderson (1971) states

> Research dealing with the problem of identifying the common professional education competencies of vocational education administrators and counselors constitutes an area that should be investigated (p. 64-65).

Public School District Research

Wenrich and Shaffer (1965) conducted a study involving principals of 106 large high schools in Michigan to determine their perceptions of the roles of persons charged with the responsibility for leadership in the development of occupationally oriented programs in high schools. Duties, responsibilities, and relationships which the assistant principal might be expected to assume or develop were also studied. Principals ranked in order areas of responsibility and specific administrative tasks.

Burton (1968) investigated the effect that training and experience seem to have on the variation of opinion among administrators by

having 87 secondary school principals, 30 graduate students in educational administration, and 29 undergraduates in education indicate their perceptions of the relative importance of 51 tasks of educational administration. This was done by having the selected groups perform a Q-sort of 51 cards which contained "critical tasks." The results of the study indicated that wide differences existed in the perceptions of the role of the educational administrator within groups actively engaged in or preparing for the profession.

A study was undertaken by Edmunds (1967) to determine the qualifications, responsibilities, and duties of vocational directors at the local district level in Utah. Data were obtained from personnel in 37 school districts in Utah, 37 state vocational education directors, 48 teacher training institutions, and the U.S. Office of Education. Results of the study showed that 50 percent of the teacher education institutions and 16 percent of the state departments had a preparation program for local directors. It was recommended that director training programs be developed and certification criteria be established.

Stanger (1967) did an attitudinal study concerning the responsibilities of the intermediate level director of vocational education in California. The purpose of the study was to survey the attitudes of selected groups of vocational education leaders in order to determine their perceptions of the functions of the county vocational education

director in California. Item analysis of the combined-group ratings of 73 functions revealed a strong pattern of consensus with and among groups. Rank-order listings of the importance of items according to weighted scores revealed a preponderance of top-rated functions in the area of administrative and executive functions. Next in importance were functions concerned with the instructional program and with professional improvement.

Courtney and Halfin (1969) utilized a questionnaire which they developed to determine the common educational requirements of high school vocational teachers. A factor analysis of responses was utilized from 40 randomly selected vocational teachers representing the states of Pennsylvania, Iowa, North Carolina, and New Jersey. A factor analysis provided data which led the authors to conclude that commonalities within the five disciplines studied could possibly serve as a common core of training experience for broadly based vocational teacher education curricula.

Walsh (1963) analyzed 107 teacher competencies for trade and industrial education instructors and utilized a Likert-type check list for data collection similar to the one used by Halfin. He used a somewhat different approach in that communities of experts rated teacher competencies in terms of their importance. Teachers rated competencies expressed as ability to do something as most important, whereas teacher educators rated competencies expressed in terms of

knowledge or understanding as most important. About one-half of the respondents were satisfied with the teacher education programs and one-half dissatisfied.

The California State Department of Education (1965), with approximately 105 supervisors and coordinators of public school vocational education programs in California, participated in a conference to study current leadership practices and vocational education programs as related to national, state, and local requirements. The conference consisted of individual presentations and brain-storming sessions to identify sources, competencies, and consequences of change in vocational education. Then, using a junior college case study based on the experiences of a new director of vocational education, discussion groups developed suggestions to help vocational administrators understand the competencies needed in light of the climate surrounding the experience.

Two studies were done in 1966 and 1967 which were intended to define administrative roles in vocational and technical education on the local and intermediate district level. Law (1966) did a study of the duties and responsibilities of public school administrators as they affect the initiation, development, and conduct of federally aided programs in occupational education in New York State. One of its primary purposes was to identify the duties and responsibilities generally associated with each position. He also obtained the views

and recommendations of vocational and general school administrators

with respect to the need for special preparation and training of

persons whose policies and actions have a bearing on the initiation,

development, and conduct of programs in vocational and technical

education.

Law concluded that a wide variety of administrative positions is

involved in duties and responsibilities that relate to the administra-

tion of vocational education, and that many administrative functions

are carried out by persons who do not have experience in vocational

school work nor professional training in the administration of voca-

tional education. One recommendation was that local boards of

education define the duties and responsibilities and establish policies

with respect to status of local administrators of occupational educa-

tion.

Community College Research

O'Grady (1969), in an effort to define the role of the Depart-

mental Chairman in selected Missouri and Illinois two-year colleges,

interviewed 43 chairmen from large colleges and 34 from small

colleges. Findings indicated that the chairman's role in the small

and large colleges differed significantly in status, qualifications,

budget administration, personnel administration, academic adminis-

tration, and general functions.

Two investigators studied the roles and relationships of the chief vocational-technical education administrator in public two-year colleges. Whitney (1967) identified the administrative levels, job titles, duties, responsibilities, and conditions of employment of the chief vocational-technical education administrator in relation to the patterns of administrative structure of junior colleges offering occupational curricula. All junior colleges listed in the 1966 Junior College Directory were contacted. The investigator identified 121 administrative duties and responsibilities which were grouped into seven major areas.

Gates (1964) studied the roles of the administrators of technical education programs in public junior colleges in the United States and explored the relationship between selected characteristics of such administrators and the type of programs administered by these persons. Of the 85 administrators who met the criteria established for this investigation, 66 replied. Fifty institutions were represented by these respondents. The typical respondent performed duties and had responsibilities in all major headings--general administration; teaching assignments; student personnel work or guidance; research and publication; cooperative enterprises with industry, business, agriculture, and/or public services; national professional activities; local and state professional activities; and community participation. The typical administrator was responsible to the president, had the

title of either director or dean, had 16 or more faculty members to supervise, and served on the academic council and curriculum committee. A typical administrator supervised curriculum in more than one family; however, he directed these curriculums at a single level of rigor. Gates found no statistical evidence of a relationship between selected characteristics of the respondent-educational background, and work experience, and the type of program he directs.

In an effort to define the role of the administrator of vocational education in the single college junior college district, Lien (1968) compared definitions provided in the pertinent literature, the job description given by several colleges, and the interpretation of their role as seen by a sample of vocational administrators. While agreement was found between the literature and the job descriptions, neither reflected accurately what vocational administrators were actually doing. It was concluded that the problem of finding a clear definition of the role of the administrator of vocational education is still unsolved.

Cortelyou (1971) utilized the task analysis method of identifying duties and responsibilities of Instructional Services Supervisors of the 18 vocational, technical, and adult education districts in the state of Wisconsin. Twenty-one questionnaires utilizing the Likert-type format were mailed to the total population of 21 Instructional Services supervisors. The instrument identified 12 major task-competency

areas totaling 126 subtasks and competencies which the Instructional Services supervisors responded to. Of the 12 major task areas identified, three were found to require complete proficiency, six were found to require considerable proficiency, and the remaining three task areas involved only moderate proficiency. Recommendations were made to develop a curriculum from the study results and encouragement was given to complete more research in the area of task analysis in determining specific competencies and tasks involved in a job, position, or vocation.

University Level Research

In order to obtain pertinent facts, qualifications required, and other data concerning the job of the departmental chairman in industrial teacher education, Minelli (1958) utilized a questionnaire-check sheet to obtain information from 103 chairmen. A list of 80 activities was identified and classified under 10 major headings or homogeneous groups. Each chairmen was asked to indicate whether he did or did not perform or supervise each activity listed, to give his evaluation of the importance of each homogeneous group, and to indicate the approximate average weekly clock hours devoted to each group or category.

Garrett (1967), in a study to determine whether there were common opinions about the role and functions of professional leaders

of Home Economics Education in education programs for disadvantaged

parents in the state of Missouri, found that although there was a lack

of agreement among respondents as to the relative importance of

various activities within the leadership role, most respondents

seemed to correlate ideal and actual roles. Respondents valued the

leadership role more on the basis of their perceptions of how a pro-

fessional leader should be involved than on what he was actually doing.

Correlation and factor analysis techniques were used in analyzing the

data as to actual and ideal roles.

State Level Research

Taylor (1961) conducted a study to determine in-service training

needs of state supervisors of vocational agriculture. The objectives

of the study were to develop guiding principles, identify training needs,

determine situational factors and individual characteristics which

influence needs, ascertain factors which limit training activities,

determine types of training desired, and formulate recommendations

for a training program. Guiding principles were formulated after a

search of the literature and utilization of a jury of 20 experts. Of 240

supervisors, 89 percent responded to an instrument which listed

competencies. Validation of the competencies was by 16 chief state

school officers and 14 state directors of vocational education. Much

influence upon ratings was found relative to regional location and

position as head state supervisor. Little influence was effected by years in vocational teaching, years to retirement, years in supervision, and a master's degree.

Multi-level Research

Heilman (1970), in a study involving selected leaders in vocational education, attempted to determine contributions made by personnel, to assess the procedures and processes utilized in making these contributions, and to identify strengths that need to be developed in future personnel. Sixty-four individuals from 28 states who held leadership positions were selected. One null hypothesis was formulated to test the findings: There are no differences between tasks performed by personnel at the secondary, community college, state department of education, and teacher education levels. Specific tasks performed by each were collected over a period of five weeks for a total of 181 man-days. Analysis of data revealed a significant difference between the four position levels and, therefore, rejected the hypothesis. The greatest similarity in rank-order correlation existed between secondary and teacher education positions, and the least similarity appeared between secondary and community college positions.

Opinions of 108 administrative supervisors of vocational department heads were obtained by Gutcher (1968) to provide implications for

the training of vocational supervisors. Responses were obtained

from a questionnaire mailed to 27 administrators in technical

institutes, comprehensive high schools, vocational high schools, and

junior colleges. There was more agreement in what was unimportant

in supervisor characteristics than what was important. Recommenda-

tions for future studies of this type included: (1) careful selection of

listed characteristics, (2) use of an open-end questionnaire, (3) care-

ful selection of persons supplying the list of characteristics or

ranking the list so that they are representative of the types of schools,

(4) use of an analysis of variance method in analyzing data, and (5)

extension of research to identify effective supervisor characteristics.

Competencies essential for the adequate performance of voca-

tional education leadership roles were investigated by Ward (1971),

and methods of preparing individuals for these roles were considered.

Competency items were written, reviewed by experts at a vocational

education leadership development seminar, rewritten and incorporated

into a questionnaire utilizing a Likert-type scale to obtain a rating

for each of the 50 items. The questionnaire was then administered to

134 leaders of vocational education in Oregon and to 10 national

leaders. Ward concluded that 40 competencies are essential to

adequate performance by occupational leaders. It was theorized that

these competencies are most applicable to Oregon needs, but should

be generally applicable to other states. It was also indicated that the

best method of preparing an individual for most competencies is a
combination of course work and internship experience. Ward also
noted that identified competencies can serve as a base on which to
build future programs of vocational education leadership development.

Summary

The studies described in this review have indicated several new
and challenging approaches for preparing leaders, specifically
Simulation techniques, In-service Leadership Development Programs,
Pre-service Leadership Development Programs, Individualized
Student-centered techniques, and Broad-based curricula. These
methods of leadership training are a far cry from the "not so easily
forgotten" lock-step methods of the traditional teacher-centered
process.

