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I am submitting herewith a dissertation written by Jerry Deamus Scott entitled "The Role of Business and Industry in Vocational Education in the Public Secondary Schools in Tennessee." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Vocational-Technical Education.

George W. Wiegers, Jr., Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

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# THE ROLE OF BUSINESS AND INDUSTRY IN VOCATIONAL EDUCATION IN THE PUBLIC SECONDARY SCHOOLS IN TENNESSEE

A Dissertation

Presented for the

Doctor of Education

Degree

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## ABSTRACT

### Purpose

The primary purpose of the study was to determine business and industry involvement in public secondary vocational education in Tennessee by analyzing and comparing the present and desired involvement by business and industry, and the facilitating and restricting factors, as perceived by school administrators, vocational educators, and business and industry personnel. Specifically, the study attempted to determine: (1) business and industry involvement that presently exists in public secondary vocational education in Tennessee; (2) business and industry involvement that should exist in public secondary vocational education in Tennessee; and (3) factors which facilitate or restrict business and industry involvement in public secondary vocational education in Tennessee.

### Method

The study included 421 individuals comprising reference groups of school administrators (school superintendents and high school principals); vocational educators (vocational directors and vocational instructors); and business and industry personnel (managers, supervisors or foremen, and skilled employees). A stratified random sample comprised of 20 of the 95 counties in Tennessee was selected. Within each county selected, 100 percent of the school superintendents, high school principals and vocational directors were utilized. Four vocational

instructors and four business and industry concerns were also selected from each of those counties to participate in the study.

Validated questionnaires were located and submitted to a panel of experts for further validation. The instruments were then tested in a school system not included in the sample population. All data were collected by mail responses.

Data gathered for this study were grouped and analyzed through the use of a special computer package entitled Statistical Package for the Social Sciences (SPSS). Differences between reference groups' opinions were tested using contingency tables and the Chi Square statistic. The results were used in conjunction with opinion percentages to determine: (1) levels and adequacy of business and industry involvement, (2) methods of business and industry involvement, and (3) facilitating and restricting factors to business and industry involvement.

Findings. Analyses and interpretations of data indicated the following findings:

1. There was no general consensus on any service for both present and desired involvement.

2. There was a general consensus on only 2 of the 42 services listed for present involvement; 1 no involvement and 1 some involvement.

3. There was a general consensus on only 8 of the 42 services listed for desired involvement; 7 some involvement and 1 in a great deal of involvement.

4. There was a consensus on 41 of the 42 services listed for present involvement between school administrators and vocational educators.

5. There was a consensus on all 42 services listed for desired involvement between school administrators and vocational educators.

6. There was a general consensus of desirability expressed for business and industry's participation through part time consultants and student club programs.

7. The extent of agreement concerning the traditional methods of business and industry involvement (advisory committees and cooperative education) was significant below the .01 level for both methods at both the present and desired levels of involvement.

8. There was no general consensus on any service at both the present and desired levels of involvement, thus indicating a significant inadequacy of involvement.

9. Three facilitating, three restricting and one neutral factor were identified.

10. Fifty-eight percent of the school administrators indicated they had participated in a formal business and industry--vocational education cooperative endeavor, compared to 36 percent of the vocational educators and 24 percent of the business and industry personnel.

11. Ninety-three percent of the vocational educators indicated they had fruitful experiences when they were involved in those cooperative endeavors, compared to 89 percent of the school administrators and 67 percent of the business and industry personnel.

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# CHAPTER I

## THE PROBLEM OF THE STUDY

### I. INTRODUCTION

"The responsibility for the support and control of public education in the United States has been recognized as belonging to the respective states" (69:i). Training of the nation's labor force is, therefore, a public responsibility. Vocational education, conducted through local education agencies, is one method of implementing the training needed. The public education system is one organization where realistic vocational programs can be organized to meet the needs of students and society. The public secondary school is one institution in our society through which many youth pass immediately prior to entry level employment. Vocational programs in public secondary schools should offer realistic vocational training that is of high quality and in so doing respond to the demand for a quality product.