III. DESIGN OF THE STUDY

This study is an investigation of professional education competencies essential to adequate performance by vocational education administrators and leaders at the public school district level. The study also identifies a recommended method (course work, internship, or a combination of course work and internship) of preparing individuals to perform specific competencies. The findings provide information for the design and development of curricula in vocational education administration. The following summary of procedures employed in the study is provided to delineate the specific steps taken during the investigation.

The Dependent Variables

The first variable in the study was a score assigned by respondents to denote the level of proficiency they felt was necessary for each of 98 professional education competencies. Respondents, who included public school district vocational education directors and vocational education department heads, were asked to evaluate the importance of each competency in relation to their job. Each of the 98 competencies was assigned a score based upon the following Likert-type scale:

1. My work as a vocational education administrator or leader requires no proficiency with this competency.

2. My work as a vocational education administrator or leader
    requires <u>slight</u> proficiency with this competency.

3. My work as a vocational education administrator or leader
    requires <u>moderate</u> proficiency with this competency.

4. My work as a vocational education administrator or leader
    requires <u>considerable</u> proficiency with this competency.

5. My work as a vocational education administrator or leader
    requires <u>complete</u> proficiency with this competency.

In addition to the Likert-type scale a three-column check list was
included in order to solicit the second variable, a check (✓)
response as to the recommended method of preparation. Choices
were as follows:

1. Proficiency for this competency could best be prepared by
    <u>formal course work only</u>.

2. Proficiency for this competency could best be prepared by
    <u>internship (supervised on-the-job experience)</u>.

3. Proficiency for this competency could best be prepared by
    a combination of <u>formal course work and internship</u>.

<u>Development of the Questionnaire</u>

The instrument used in this study was a mail survey question-
naire containing 98 professional education competencies together with
a five-point Likert scale. This enabled the respondent to judgmentally

score the level of proficiency necessary for each competency. Also, respondents completed a check list designed to reflect a recommended method of preparation for each competency item. Mail surveys as a method of securing information for curriculum development have been utilized in studies in vocational education administration by Minelli (1958), Gates (1964), Whitney (1967), Gutcher (1968), Cortelyou (1971) and Ward (1971).

The development of the questionnaire was accomplished in conjunction with a companion study done concurrently by Martin (1972), who utilized Community College Vocational Education Leaders. This consortium resulted in the identification of competencies which were considered common to leaders and administrators of vocational education in public school districts and community colleges.

The initial step in the development of the questionnaire was based on research by Heilman (1970), Cortelyou (1971), and Ward (1971). Heilman (1970) asked 64 individuals from 28 states in key vocational leadership positions to record specific tasks performed during five days and over a five-week period. Ward (1971) used a 50-item questionnaire with a Likert-type scale among local leaders of occupational education in Oregon; and Cortelyou (1971) used a 126-item questionnaire with a Likert-type scale on tasks of instructional services supervisors of technical institutes in the state of Wisconsin. The instruments developed by Ward and Cortelyou provided the base

for the cooperative development of the questionnaire used in the two concurrent studies. The format was revised and made more suitable to the public school district and community college levels. Each item was checked by the two investigators to determine its appropriateness to public school district and community college vocational education administration. Items which appeared to be redundant or inappropriate were deleted. An initial questionnaire containing 150 items was developed and subsequently revised as a result of suggestions from the major professors of each of the two investigators. The revised questionnaire contained 114 competencies.

The second step was to field test the revised questionnaire. Ten public school district leaders and 10 community college leaders (10 selected by each of the two investigators) were asked to complete the questionnaire. They were also asked to list any recommendations or suggestions for revision. The revision form used by the field test respondents is found in Appendix A. Following the field-testing phase, the 114 competencies were reduced to 98 because of low mean scores on 16 items. Only minor revisions were then made prior to preparing the final draft of the instrument. The final instrument is in Appendix B.

Selection of the Sample

The study utilized a population from the four western states of

Arizona, California, Colorado, and Washington. Public school

districts that met the following requirements were selected from each

state:

Has one chief vocational education administrator.

Has at least three vocational education department heads.

Has a secondary school enrollment of at least 600 students.

Identification of districts meeting these criteria was made by utilizing

one or more of the following references:

Patterson's American Education (Elliott, 1971).

Each state's public school directory.

Various information supplied by the State Departments of

Vocational Education.

One hundred and twelve public school districts met the require-

ments, 8 in Arizona, 53 in California, 12 in Colorado, and 39 in

Washington.[2] Each district superintendent was contacted for permis-

sion to include the names of his district's chief vocational education

administrator and vocational education department heads in the total

list from which the sample would be randomly selected. Affirmative

replies by means of a card enclosed with the letter were received

from 103 of the 112 superintendents. A sample copy of the letter used

to contact superintendents is found in Appendix C, and the return card

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[2]Sundstrom (1972) conducted a study utilizing selected vocational
education administrators in Oregon. To prevent respondent duplica-
tion, Oregon was omitted from this study.

is illustrated in Appendix D.

The required number of respondents for the study was determined by statistical formula (Cochran, 1967) utilizing the response variances to individual items from the pilot study. The highest variance was incorporated into the formula found in Appendix E. The calculated number of respondents was 147, with 12 from Arizona, 73 from California, 17 from Colorado, and 45 from Washington. The 147 respondents included 14 vocational directors and 133 vocational department heads.

The sample was then randomly selected from each state's listing of vocational education directors and vocational education department heads from the districts where the superintendent replied affirmative. Individuals were identified from the same references as were used to determine the districts meeting the criteria. Appendix F shows the geographic location and the names of the public school districts which participated in the study.

The Statistical Design

As previously stated, the central problem of this study was to determine the common professional education competencies needed by public school district administrators and leaders of vocational education. The general design of this study included the following:

1. The population for the study was representative of

administrators and leaders of vocational education at the

public school district level covering four western states. A

randomized sample of 200 individuals was selected and

mailed the 98-item questionnaire. Usable information was

received from 147 respondents.

2. Responses regarding the degree of proficiency were

recorded on a five-point Likert-type scale. Response

values ranged from a low of 1.0 to a high of 5.0.

3. Data were analyzed through the use of two factor analytic

techniques--the R-technique and the Q-technique. The

techniques took on the following characteristics for the

study:

A. The R-technique orders competencies according to the

respondents included in the study. This form of

analysis examines the relationship of every competency

with every other competency and provides for a cluster-

ing[3] of common professional education competencies.

A 98-item (competency) intercorrelation matrix, based

upon data collected from 147 respondents, was gener-

ated. Hence, the 98 competencies are clustered in a

manner that best accounts for the largest percentage of

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[3]R- and Q-technique results with factor loadings of $\pm$ .50 or higher
are recorded as being clustered within a factor.

common variance.

B. The Q-technique basically involves the ordering of respondents according to the competencies which were included for the study. A 147-respondent intercorrelation matrix based upon data furnished on 98 competencies was generated. This analysis provided a measure of commonality among respondents and indicated the extent to which leaders resemble each other with regard to the 98 competencies in the study.

4. There was an interest in learning if differences existed among the competency level of proficiency mean scores for respondents as grouped (1) by state, (2) by type of position held, (3) by proportion of time on the job devoted to teaching, and (4) by number of teaching staff members under their supervision. In each case, analysis of variance F statistic at the .01 level of significance was used to determine if a difference existed.

5. Opinions as to the best method of preparing for the competency were compiled on the basis of the number of respondents who chose each method. Methods of preparation considered were course work, internship, and a combination of course work and internship.

Collection of Data

Several steps were involved in the collection of data in each of the four states. Because the implications the two studies could have for curriculum development in vocational education administration programs, the Division of Vocational, Adult, and Community College Education, Oregon State University, was willing to provide Division support, in the form of stationery and endorsement, for securing appropriate agency and public school district participation in each state.

State directors of vocational education were contacted for their endorsement of the study and to provide directories of vocational education personnel. A sample copy of the letter is found in Appendix G. Endorsement of the study and helpful information were received from the four states.

Data were collected by mailing a stamped, self-addressed questionnaire and an explanatory letter to each of the randomly selected administrators in the four states. All data were collected within a period of seven weeks. A sample copy of the explanatory letter is found in Appendix H.

A follow-up letter was sent to those who did not respond by the date requested. A copy of this letter is found in Appendix I.

The final step in the collection of data was to check and code

each returned questionnaire before transferring the data to data

processing cards for computer analysis. The method for coding cards

is found in Appendix J.

IV. DATA ANALYSIS

The analysis of data for this study is presented in the following

five sections: results of the analysis of variance tests, results of the

Q-technique factor analysis, results of the R-technique factor analy-

sis, results of the mean score rankings, and results of the method of

preparation tabulations.

Results of the Analysis of Variance

The analysis of variance F statistic was used to test for signifi-

cant differences in mean scores relative to level of proficiency values

which respondents assigned to each of the 98 competencies. The tests

were conducted on responses grouped by (1) state, (2) type of position

held, (3) proportion of time on the job devoted to teaching, and (4)

number of teaching staff under the respondent's supervision.

Responses of individuals grouped by state were tested to see if

significant differences existed among state mean scores. The testing

indicated that the states were alike in their responses to all 98

competencies. The computed F scores are shown in Appendix K.

Responses of individuals grouped by type of position, school

district director of vocational education and vocational education

department head, were tested to see if significant differences existed.

The means of the two groups were found to be different for 19 of the

98 competencies. The computed F scores for all competencies and the group means for the 19 competencies in which a difference was detected are found in Appendix L.

Responses of individuals grouped by proportion of time on the job devoted to teaching were tested for significant differences. There were three groups; those with full-time teaching responsibility, those with seven-eighths to one-eighth time teaching responsibility, and those with no teaching responsibility. The means of the three groups were found to be different for 33 of the 98 competencies. The computed F scores for all competencies and the group means for the 33 competencies in which a difference was detected are found in Appendix M.

Responses of individuals grouped by number of teaching staff under their supervision were tested for significant differences. There were three groups; those with fewer than 11 teaching subordinates, those with 11 to 50, and those with more than 50. The means of the three groups were found to be different for 20 of the 98 competencies. The computed F scores for all competencies and the group means for the 20 competencies in which a difference was detected are found in Appendix N.

A significant difference in the responses of the various groups was detected in 36 of the 98 competencies. Table 1 lists the remaining 62 common competencies.

Table 1. Common competencies.

Competency number	Overall mean	Mean ranking	Competency number	Overall mean	Mean ranking
2	4.20	10	43	3.01	86.5
3	4.26	8	44	3.42	64.5
4	3.11	82.5	47	3.45	57
6	4.04	15	49	3.74	35
7	3.52	50.5	50	3.76	34
8	4.04	16	52	3.15	80
9	3.94	22	54*	2.85	95
10	4.24	9	55	3.60	46
11	3.73	36	56	3.59	48.5
12	3.70	38	59	3.01	88
13	3.62	44	63*	2.74	96
19	3.67	39.5	65*	2.46	98
21	3.88	27.5	66	3.60	47
22	4.00	18.5	68	3.24	74
23	3.90	25	69	3.88	27.5
24	4.06	14	70	4.00	18.5
25	4.30	7	73	3.89	26
26	3.62	44	76	3.81	32
27	4.09	12.5	77	3.98	21
30	3.93	23	78	4.33	6
31	4.54	1	79	3.49	54
32	3.26	72	80	3.44	58.5
33	4.34	5	81	3.31	70
34	4.53	2	83	3.99	20
35	3.62	44	84	4.09	12.5
36	3.43	62	85	3.42	64.5
37	3.44	58.5	87	3.35	69
38	4.14	11	88	4.01	17
39	3.85	30	93	3.21	75
40	3.93	24	94	3.82	31
42	3.11	82.5	98	4.35	4

*Competencies with mean scores of less than 3.00.

Results of the Q-Technique
Factor Analysis

The Q-technique factor analysis was used to indicate the extent to which the respondents resemble each other relative to level of proficiency values assigned to each of the 98 competencies. Essentially, it provided a measure of commonality among the respondents. Results show that in all instances factor loadings exceeded .84. The results of the Q-technique analysis are shown in Appendix O.

Results of the R-Technique
Factor Analysis

The R-technique examines the relationship of every competency with every other competency and then clusters the competencies into factors. Cattell (1952) contends that the majority of studies involving factors have used the R-technique.

The data were analyzed four separate times by use of the R-technique factor analysis to determine the most appropriate number of factor solutions. Twelve, 7, 6, and 5 were used, with 5 being judged most appropriate for the following reasons:

1. The largest number of competencies received a factor loading of $\pm$ .50 or higher.

2. A fewer number of competencies received a factor loading of $\pm$ .50 or higher in more than one factor. In essence, there was less overlap between factors.

3. No competencies received a factor loading of $\pm$ .50 or higher in factors 12, 11, and 8 of the 12-factor analysis, in factor 7 of the 7-factor analysis, and in factor 6 of the 6-factor analysis.

4. The large number of competencies clustering under Factor I and Factor II could be grouped into identifiable sub-factors in the 5-factor analysis.

Factor loadings of $\pm$ .50 or higher were considered in this study to be appropriate cut-off values when identifying a factor. Fruchter (1954) states that generally loadings of .20 or less are considered to be insignificant, .20 to .30 as low, .30 to .50 as moderate, and .50 to .70 as high.

Spurious competencies were those competencies receiving a factor loading of less than $\pm$ .50. They were identified as clustering with the factor in which its highest factor loading occurred even though its loading was less than $\pm$ .50.

The cumulative percentage of common factor variance accounted for in the R-technique factor analysis increased as the number of factor solutions was increased. Table 2 lists the cumulative percentage accounted for by the factor solutions.

Five tables in this section show the results of the R-technique factor analysis. Factor and sub-factor names were arbitrarily assigned and were assumed to be indicative of the nature of the

Table 2. Cumulative percentage of common variance
accounted for in different factor solutions.

Factor	Percentage	Cumulative percentage
1	38.03	38.03
2	5.86	43.89
3	4.90	48.79
4	2.95	51.74
5	2.83	54.57
6	2.27	56.84
7	2.10	58.94

clustered competencies. The tables provide factors, sub-factors,

factor loadings, means, standard deviations, and mean rankings of

all 98 competencies.

Factor I. Program Management

A total of 31 competencies with factor loadings greater than -.50

clustered in Factor I, Program Management. Five sub-factors were

identifiable within the primary factor. The first sub-factor, Program

Development, contained 14 competencies. Two of these, numbers 46

and 60, also had factor loadings above -.50 in Factor II. These were

the only instances of overlap at the -.50 level. The second sub-

factor, Community Relations, contained nine competencies. The third

sub-factor, Interpret Legislation, contained three competencies.

Student Placement, the fourth sub-factor, also contained three compe-

tencies, while the last, Management Techniques, contained two.

Generally, competencies in Factor I had low mean scores and high standard deviations. This factor also generated 13 spurious competencies. Table 3 shows the competencies in Factor I.

Factor II. Program Planning, Development, and Evaluation

A total of 21 competencies with factor loadings above -.50 clustered in Factor II, Program Planning, Development, and Evaluation. Two of the competencies, numbers 46 and 60, also had factor loadings above -.50 in Factor I. Three sub-factors were identified. The first sub-factor, Program Development, contained six competencies. Program Evaluation, the second sub-factor, contained five competencies, while the third, Data Collection and Dissemination, contained ten.

Generally, competencies in Factor II had higher mean scores and lower standard deviations than those in Factor I. Table 4 lists the competencies in Factor II.

Factor III. State Criteria Interpretation

Three competencies with factor loadings above .50 grouped in Factor III, State Criteria Interpretation. Generally, these three competencies had means placing them in the lower one-half of the ranking. Eleven spurious competencies were also clustered in Factor III. Competencies in this factor are shown in Table 5.

Table 3. Factor I - Program Management.

Subfactor	Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
Program Development	7	Define the mission of the school	-.510	3.52	1.02	50.5
	37	Develop a rationale for a particular curriculum plan built upon the technological, sociological, philosophical, and psychological bases.	-.506	3.44	1.26	58.5
	45	Plan and implement adult occupational education programs.	-.649	2.46	1.51	97
		Specify the data needed for the inputs to the instructional systems. Some examples are:				
	46*	Characteristics of entering students.	-.561	3.19	1.26	76
	48	Characteristics of teachers.	-.685	3.62	1.32	42
	60*	Interpret in writing the data provided in a survey.	-.536	3.02	1.41	85
		Critically read, interpret, evaluate, and analyze the following to determine the need for a given occupational program:				
	62	An occupational survey of the district.	-.574	3.38	1.33	68
	63	Plans to attract industry.	-.684	2.74	1.48	96
	64	Manpower reports (state and national).	-.691	2.97	1.35	89
	65	Plans to terminate industries.	-.645	2.45	1.48	98
	67	Employment agency information.	-.716	3.18	1.32	77
	68	Occupational Outlook Handbook and Dictionary of Occupational Titles.	-.632	3.23	1.23	74
	69	Advisory Committee recommendations.	-.513	3.88	1.24	27.5
	81	Identify the state agencies that affect the school.	-.649	3.30	1.29	70
Community Relations	32	Prepare articles for specialized and/or mass media.	-.540	3.26	1.19	72

(Continued on next page)

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Table 3. (Continued)

Subfactor	Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
	71	Set up an in-service plan on the functions, purposes, and activities of an advisory committee for presentation to the vocational education staff.	-.645	3.43	1.41	60
	72	Develop an advisory committee handbook which explains the role and function of the committee.	-.588	2.91	1.44	93
	86	Establish a term of membership and a system of replacing and rotating members of advisory committees.	-.586	2.91	1.43	92
	89	Establish and maintain effective working relationships with trade, labor, management, agricultural, and manpower organizations.	-.715	3.25	1.40	73
	90	Identify public relations problems.	-.535	3.50	1.19	53
	91	Develop and direct a program to improve public relations between the school and the community.	-.538	3.42	1.26	62
	92	Interpret financial and special needs of vocational education to the public and to the community served.	-.634	3.39	1.27	66.5
	96	Contribute to studies, commissions, and investigations sponsored by professional organizations and governmental agencies.	-.550	3.27	1.11	71
Interpret Legislation	79	Interpret the legal responsibilities of vocational teachers.	-.599	3.49	1.24	54
	80	Identify and interpret state laws that relate to the school.	-.609	3.44	1.30	58.5
	82	Utilize federal, state, and local legislation, regulations, and policies that affect vocational education.	-.573	3.80	1.14	33
Student Placement	42	Coordinate and supervise cooperative work experience programs.	-.553	3.11	1.54	82.5
	43	Specify minimum standards and criteria for the selection and approval of training stations for cooperative programs.	-.614	3.01	1.45	86.5

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Table 3. (Continued)

Subfactor	Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
	47	Specify the data needed for the inputs to the instructional systems. Some examples are: Characteristics of students for placement.	-.569	3.44	1.34	57
Management Techniques	28	Design a vocational administrative organization to facilitate attainment of goals.	-.580	3.17	1.35	78
	29	Monitor operating characteristics of the vocational administrative unit and make necessary revisions.	-.593	3.16	1.38	79
		Spurious Competencies				
	4	Assist in staff administration and contract negotiations.	-.406	3.11	1.28	82.5
	5	Select teaching and leadership personnel.	-.450	3.66	1.22	39.5
	10	Determine need for new vocational facilities and equipment.	-.350	4.23	0.74	9
	11	Determine the need for additional instructional staff.	-.424	3.72	1.07	36
	30	Determine by evaluation the degree to which program objectives are being met and make appropriate adjustments.	-.391	3.93	0.97	23
	41	Plan a special curriculum for the disadvantaged and handicapped.	-.404	2.97	1.44	90
	44	Identify, recruit, and counsel students for placement in vocational education preparatory programs.	-.440	3.41	1.30	64.5
	66	Critically read, interpret, evaluate, and analyze the following to determine the need for a given occupational program: Student interest surveys.	-.486	3.59	1.27	47
	70	Teacher recommendations.	-.427	4.00	1.04	18.5
	85	Provide leadership to youth groups stemming from the vocational education program.	-.392	3.41	1.17	64.5

Table 3. (Continued)

Subfactor	Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
	87	Demonstrate a working knowledge of parliamentary procedures.	-.362	3.34	1.08	69
	93	Join civic community organizations and become involved in activities not directly related to the school.	-.449	3.20	1.11	75
	95	Articulate the program with other educational levels and the business/industrial community.	-.484	3.72	1.10	37

*Competencies numbers 46 and 60 also have a factor loading above ± .50 under Factor II.

Table 4. Factor II - Program Planning, Development, and Evaluation.

Subfactor	Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
Program Development	33	Communicate plans and goals to the instructional staff.	-.501	4.33	0.82	5
	35	Direct pilot and demonstration projects of exemplary programs.	-.550	3.61	1.28	44
	36	Develop task analyses for curriculum planning.	-.507	3.42	1.25	62
	38	Write behavioral objectives.	-.629	4.13	1.02	11
	39	Write behavioral objectives that include the educational domains of affective, cognitive, and psychomotor.	-.648	3.84	1.18	30
		Specify the data needed for the inputs to the instructional systems. Some examples are:				
	46*	Characteristics of entering students.	-.537	3.19	1.26	76
Program Evaluation	40	Determine the competencies expected of the classroom teacher in a vocational-technical curriculum.	-.507	3.92	1.13	24
		Determine the measures to be used in evaluating the instructional processes. Some examples are:				
	49	Student-teacher interactions.	-.695	3.73	1.15	35
	50	Effectiveness of instructional strategies.	-.696	3.75	1.04	34
	55	Determine the appropriateness of a particular way of assessing a teacher.	-.530	3.60	1.26	46
	56	Determine the appropriateness of a particular way of assessing a learning problem.	-.554	3.58	0.94	48.5
Data Collection & Dissemination	51	Design a feedback and follow-up system to provide evaluation data to the instructional staff.	-.746	3.46	1.22	55
	52	Schedule and supervise data collection.	-.641	3.14	1.27	80
	53	Utilize evaluation data in decisions related to curriculum development and revision and the improvement of instruction	-.727	3.63	1.20	41

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Table 4. (Continued)

Subfactor	Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
	54	Determine the statistical design to be used in analyzing data.	-.516	2.85	1.40	95
	57	Develop a plan for a survey which will determine the need for and the interest in a given vocational program.	-.564	3.52	1.28	50.5
	58	Describe a plan for sampling a cross-section of a district.	-.582	2.86	1.39	94
	59	Develop a survey instrument, including letters of transmittal and follow-up.	-.569	3.00	1.38	88
	60*	Interpret in writing the data provided in a survey.	-.552	3.02	1.41	85
	61	Distribute survey results to the students/teachers/ administrators/lay public.	-.579	2.94	1.33	91
	88	Conduct a meeting, involve members in the discussion, and summarize discussion.	-.556	4.01	1.01	17
		Spurious Competencies				
	1	Isolate and define necessary decisions.	-.441	4.37	0.66	3
	2	Determine priorities as they relate to the allocation of institutional resources.	-.379	4.19	0.76	10
	19	Assist in the development of program planning budget system for the school or district.	-.483	3.66	1.34	39.5
	26	Practice office management procedures such as instructing secretary, filing, and sorting.	-.354	3.61	1.10	44
	27	Expedite activities to attain objectives.	-.466	4.08	0.93	12.5
	31	Communicate effectively both orally and in writing.	-.482	4.54	0.63	1
	73	Plan meeting agendas, arrange for facilities and materials, and notify participants.	-.439	3.88	1.15	26

Table 4. (Continued)

Subfactor	Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
	74	Identify the tools and techniques of public relations.	-.486	3.42	1.32	62
	97	Collect data and complete reports for local, state, and federal government sectors regarding the vocational education program.	-.359	3.51	1.20	52
	98	Formulate a personal philosophy of education/vocational education.	-.433	4.35	0.84	4

*Competencies numbers 60 and 46 also have a factor loading above ± .50 in Factor I.

Table 5. Factor III - State Criteria Interpretation.

Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
17	Interpret the state specifications for vocational education facilities.	.527	3.39	1.26	66.5
18	Interpret state certification requirements for instructors.	.532	3.01	1.40	86.5
75	Prepare a project proposal for funding based on State Board of Vocational-Technical and Adult education criteria.	.513	3.45	1.54	56
	Spurious Competencies				
13	Determine cost-effectiveness of program.	.452	3.61	1.13	44
14	Forecast number of graduates from the program.	.419	3.12	1.19	81
15	Determine the need for a new vocational program in the district, and a specified geographical area.	.499	3.58	1.23	48.5
20	Develop and coordinate an adequate pre-service and in-service training program for vocational instructors.	.499	3.05	1.42	84
21	Establish general vocational program objectives for the school.	.485	3.88	1.00	27.5
22	Identify the activities and resources required to attain goals.	.439	4.00	.85	18.5
23	Allocate resources to maximize the output of the instructional system.	.383	3.90	1.00	25
76	Interpret the principles and philosophy of vocational education.	.476	3.80	1.16	32
77	Utilize information contained in professional journals for self-improvement.	.445	3.97	.82	21
83	Relate the vocational education program to other areas of the school.	.458	3.99	.97	20
94	Understand the relationship of the school board to the school administration and community.	.363	3.82	1.04	31

Factor IV. Staff Management

Four competencies were clustered under Factor IV, Staff Management, with factor loadings of .50 or higher. All but two competencies in Factor IV, including the four spurious competencies, had means ranking in the top one-fourth. Standard deviations were generally lower than in Factors, I, II, or III. Factor IV competencies are listed in Table 6.

Factor V. Staff Relations

Factor V contained two competencies with factor loadings of .50 or higher and was named Staff Relations. The two competencies had mean rankings of two and six out of 98 with quite low standard deviations. One spurious competency also was identified in Factor V. It, too, had a high mean ranking and low standard deviation. Competencies which clustered in Factor V are listed in Table 7.

Results of the Mean Score Ranks

Each of the 98 competencies was ranked from 1 to 98. Ranking was based upon the mean score for each competency with the competency receiving the highest mean being ranked number one. The mean score ranks of all the competencies are reported in Tables 3 through 7. The ten competencies with the highest mean scores are found in Table 8. The ten competencies with the lowest mean scores are found in Table 9.

Table 6. Factor IV - Staff Management.

Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
8	Supervise instructional staff.	.546	4.03	1.05	16
12	Evaluate staff load and balance.	.530	3.69	1.16	38
16	Schedule courses.	.633	3.86	1.14	29
25	Motivate staff to achieve their goals and to grow in competence.	.587	4.30	.81	7
	Spurious Competencies				
3	Encourage innovation in instruction.	.328	4.25	.76	8
6	Approve new instructional materials.	.360	4.04	.80	15
9	Resolve staff complaints and grievances.	.479	3.94	.95	22
24	Delegate responsibility and authority.	.439	4.05	.99	14

Table 7. Factor V - Staff Relations.

Competency number	Competency	Factor loading	Mean	Standard deviation	Mean ranking
34	Understand communications, verbal and non-verbal.	.515	4.52	.66	2
78	Demonstrate an effective working relationship with the total administrative staff.	.569	4.33	.85	6
	Spurious Competencies				
84	Promote unity and balance between vocational education and general/academic education.	.470	4.08	.88	12.5

Table 8. Ranked high mean competency scores.

Rank	Competency number	Competency	Mean	Standard deviation	Factor
1	31	Communicate effectively both orally and in writing.	4.54	1.19	Spurious* (II)
2	34	Understand communications, verbal and non-verbal.	4.52	.66	V
3	1	Isolate and define necessary decisions.	4.37	.66	Spurious* (II)
4	98	Formulate a personal philosophy of education/vocational education.	4.35	.84	Spurious* (III)
5	33	Communicate plans and goals to the instructional staff.	4.34	.82	II
6	78	Demonstrate an effective working relationship with the total administrative staff.	4.33	.85	V
7	25	Motivate staff to achieve their goals and to grow in competence.	4.30	.81	IV
8	3	Encourage innovation in instruction.	4.25	.76	Spurious* (IV)
9	10	Determine need for new vocational facilities and equipment.	4.23	.74	Spurious* (I)
10	2	Determine priorities as they relate to the allocation of institutional resources.	4.19	.76	Spurious* (II)

*Spurious competencies were those with factor loadings of less than $\pm$ .50.

Table 9. Ranked low mean competency scores.

Rank	Competency number	Competency	Mean	Standard deviation	Factor
89	64	Critically read, interpret, evaluate, and analyze the following to determine the need for a given occupational program: Manpower reports (state and national)	2.97	1.35	I
90	41	Plan a special curriculum for the disadvantaged and handicapped.	2.97	1.44	Spurious* (I)
91	61	Distribute survey results to the students/teachers/administrators/lay public.	2.94	1.33	II
92	86	Establish a term of membership and a system of replacing and rotating members of advisory committees.	2.91	1.43	I
93	72	Develop an advisory committee handbook which explains the role and function of the committee.	2.91	1.44	I
94	58	Describe a plan for sampling a cross-section of a district.	2.86	1.39	II
95	54	Determine the statistical design to be used in analyzing data.	2.85	1.40	II
96	63	Critically read, interpret, evaluate, and analyze the following to determine the need for a given occupational program: Plans to attract industry.	2.74	1.48	I
97	45	Plan and implement adult occupational education programs.	2.46	1.51	I
98	65	Critically read, interpret, evaluate, and analyze the following to determine the need for a given occupational program: Plans to terminate industries.	2.45	1.48	I

*Spurious competencies were those with factor loadings of less than $\pm$ .50.

Six of the ten highest ranked competencies had factor loadings of less than .50 and were therefore considered spurious. All of the ten lowest ranked competencies loaded under Factors I and II. Only one was considered spurious. The standard deviations of the ten highest ranked competencies tended to be lower than the standard deviations of the ten lowest ranked competencies.

Method of Preparation Tabulations

For each of the 98 competencies, the respondents recommended a combination of course work and internship as the appropriate method of preparation. The other two choices were course work and internship. By individual competency, the percent of respondents recommending a combination of course work and internship ranged from a high of 82.3 percent for competency number 75 to a low of 61 percent for competencies numbers 24, 34, and 93.

Method of preparation responses were grouped by state. Washington had the lowest percentage of respondents selecting a combination of course work and internship as the recommended method of preparing an individual to perform the competencies, while Arizona had the highest. Table 10 shows the method of preparation responses in percentage by state.

Findings, Conclusions, and Recommendations for Program Development, and Recommendations for Further Research are presented in Chapter V.

Table 10. Method of preparation by state.

State	Combination course work and internship (%)	Internship (%)	Course work (%)
Arizona	75	13	12
California	67	22	11
Colorado	72	14	14
Washington	53	38	9
Mean	66.8	21.8	11.4

V. FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The vocational administrator questionnaire and the results of the statistical analysis as outlined in Chapter IV have provided data regarding vocational administrator competencies and their training needs at selected public school districts in four western states. The findings and conclusions below are based on these data.

Findings and Conclusions

1. Sixty-two of the 98 competencies received factor loadings of at least $\pm$ .50 and were clustered into five identifiable factors. Therefore, it may be concluded that factor analysis applied to competency data is a useful technique for identifying common factors.

2. Competencies related to Staff Management and Staff Relations received relatively high mean scores and low standard deviations. This indicates general agreement that a high level of proficiency is needed.

3. Competencies related to Program Management and Program Planning received relatively low mean scores and high standard deviations. It can be concluded that a difference of opinion was expressed by the respondents concerning the level of proficiency, but generally it was considered to be low.

4. Six of the ten highest mean ranked competencies were spurious

to four different factors. It can be concluded that the respondents considered a high level of proficiency as being needed and that each of the six competencies is not related closely enough to other competencies to form or join a group.

5. The Q-technique factor analysis results showed that in all instances factor loadings exceeded .84. It can be concluded that all respondents generally resemble each other relative to level of proficiency values assigned to each of the 98 competencies. However, upon examination of particular groups of respondents in an attempt to identify common competencies, some differences were revealed.

    a. Responses of individuals grouped by state (Arizona, California, Colorado, Washington) were alike in their rating of all 98 competencies, thereby strenghthening the conclusion of commonality among the study's sample population (see Appendix K).

    b. Responses of individuals grouped by type of position (school district vocational education directors, vocational education department heads) were alike in their rating of 79 of the 98 competencies. Of the 19 competencies in which a difference was detected, it was concluded that 18 are unique to vocational directors, and one is unique to vocational education department heads (see Appendix L).

c. Responses of individuals grouped by proportion of time on the job devoted to teaching (full-time teaching, seven-eighths to one-eighth-time teaching, no-time teaching) were alike in their rating of 65 of the 98 competencies. Of the 33 competencies in which a difference was detected, it was concluded that three are unique to respondents with no teaching responsibility, 29 competencies unique to respondents with seven-eighths to one-eighth-time teaching responsibility, and one competency unique to respondents with full-time teaching responsibility (see Appendix M).

d. Responses of individuals grouped by number of teaching staff under their supervision (fewer than 11, from 11 to 50, more than 50) were alike in their rating of 78 of the 98 competencies. Of the 20 competencies in which a difference was detected, it was concluded that 18 are unique to respondents with more than 50 subordinates, one competency unique to respondents with from 11 to 50 subordinates, and one competency unique to respondents with fewer than 11 subordinates (see Appendix N).

6. Sixty-two competencies were similar for all respondents and were concluded to be the common competencies (see Table 1).

7. Thirty-two of the 62 common competencies generated a factor loading of $\pm$ .50 or greater. Therefore, it can be concluded

that approximately half of the common competencies are included in the five identified factors.

8. For each of the 98 competencies, a majority of the respondents selected a combination of course work and internship as the preferred method of preparing vocational education leaders to perform the competencies in this study. It can be concluded, therefore, that programs to prepare individuals to perform the competencies should utilize this method of preparation (see Table 10).

Recommendations for Program Development

The recommendations below are based on the following four aspects of this study:

1. Clustering the competencies into identifiable groups to aid in the organization and development of curriculum.

2. Calculating the mean for each competency to determine its importance as judged by the respondents.

3. Identifying the common competencies for the various groups of respondents to provide a basis for the development of curriculum.

4. Determining the recommended method of preparation for each competency.

The recommendations for program development are

1.   Where identifiable preparatory or in-service groups are
     involved, the particular responses of individuals represent-
     ing that group in this study should be examined. Those
     competencies rated high by that group should receive prefer-
     ence in curriculum planning for similar groups.

2.   Where preparatory or in-service individuals can be identified
     with a particular group of respondents in this study, individ-
     ualized instruction based on the competencies rated high by
     that group could be utilized.

3.   The five clusters of competencies identified in this study
     represent meaningful clusters of competencies that can be
     utilized in organizing curriculum. However, those compe-
     tencies that did not generate a factor loading of at least
     $\pm$.50 and form or join a cluster must also be considered in
     curriculum development especially if they have high mean
     ratings.

4.   Sixty-two competencies make up the list of common compe-
     tencies, but three of the 62 have mean ratings of less than
     3.0. Upon identification of the common competencies from
     which to develop curriculum to prepare all levels of public
     school district vocational education leadership personnel,
     the three with low means could be eliminated.

5. Programs to prepare public school district vocational education leaders to perform the competencies in this study should utilize a combination of formal course work and on-the-job experience.

6. Responses grouped by state did not differ significantly. Therefore, preparatory and in-service curricula based upon the identified common competencies would meet the needs of public school district vocational education leaders in all of the states that participated in this study.

Recommendations for Further Research

The recommendations below are offered in view of the findings and conclusions of this study. They will expand on the present study and continue a trend to strengthen vocational education administrator preparation.

1. That the results of this study be verified and/or modified by research using the critical incident or interview/observation techniques with the identified competencies.

2. That experimentation be conducted with the identified competencies to compare the effectiveness of the individual-ized, performance-based method of instruction and the traditional method of instruction.

3. That a comparative study utilizing public school district

vocational education administrators that have been identified by superiors and subordinates as being effective administrators may provide useful comparative data for curriculum development.

4. That a composite data analysis be conducted on the concurrent studies by Baltimore (1972), Sundstrom (1972), and Martin (1972) to ascertain similarity of results. If strong similarities exist among populations, it is recommended that the western states cooperate in establishing vocational education leadership programs with a common competency base.

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APPENDICES

APPENDIX A

QUESTIONNAIRE REVISION FORM

From: _____ _____ _____
              name   position   institution

Subject: Suggested revisions to the questionnaire listing Professional
Competencies of Vocational Education Leaders

Item No.   Suggested Revisions

_____   _____

                   _____

_____   _____

                   _____

_____   _____

                   _____

Suggested Additions
(new items)

_____

_____

_____

Item No.   Suggested Deletions
(identify by item no.)

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Note: If additional space is needed, please attach sheet to this memo.

APPENDIX B

Questionnaire

A STUDY OF PROFESSIONAL EDUCATION

COMPETENCIES OF PUBLIC SCHOOL

DISTRICT VOCATIONAL EDUCATION LEADERS

OREGON STATE UNIVERSITY
1972

School of Education
Division of Vocational, Adult and
Community College Education

VOCATIONAL EDUCATION LEADERSHIP COMPETENCIES

Purpose of Questionnaire:

The purpose of this questionnaire is to seek your assistance in providing information which will be useful in the development of curriculum for colleges and universities seeking to offer relevant vocational administration and supervision courses and programs. This study is particularly concerned with vocational education leadership competencies at the public school district level. Examples of leadership personnel are directors, supervisors, coordinators, and department heads of secondary vocational education programs in local school districts.

This questionnaire contains vocational education competencies for public school district vocational education leaders. You are being asked to indicate the level of proficiency that is NECESSARY in relation to YOUR JOB and to indicate the training method you feel would best prepare an individual to perform the activity listed.

1. Please provide the following information:

Name _____ Institution _____

City _____ State _____

2. Place a mark (x) beside the job title describing your position. If your title is not given, write it on the line provided.

( ) Local School District Director of Vocational and/or occupational education.
( ) Vocational Department Head and/or Chairman.
Other _____

3. How many teaching faculty are under your jurisdiction? _____

4. Approximately what proportion of your time, if any, is devoted to classroom teaching?

( ) Full time   ( ) Three-eighths
( ) Seven-eighths   ( ) One-fourth
( ) Three-fourths   ( ) One-eighth
( ) One-half   ( ) None

5. What educational levels are under your jurisdiction? (Check all appropriate levels.)

( ) Elementary   ( ) Junior High   ( ) Post-Secondary
( ) Middle/Intermediate   ( ) Senior High   ( ) Adult

6. What instructional programs are under your jurisdiction?

( ) Agriculture   ( ) Home Economics Occupational Preparation
( ) Business Education   ( ) Industrial Arts
( ) Distributive Education   ( ) Trade and Industrial Education
( ) Health Occupations   Other _____
( ) Consumer and Homemaking

PROFESSIONAL COMPETENCIES
OF VOCATIONAL EDUCATION LEADERS

For each item please circle the number (5,4,3,2,1) representing the level of proficiency that is NECESSARY to carry out the duties and responsibilities of your job. If your exact feeling is not found in one of the choices, pick the one which COMES CLOSEST. Interpret 5 as being complete proficiency and 1 as being no proficiency. There is no need to take too much time thinking about any particular item. Please do not leave out any item--there are no right or wrong answers.	Please place a check (✓) in the column which most nearly reflects the method which best prepares an individual to perform the activity listed.

What degree of proficiency is necessary in your current position as a vocational education leader to:	Proficiency					Formal Course Work Only	Internship (Supervised, On-the-Job Experience)	Combination Course Work & Internship
	Complete	Considerable	Moderate	Slight	No			
0. (Example) Schedule and keep appointments.	⑤	4	3	2	1			✓
1. Isolate and define necessary decisions.	5	4	3	2	1			
2. Determine priorities as they relate to the allocation of institutional resources.	5	4	3	2	1			
3. Encourage innovation in instruction.	5	4	3	2	1			
4. Assist in staff administration and contract negotiations.	5	4	3	2	1			
5. Select teaching and leadership personnel.	5	4	3	2	1			
6. Approve new instructional materials.	5	4	3	2	1			
7. Define the mission of the school.	5	4	3	2	1			
8. Supervise instructional staff.	5	4	3	2	1			
9. Resolve staff complaints and grievances.	5	4	3	2	1			
10. Determine need for new vocational facilities and equipment.	5	4	3	2	1			
11. Determine the need for additional instructional staff.	5	4	3	2	1			
12. Evaluate staff load and balance.	5	4	3	2	1			
13. Determine cost-effectiveness of program.	5	4	3	2	1			
14. Forecast number of graduates from the program.	5	4	3	2	1			

What degree of proficiency is necessary in your position as a vocational education leader to:	Proficiency					Formal Course Work Only	Internship (Super-vised, On-the-Job Experience)	Combination Course Work & Internship
	Complete	Considerable	Moderate	Slight	No			
15. Determine the need for a new vocational program in the district, and a specified geographical area.	5	4	3	2	1			
16. Schedule courses.	5	4	3	2	1			
17. Interpret the state specifications for vocational education facilities.	5	4	3	2	1			
18. Interpret state certification requirements for instructors.	5	4	3	2	1			
19. Assist in the development of program planning budget system for the school or district.	5	4	3	2	1			
20. Develop and coordinate an adequate pre-service and in-service training program for vocational instructors.	5	4	3	2	1			
21. Establish general vocational program objectives for the school.	5	4	3	2	1			
22. Identify the activities and resources required to attain goals.	5	4	3	2	1			
23. Allocate resources to maximize the output of the instructional system.	5	4	3	2	1			
24. Delegate responsibility and authority.	5	4	3	2	1			
25. Motivate staff to achieve their goals and to grow in competence.	5	4	3	2	1			
26. Practice office management procedures such as instructing secretary, filing, and sorting.	5	4	3	2	1			
27. Expedite activities to attain objectives.	5	4	3	2	1			
28. Design a vocational administrative organization to facilitate attainment of goals.	5	4	3	2	1			
29. Monitor operating characteristics of the vocational administrative unit and make necessary revisions.	5	4	3	2	1			

What degree of proficiency is necessary in your position as a vocational education leader to:	Proficiency					Formal Course Work Only	Internship (Supervised, On-the-Job Experience)	Combination Course Work & Internship
	Complete	Considerable	Moderate	Slight	No			
30. Determine by evaluation the degree to which program objectives are being met and make appropriate adjustments.	5	4	3	2	1			
31. Communicate effectively both orally and in writing.	5	4	3	2	1			
32. Prepare articles for specialized and/or mass media.	5	4	3	2	1			
33. Communicate plans and goals to the instructional staff.	5	4	3	2	1			
34. Understand communications, verbal and non-verbal.	5	4	3	2	1			
35. Direct pilot and demonstration projects of exemplary programs.	5	4	3	2	1			
36. Develop task analyses for curriculum planning.	5	4	3	2	1			
37. Develop a rationale for a particular curriculum plan built upon the technological, sociological philosophical, and psychological bases.	5	4	3	2	1			
38. Write behavioral objectives.	5	4	3	2	1			
39. Write behavioral objectives that include the educational domains of affective, cognitive, and psychomotor.	5	4	3	2	1			
40. Determine the competencies expected of the classroom teacher in a vocational-technical curriculum.	5	4	3	2	1			
41. Plan a special curriculum for the disadvantaged and handicapped.	5	4	3	2	1			
42. Coordinate and supervise cooperative work experience programs.	5	4	3	2	1			
43. Specify minimum standards and criteria for the selection and approval of training stations for cooperative programs.	5	4	3	2	1			

What degree of proficiency is necessary in your position as a vocational education leader to:	Proficiency					Formal Course Work Only	Internship (Super-vised, On-the-Job Experience)	Combination Course Work & Internship
	Complete	Considerable	Moderate	Slight	No			
44. Identify, recruit, and counsel students for placement in vocational education preparatory programs.	5	4	3	2	1			
45. Plan and implement adult occupational education programs.	5	4	3	2	1			
Specify the data needed for the inputs to the instructional systems. Some examples are:								
46. Characteristics of entering students.	5	4	3	2	1			
47. Characteristics of students for placement.	5	4	3	2	1			
48. Characteristics of teachers.	5	4	3	2	1			
Determine the measures to be used in evaluating the instructional processes. Some examples are:								
49. Student-teacher interactions.	5	4	3	2	1			
50. Effectiveness of instructional strategies.	5	4	3	2	1			
51. Design a feedback and follow-up system to provide evaluation data to the instructional staff.	5	4	3	2	1			
52. Schedule and supervise data collection.	5	4	3	2	1			
53. Utilize evaluation data in decisions related to curriculum development and revision and the improvement of instruction.	5	4	3	2	1			
54. Determine the statistical design to be used in analyzing data.	5	4	3	2	1			
55. Determine the appropriateness of a particular way of assessing a teacher.	5	4	3	2	1			

What degree of proficiency is necessary in your position as a vocational education leader to:	Proficiency					Formal Course Work Only	Internship (Supervisor, On-the-Job Experience)	Combination Course Work & Internship
	Complete	Considerable	Moderate	Slight	No			
56. Determine the appropriateness of a particular way of assessing a learning problem.	5	4	3	2	1			
57. Develop a plan for a survey which will determine the need for and the interest in a given vocational program.	5	4	3	2	1			
58. Describe a plan for sampling a cross-section of a district.	5	4	3	2	1			
59. Develop a survey instrument, including letters of transmittal and follow-up.	5	4	3	2	1			
60. Interpret in writing the data provided in a survey.	5	4	3	2	1			
61. Distribute survey results to the students/teachers/administrators/lay public.	5	4	3	2	1			
Critically read, interpret, evaluate, and analyze the following to determine the need for a given occupational program:								
62. An occupational survey of the district.	5	4	3	2	1			
63. Plans to attract industry.	5	4	3	2	1			
64. Manpower reports (State and National).	5	4	3	2	1			
65. Plans to terminate industries.	5	4	3	2	1			
66. Student interest surveys.	5	4	3	2	1			
67. Employment agency information.	5	4	3	2	1			
68. Occupational Outlook Handbook and Dictionary of Occupational Titles.	5	4	3	2	1			
69. Advisory Committee recommendations.	5	4	3	2	1			
70. Teacher recommendations.	5	4	3	2	1			
71. Set up an in-service plan on the functions, purposes, and activities of an advisory committee for presentation to the vocational education staff.	5	4	3	2	1			

What degree of proficiency is necessary in your position as a vocational education leader to:	Proficiency					Formal Course Work Only	Internship (Supervised, On-the-Job Experience	Combination Course Work & Internship
	Complete	Considerable	Moderate	Slight	No			
72. Develop an advisory committee handbook which explains the role and function of the committee.	5	4	3	2	1			
73. Plan meeting agendas, arrange for facilities and materials, and notify participants.	5	4	3	2	1			
74. Identify the tools and techniques of public relations.	5	4	3	2	1			
75. Prepare a project proposal for funding based on State Board of Vocational-Technical and Adult education criteria.	5	4	3	2	1			
76. Interpret the principles and philosophy of vocational education.	5	4	3	2	1			
77. Utilize information contained in professional journals for self-improvement.	5	4	3	2	1			
78. Demonstrate an effective working relationship with the total administrative staff.	5	4	3	2	1			
79. Interpret the legal responsibilities of vocational teachers.	5	4	3	2	1			
80. Identify and interpret state laws that relate to the school.	5	4	3	2	1			
81. Identify the state agencies that affect the school.	5	4	3	2	1			
82. Utilize federal, state, and local legislation, regulations, and policies that affect vocational education.	5	4	3	2	1			
83. Relate the vocational education program to other areas of the school.	5	4	3	2	1			
84. Promote unity and balance between vocational education and general/academic education.	5	4	3	2	1			

What degree of proficiency is necessary in your position as a vocational education leader to:	Proficiency					Formal Course Work Only	Internship (Supervised, On-the-Job Experience)	Combination Course Work & Internship
	Complete	Considerable	Moderate	Slight	No			
85. Provide leadership to youth groups stemming from the vocational education program.	5	4	3	2	1			
86. Establish a term of membership and a system of replacing and rotating members of advisory committees.	5	4	3	2	1			
87. Demonstrate a working knowledge of parliamentary procedures.	5	4	3	2	1			
88. Conduct a meeting, involve members in the discussion, and summarize discussion.	5	4	3	2	1			
89. Establish and maintain effective working relationships with trade, labor, management, agricultural, and manpower organizations.	5	4	3	2	1			
90. Identify public relations problems.	5	4	3	2	1			
91. Develop and direct a program to improve public relations between the school and the community.	5	4	3	2	1			
92. Interpret financial and special needs of vocational education to the public and to the community served.	5	4	3	2	1			
93. Join civic community organizations and become involved in activities not directly related to the school.	5	4	3	2	1			
94. Understand the relationship of the school board to the school administration and community.	5	4	3	2	1			
95. Articulate the program with other educational levels and the business/industrial community.	5	4	3	2	1			
96. Contribute to studies, commissions, and investigations sponsored by professional organizations and governmental agencies.	5	4	3	2	1			
97. Collect data and complete reports for local, state, and federal government sectors regarding the vocational education program.	5	4	3	2	1			
98. Formulate a personal philosophy of education/vocational education.	5	4	3	2	1			

APPENDIX C

Dr. Gerald S. DeGrow, Superintendent
Phoenix Union High School District
2526 West Osborn Road
Phoenix, Arizona 85071

Dear Doctor DeGrow:

Greetings from Oregon State University. We are presently undertaking
an important task and would like your assistance.

A study is being conducted which represents the second phase of a
comprehensive plan to develop a performance-based curriculum for
the training of public school district vocational directors and voca-
tional department heads. The purpose of this phase of the study is to
identify the specific competencies needed at these two leadership
levels.

The procedure being used is to develop a total list of the public school
district vocational directors and vocational department heads from
Arizona, California, Colorado, and Washington by using directories
already supplied by each State Vocational Education Office. Mr.
J. R. Cullison, Arizona State Director of Vocational Education,
has provided us with a directory for your state. From this four-state
list, approximately 200 names will be randomly selected. The
selectees will be asked to rate a list of competencies as they apply to
their jobs. About 25 minutes is required to complete the rating.

The purpose of this letter is to ask your permission to include the
names of your district's vocational leaders in our total list. It is from
this list that the 200 names will be selected. Names of respondents
will not be identified in the report. However, a summary of the
findings will be made available to the districts from which the
respondents are selected.

A stamped, addressed card is enclosed for you to indicate the willing-
ness of your district to participate.

Thank you for your consideration of this request.

Sincerely,

Jim R. Baltimore
Division of Vocational Education

APPENDIX D

SUPERINTENDENTS' REPLY CARD

November 30, 1971

May we include the names of your District's Vocational Director and Vocational Department Heads in the four-state list from which 200 names will be drawn?

_____ YES   _____ NO

Your name _____

District _____

APPENDIX E

STATISTICAL FORMULAS TO DETERMINE TOTAL AND INDIVIDUAL STATE SAMPLE SIZE

Total sample size was derived from the following formula:

$$\text{(Step one)} \qquad n_o = \frac{t^2 s^2}{d^2}$$

where

n_o = first approximation of sample size

t^2 = t table value squared

s^2 = highest variance from field study

d^2 = percentage of error within the mean (the investigator used 20 percent or .04)

$$\text{(Step two)} \qquad n = \frac{n_o}{1 + \frac{n_o}{N}}$$

where

n = total sample size

n_o = first approximation of sample size

N = total number of possible respondents

Individual state sample size was derived from the following formula:

$$\text{(Step three)} \qquad n_x = n \left(\frac{N_x}{N}\right)$$

where

n_x = number of respondents needed in a particular state

n = total sample for the entire study

N_x = total number of public school districts in a particular

state which met the criteria

N = total number of public school districts in the four states

which met the criteria

APPENDIX F

GEOGRAPHICAL LOCATIONS OF PARTICIPATING
PUBLIC SCHOOL DISTRICTS
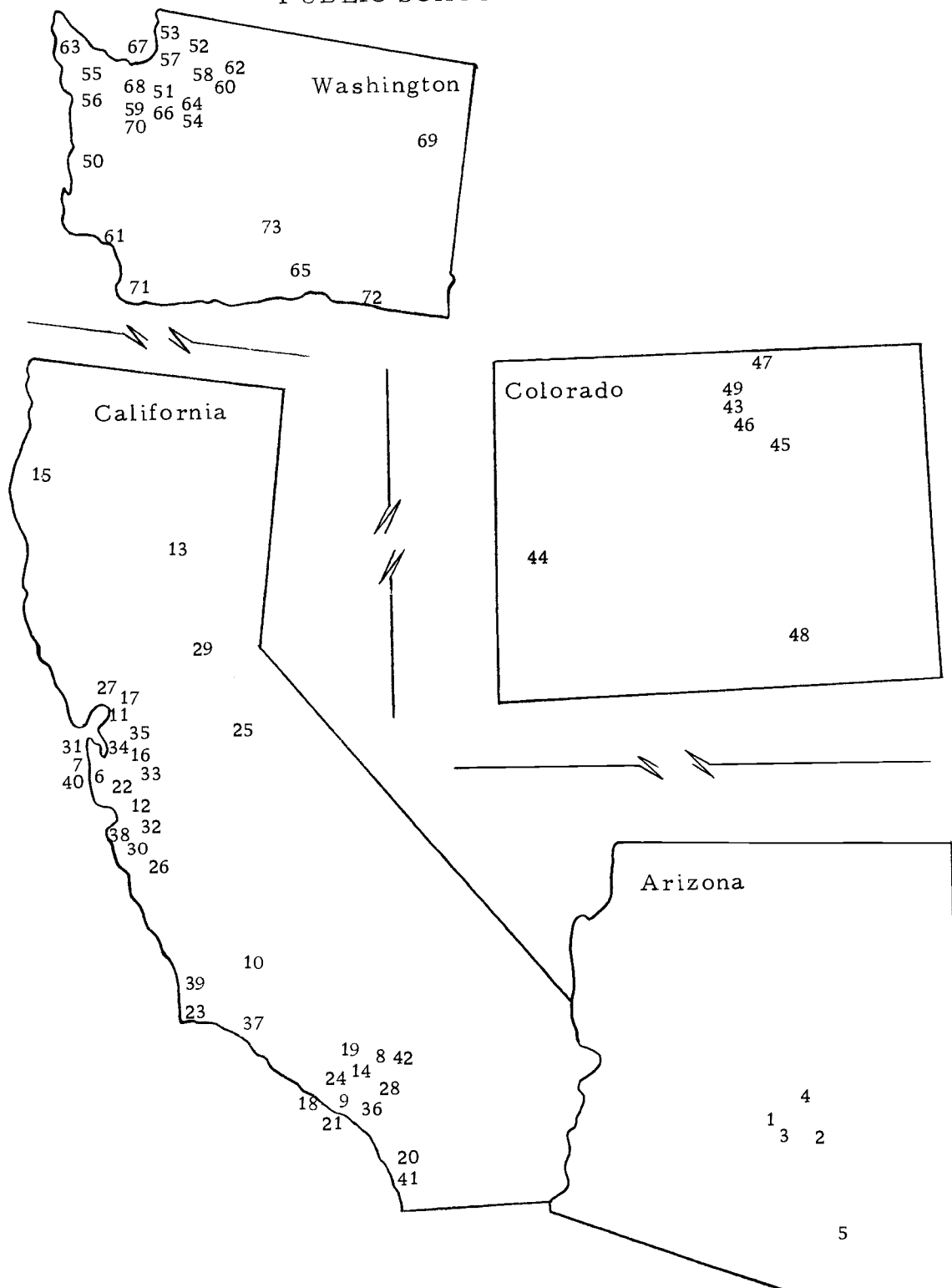
Arizona School Districts Participating in the Study

1. Glendale High School District
   Glendale 85301

2. Mesa School District
   Mesa 85203

3. Phoenix Union High School District
   Phoenix 85017

4. Scottsdale School District
   Phoenix 85018

5. Tucson School District
   Tucson 85719

California School Districts Participating in the Study

6. Acalanes Union High School
   Lafayette 94549

7. Alameda City Unified School District
   Alameda 94501

8. Alhambra City High School District
   Alhambra 91802

9. Anaheim Union High School District
   Anaheim 92803

10. Atascadero Unified School District
    Atascadero 93422

11. Berkeley Unified School District
    Berkeley 94709

12. Campbell Union High School District
    San Jose 95124

13. Chico Unified School District
    Chico 95926

14. Corona-Norco Unified School District
    Corona 91720

15. Eureka City High School District
    Eureka 95501

16. Fremont Union High School District
    Sunnyvale 94087

17. Fremont Unified School District
    Fremont 94538

18. Fullerton Joint Union High School District
    Fullerton 92632

19. Glendale Unified School District
    Glendale 91206

20. Frossmont Union High School District
    LaMesa 92041

21. Huntington Beach Union High School District
    Huntington Beach 92646

22. Kern Joint Union High School District
    Bakersfield 93301

23. Lompoc Unified School District
    Lompoc 93436

24. Los Angeles Unified School District
    Los Angeles 90054

25. Modesto City High School District
    Modesto 95351

26. Monterey Peninsula Unified School District
    Monterey 93940

27. Mt. Diablo Unified School District
    Concord 94521

28. Orange Unified School District
    Orange 92666

29. Sacramento City School District
    Sacramento 95810

30. Salinas Union High School District
    Salinas 93901

31. San Francisco Unified School District
    San Francisco 94102

32. San Juan Unified School District
    Carmichael 95608

33. San Jose Unified School District
    San Jose 95114

34. San Leandro Unified School District
    San Leandro 94577

35. San Lorenzo Unified School District
    San Lorenzo 94580

36. Santa Ana Unified School District
    Santa Ana 92707

37. Santa Barbara Union High School District
    Santa Barbara 93101

California School Districts (continued)

38. Santa Clara Unified School District
    Santa Clara 95052

39. Santa Maria Joint Union High School District
    Santa Maria 93454

40. Sequoia Union High School District
    Redwood City 94603

41. Sweetwater Union High School District
    Chula Vista 92011

42. Whittier Union High School District
    Whittier 90606

Colorado School Districts Participating in the Study

43. Boulder Valley School District
    Boulder 80302

44. Delta School District
    Delta 81416

45. Denver Public School District
    Denver 80202

46. Jefferson County School District
    Denver 80215

47. Poudre School District
    Fort Collins 80521

48. Pueblo School District
    Pueblo 81005

49. St. Vrain Valley School District
    Longmont 80501

Washington School Districts Participating in the Study

50. Aberdeen School District
    Aberdeen 98520

51. Auburn School District
    Auburn 98802

52. Bellevue School District
    Bellevue 98004

53. Bellingham School District
    Bellingham 98225

54. Bethel School District
    Spanaway 98387

55. Central Kitsap School District
    Silverdale 98383

56. Clover Park School District
    Lakewood Center 98449

57. Edmonds School District
    Lynnwood 98036

58. Federal Way School District
    Federal Way 98002

59. Franklin Pierce School District
    Tacoma 98444

60. Issaquah School District
    Issaquah 98027

61. Longview School District
    Longview 98632

62. Northshore School District
    Bothell 98011

63. Port Angeles School District
    Port Angeles 98362

64. Puyallup School District
    Puyallup 98371

65. Richland School District
    Richland 99352

66. Seattle Public School District
    Seattle 98019

67. Sedro Woolley School District
    Sedro Woolley 98284

68. Shoreline School District
    Seattle 98155

69. Spokane School District
    Spokane 99201

70. Tacoma School District
    Tacoma 98401

71. Vancouver School District
    Vancouver 98661

72. Walla Walla School District
    Walla Walla 99362

73. Yakima School District
    Yakima 98902

APPENDIX G

Mr. Ernest G. Kramer
State Director of Vocational Education
P. O. Box 248
Olympia, Washington 98501

Dear Mr. Kramer:

A four-state study is currently being planned at Oregon State University to determine the common professional education competencies needed by public school district vocational education directors and vocational education department heads. As a result of this study, the competencies needed by these two specific levels of vocational leaders can be identified and utilized in the development of curriculum and performance objectives for graduate and undergraduate in-service programs.

In order to select the public school districts and individuals to be contacted, a listing of the public school districts in your state and the vocational programs they offer is needed. If this is not available, could each service area (agriculture, home economics, etc.) provide this information?

Also, a directory giving the average daily membership (ADM) of your public school districts would be very helpful.

Thank you.

Sincerely,

Jim R. Baltimore
Division of Vocational, Adult, and
  Community College Education
102 Batcheller Hall

APPENDIX H

Mr. J. Lyman Goldsmith
Administrator of Career Education
Los Angeles Unified School District
P. O. Box 3307 Terminal Annex
Los Angeles, California 90054

Dear Mr. Goldsmith:

The Division of Vocational Education at Oregon State University is conducting a study which represents the second phase of a plan to develop a performance-based curriculum for the training of local school district vocational directors, coordinators, and department heads. The purpose of this phase of the study is to identify the specific competencies needed at these leadership levels.

You have been selected along with other vocational education leaders from Arizona, California, Colorado, and Washington to participate in this project. Your State Director of Vocational Education and your District Administration have been contacted, and in both cases they endorse this project.

We are asking that you help us by completing the enclosed questionnaire and returning it to us by February 14, 1972. Our field study indicates that 30 minutes is more than adequate for reviewing the instructions and completing the questionnaire. Your answers will provide a composite view of the tasks important in your position of vocational leadership. From this, performance-based curriculum can be developed.

Be assured that your response will be kept confidential. Individuals will not be identified in the final report. A summary of the findings, however, will be returned to each respondent.

After completing the questionnaire, please fold, staple, and mail. Postage is provided.

Thank you for your assistance.

Sincerely,

Jim R. Baltimore
Division of Vocational, Adult, and
 Community College Education
102 Batcheller Hall

APPENDIX I

We recently mailed you a questionnaire requesting your help in evaluating a list of competencies for vocational education leaders.

If you have already completed and returned the questionnaire, please consider this reminder an expression of our appreciation. If you have not done so, would you please take the 20-30 minutes necessary and complete the form and mail it back to us within the next few days?

We here at the University consider the level of vocational education leadership which you represent as being critical to providing good education programs. The competencies you consider necessary for your job should be incorporated into the undergraduate, graduate, and in-service programs which will be developed as a result of this study.

Thank you.

Sincerely,

Jim R. Baltimore
Division of Vocational, Adult,
  and Community College Education
102 Batcheller Hall

APPENDIX J

CODING OF DATA CARDS

Data from each respondent were coded on four cards as follows:

Card 1

Column

1-2   A1-A4. Represents one of the four states.

3-4   1-73. Represents one of the 73 school districts.

5-7   1-147. Represents one of the 147 respondents.

8   1-2. Represents one of the levels in which the respondent works (vocational director, vocational department head).

9   1-3. Represents one of the categories of number of teaching faculty under the respondent's jurisdiction.

10   1-3. Represents one of the categories of proportion of time the respondent devotes to classroom teaching.

11   1. Data card number one.

12-80   Data. Response values of 1, 2, 3, 4, or 5 which were assigned to the 69 competencies.

Card 2

Column

1-10   Same as above.

11   2. Data card number two.

12-41   Data. Response values of 1, 2, 3, 4, or 5 which were assigned to the 29 competencies.

Card 3

Column

1-10   Same as above.

11   3. Data card number three.

12-80   Data. Response values of 1, 2, or 3 representing a method of preparation (course work, internship, combination of course work and internship).

Card 4

<u>Column</u>

1-10   Same as above.

11   4. Data card number four.

12-41   Data. Response values of 1, 2, or 3 representing a
        method of preparation (course work, internship,
        combination of course work and internship).

APPENDIX K

RESULTS OF ANALYSIS OF VARIANCE USING THE F
STATISTIC ON STATE GROUPS

Tabular F at the .01 level of significance with three degrees of free-
dom for the numerator means square and 135 degrees of freedom for
the denominator mean square was 3.94.

Competency	Computed F	Competency	Computed F	Competency	Computed F
1	0.70	34	0.91	67	0.24
2	0.55	35	0.28	68	0.63
3	1.82	36	0.30	69	0.40
4	0.96	37	0.55	70	0.54
5	2.34	38	2.04	71	0.42
6	1.23	39	0.42	72	1.26
7	0.98	40	0.90	73	0.22
8	1.60	41	0.40	74	1.70
9	0.72	42	0.19	75	0.40
10	1.02	43	0.13	76	0.20
11	2.96	44	1.76	77	0.03
12	1.39	45	0.27	78	1.08
13	1.30	46	0.31	79	0.54
14	2.05	47	0.62	80	0.63
15	1.66	48	0.34	81	0.31
16	1.15	49	0.68	82	0.36
17	1.50	50	0.26	83	0.69
18	1.48	51	0.43	84	0.59
19	2.32	52	1.26	85	0.85
20	0.43	53	1.12	86	1.85
21	0.27	54	1.16	87	0.45
22	0.13	55	1.75	88	0.90
23	3.38	56	0.40	89	1.14
24	0.89	57	0.82	90	0.07
25	1.89	58	1.58	91	0.70
26	0.76	59	0.78	92	0.73
27	0.86	60	0.22	93	0.51
28	0.88	61	1.20	94	0.13
29	0.52	62	0.27	95	0.80
30	0.20	63	0.59	96	0.39
31	0.22	64	0.51	97	1.98
32	0.20	65	1.08	98	0.86
33	0.74	66	0.53		

APPENDIX L

RESULTS OF ANALYSIS OF VARIANCE USING THE F STATISTIC ON TYPE OF POSITION HELD GROUPS

Tabular F at the .01 level of significance with one degree of freedom for the numerator mean square and 135 degrees of freedom for the denominator mean square was 6.84.

Competency	Computed F	Competency	Computed F	Competency	Computed F
1	4.08	34	1.02	67	4.19
2	2.83	35	5.45	68	1.28
3	0.42	36	1.72	69	1.60
4	2.28	37	1.57	70	2.35
5	6.27	38	1.21	71	5.33
6	1.50	39	0.01	72	2.42
7	0.03	40	2.85	73	1.21
8	0.42	41	7.44*	74	9.89*
9	0.37	42	3.81	75	13.97*
10	0.64	43	2.03	76	1.93
11	0.69	44	1.87	77	0.04
12	0.24	45	10.13*	78	4.50
13	2.82	46	1.03	79	1.21
14	8.87*	47	0.31	80	5.14
15	12.29*	48	4.11	81	4.41
16	12.70*	49	0.75	82	8.52*
17	7.40*	50	0.54	83	1.96
18	15.56*	51	4.47	84	0.23
19	4.25	52	2.58	85	0.38
20	9.51*	53	4.86	86	3.04
21	4.48	54	3.92	87	0.02
22	1.57	55	1.27	88	0.21
23	1.45	56	0.20	89	7.25*
24	2.66	57	4.98	90	5.13
25	0.15	58	1.37	91	9.40*
26	0.00	59	0.88	92	8.61*
27	0.21	60	5.76	93	1.86
28	17.65*	61	6.98*	94	4.05
29	11.94*	62	5.82	95	4.25
30	1.23	63	1.20	96	0.40
31	0.30	64	9.72*	97	9.85*
32	2.30	65	1.45	98	2.86
33	1.34	66	0.01		

*Significant difference detected. Group means are on the next page.

Group means of competencies where significant difference was
   detected.

Competency number	Group I mean (Voc. directors)	Group II mean (Voc. dept. heads)	Overall mean
14	3.94	3.02	3.13
15	4.56	3.45	3.59
16	2.94	3.98	3.86
17	4.19	3.29	3.40
18	4.25	2.85	3.01
20	4.06	2.93	3.06
28	4.44	3.01	3.18
29	4.25	3.03	3.17
41	3.88	2.85	2.97
45	3.56	2.32	2.46
61	3.75	2.83	2.94
64	3.94	2.85	2.98
74	4.38	3.30	3.43
75	4.75	3.28	3.46
82	4.56	3.70	3.80
89	4.13	3.14	3.26
91	4.31	3.31	3.43
92	4.25	3.28	3.40
97	4.38	3.40	3.50

APPENDIX M

RESULTS OF ANALYSIS OF VARIANCE USING THE F STATISTIC ON
PROPORTION OF TIME ON THE JOB
DEVOTED TO TEACHING GROUPS

Tabular F at the .01 level of significance with two degrees of freedom
for the numerator mean square and 135 degrees of freedom for the
denominator mean square was 4.78.

Competency	Computed F	Competency	Computed F	Competency	Computed F
1	7.55*	34	1.59	67	6.09*
2	1.00	35	2.59	68	3.02
3	0.28	36	3.28	69	4.22
4	1.16	37	1.30	70	4.24
5	7.14*	38	0.55	71	7.96*
6	0.84	39	0.55	72	5.11*
7	0.03	40	4.55	73	4.16
8	0.55	41	9.45*	73	9.11*
9	0.54	42	4.51	75	7.39*
10	2.30	43	2.29	76	3.19
11	1.87	44	3.28	77	2.72
12	3.52	45	6.32*	78	0.75
13	3.38	46	5.15*	79	1.50
14	6.70*	47	3.48	80	3.45
15	8.24*	48	5.60*	81	3.72
16	9.59*	49	0.83	82	6.80*
17	4.88*	50	3.41	83	2.18
18	10.26*	51	4.81*	84	0.11
19	2.81	52	2.80	85	0.52
20	10.52*	53	5.29*	86	8.42*
21	4.09	54	2.47	87	0.78
22	2.75	55	2.67	88	2.45
23	1.22	56	1.28	89	8.44*
24	1.45	57	8.58*	90	5.79*
25	0.64	58	7.88*	91	6.66*
26	4.68	59	4.76	92	5.12*
27	1.26	60	5.58*	93	3.26
28	5.53*	61	11.23*	94	3.05
29	4.68	62	8.25*	95	3.53
30	2.47	63	4.54	96	2.57
31	2.39	64	7.13*	97	7.39*
32	4.24	65	2.95	98	3.41
33	2.89	66	2.02		

*Significant difference detected. Group means are on the next page.

Group means of competencies where significant difference was
detected.

Competency number	Group I mean (Full-time teaching)	Group II mean (7/8-1/8 time teaching)	Group III mean (No time teaching)	Overall mean
1	4.15	4.52	4.59	4.38
5	3.29	4.28	3.84	3.67
14	2.92	3.88	3.00	3.13
15	3.27	4.40	3.57	3.59
16	3.87	3.08	4.24	3.86
17	3.13	4.04	4.40	3.40
18	2.63	4.04	2.98	3.01
20	4.87	4.16	2.73	3.06
28	2.89	3.92	3.16	3.18
41	2.71	4.04	2.76	2.98
45	2.29	3.40	2.20	2.46
46	2.84	3.64	3.43	3.20
48	3.31	4.32	3.67	3.63
51	3.18	4.04	3.53	3.46
53	3.31	4.16	3.78	3.63
57	3.12	4.28	3.65	3.52
58	2.42	3.60	3.06	2.87
60	2.65	3.68	3.18	3.03
61	2.40	3.60	2.29	2.94
62	2.95	4.12	3.55	3.38
64	2.69	3.84	2.90	2.98
67	2.84	3.88	3.27	3.18
71	3.18	4.40	3.27	3.43
72	2.69	3.72	2.78	2.91
74	3.00	4.24	3.55	3.43
75	3.21	4.48	3.24	3.46
82	3.58	4.52	3.71	3.80
86	2.65	3.92	2.76	2.91
89	2.98	4.24	3.10	3.26
90	3.29	4.20	3.40	3.50
91	3.08	4.12	3.51	3.43
92	3.15	4.08	3.37	3.40
97	3.19	4.24	3.55	3.51

APPENDIX N

RESULTS OF ANALYSIS OF VARIANCE USING THE F STATISTIC ON NUMBER OF TEACHING STAFF UNDER RESPONDENT'S SUPERVISION GROUPS

Tabular F at the .01 level of significance with two degrees of freedom for the numerator mean square and 135 degrees of freedom for the denominator mean square was 4.78.

Competency	Computed F	Competency	Computed F	Competency	Computed F
1	3.91	34	1.42	67	3.21
2	1.47	35	3.02	68	3.18
3	0.61	36	1.80	69	1.75
4	0.63	37	1.47	70	1.18
5	3.75	38	0.97	71	4.35
6	0.04	39	0.09	72	3.65
7	0.22	40	2.64	73	1.42
8	0.51	41	6.12*	74	4.79*
9	1.27	42	2.22	75	4.93*
10	1.79	43	0.90	76	1.62
11	0.45	44	3.87	77	0.01
12	0.71	45	7.09*	78	3.16
13	2.97	46	2.19	79	2.44
14	6.06*	47	1.20	80	3.51
15	6.18*	48	4.13	81	4.64
16	7.65*	49	0.02	82	5.50*
17	3.45	50	1.02	83	0.73
18	5.52*	51	3.74	84	0.68
19	2.65	52	2.76	85	0.24
20	8.72*	53	3.16	86	4.76
21	4.38	54	1.32	87	0.21
22	1.37	55	0.78	88	1.62
23	1.59	56	0.32	89	6.32*
24	1.53	57	5.40*	90	4.44
25	0.73	58	3.62	91	4.56
26	0.26	59	3.45	92	4.69
27	0.53	60	4.57	93	2.78
28	8.90*	61	4.89*	94	3.59
29	5.21*	62	4.57*	95	4.99*
30	1.47	63	2.97	96	5.19*
31	0.52	64	5.77*	97	7.23*
32	1.35	65	3.81	98	2.81
33	1.27	66	0.92		

*Significant difference detected. Group means are on the next page.

Group means of competencies where significant difference was
    detected.

Competency number	Group I mean (0-10 sub-ordinates)	Group II mean (11-50 sub-ordinates)	Group III mean (51+ subordinates)	Overall mean
14	2.96	3.42	4.00	3.13
15	3.47	3.33	4.56	3.59
16	4.05	3.25	3.06	3.86
18	2.82	3.50	3.94	3.01
20	2.86	3.08	4.38	3.06
28	3.03	2.83	4.48	3.18
29	3.03	3.08	4.19	3.17
41	2.77	3.42	4.00	2.97
45	2.30	2.25	3.75	2.46
57	3.36	3.75	4.44	3.52
61	2.77	3.42	3.75	2.94
62	3.23	3.42	4.38	3.38
64	2.81	3.08	4.00	2.98
74	3.27	3.67	4.31	3.43
75	3.31	3.33	4.56	3.46
82	3.65	4.17	4.56	3.80
89	3.06	3.58	4.31	3.26
95	3.57	4.17	4.38	3.72
96	3.13	4.08	3.63	3.27
97	3.32	4.17	4.31	3.51

APPENDIX O

RESULTS OF THE Q-TECHNIQUE FACTOR ANALYSIS

Respondent number	Factor loading	Respondent number	Factor loading	Respondent number	Factor loading
001	.95	039	.97	077	.93
002	.98	040	.97	078	.96
003	.97	041	.96	079	.97
004	.92	042	.98	080	.95
005	.88	043	.98	081	.93
006	.96	044	.94	082	.98
007	.94	045	.94	083	.97
008	.97	046	.98	084	.95
009	.95	047	.97	085	.94
010	.96	048	.95	086	.95
011	.84*	049	.98	087	.98
012	.99	050	.97	088	.97
013	.96	051	.97	089	.90
014	.97	052	.96	090	.97
015	.96	053	.93	091	.96
016	.94	054	.95	092	.95
017	.92	055	.94	093	.87
018	.96	056	.92	094	.97
019	.93	057	.96	095	.97
020	.98	058	.98	096	.92
021	.96	059	.86	097	.93
022	.98	060	.98	098	.93
023	.96	061	.94	099	.98
024	.98	062	.97	100	.98
025	.89	063	.95	101	.98
026	.96	064	.92	102	.98
027	.97	065	.98	103	.94
028	.97	066	.89	104	.97
029	.98	067	.94	105	.98
030	.96	068	.98	106	.93
031	.98	069	.98	107	.94
032	.98	070	.97	108	.96
033	.91	071	.98	109	.98
034	.96	072	.96	110	.98
035	.96	073	.95	111	.91
036	.97	074	.97	112	.98
037	.96	075	.94	113	.92
038	.98	076	.96	114	.98

(Continued on next page)

Appendix O.   (Continued)

Respondent number	Factor loading	Respondent number	Factor loading	Respondent number	Factor loading
115	.98	126	.98	137	.88
116	.95	127	.97	138	.91
117	.98	128	.95	139	.93
118	.97	129	.96	140	.89
119	.98	130	.98	141	.95
120	.93	131	.98	142	.93
121	.88	132	.98	143	.95
122	.92	133	.98	144	.96
123	.96	134	.98	145	.90
124	.96	135	.96	146	.87
125	.98	136	.87	147	.91

*The lowest factor loading.