In this democratic society, the system responsible for vocational education is one that is rich in tradition, geared to academic programs and the past. Too often this system has failed to provide adequate vocational programs and to provide youth with the desire to obtain adequate vocational preparation. In this age of advanced technology, it is the opinion of many educators, businessmen, and industrial representatives that education and business and industry must join forces to

make vocational programs more attractive, acceptable and relevant. In a study by the United States Employment Service, Burt (10:4) stated:

> Both educators and industry agree that only through their cooperative effort in all phases and at all levels of occupational education can the public school system meet its responsibilities to the students, to the potential employers of the students, and to the public.

According to Day (17:20), "The objectives of our educational system and our work community are inextricably intertwined and inseparable." A more informed and concerned public will assist in developing an educational system that will do more for all people.

## II. THE PROBLEM

### Statement of the Problem

The public schools in Tennessee have been charged with the responsibility of providing realistic secondary vocational education programs that meet the needs, interest, and abilities of students as well as considering manpower requirements and job opportunities. The Tennessee State Department of Education requires the local education agency to establish advisory committees to assist in planning, implementing and evaluating the vocational programs. Presently, there is little evidence to show that business and industry have been actively involved in these processes.

What should be the role of business and industry in vocational education in the public secondary schools in Tennessee?

Purpose of the Study

This study was conducted to determine the present and desired involvement by business and industry, and the facilitating and restricting factors, as perceived by school administrators, vocational educators, and business and industry personnel. The objectives set forth have been to determine the extent of agreement of the perceptions of school administrators, vocational educators, and business and industry personnel in regards to:

1. Business and industry involvement that presently exists in public secondary vocational education in Tennessee.

2. Business and industry involvement that should exist in public secondary vocational education in Tennessee.

3. Factors which facilitate or restrict business and industry involvement in public secondary vocational education in Tennessee.

## III. QUESTIONS TO BE ANSWERED

The following questions were answered in meeting the objectives of this study:

1. Is there a difference in the opinions of school administrators, vocational educators, and business and industry personnel, concerning the adequacy of present business and industry involvement in public secondary vocational education in Tennesse?

2. Is there a difference in the opinions of school administrators, vocational educators, and business and industry personnel concerning business and industry involvement that should exist in public secondary vocational education in Tennessee?

3. Is there a difference in the opinions of school administrators, vocational educators, and business and industry personnel as to the desirability of specific methods of business and industry involvement in public secondary vocational education in Tennessee?

4. Is there a difference in the opinions of school administrators, vocational educators, and business and industry personnel concerning facilitating and restricting factors and the adequacy of communication links between business and industry and public secondary vocational education in Tennessee?

## IV. SIGNIFICANCE OF THE PROBLEM

The findings of the study should be beneficial to local education agencies in seeking and utilizing assistance and cooperation of the business and industrial community as they plan, implement and evaluate vocational programs. With the passage of the Tennessee Comprehensive Vocational Education Act (55:1), each school system should have vocational programs accessible to all high school students and facilities provided to serve at least 50 percent of all students in grades nine through twelve by the school year beginning September, 1977. The analysis of the findings of the study should result in recommendations from school administrators, vocational educators, and representatives from business and industry that would enhance a more realistic working relationship between school and community. Cooperative education programs, student organizations, teacher training programs, and individual consultation are other viable means of enticing cooperation between vocational education and the business and industrial community.

Is there sufficient cooperation between Tennessee business and industry and Tennessee vocational educators? There is evidence (as shown in Chapter II) that cooperation in many localities may be lacking and in communities where it does exist, may be superficial in nature.

Vocational education, since the passage of the Smith-Hughes Act in 1917, has been an integral part of the public school curriculum in Tennessee. Federal and state legislation and state leadership have provided an impetus for the expansion of vocational programs in established vocational fields and in new, emerging occupations for which new vocational programs are needed.

Expansions and increasing complexities in vocational education have also increased the demand for programs that effectively meet the needs and demands of the community. Community advisory groups, such as those required of local school systems having vocational programs, may assist in providing information needed in meeting new demands for skilled and semi-skilled personnel.

In its 1974 annual evaluation report, the Tennessee State Advisory Council on Vocational Education (57:6) reported:

> The State Advisory Council encountered overwhelming evidence that the need for meaningful input from local citizens is even greater than previously thought. Informal sampling of various local committees, along with testimony given during the Council's public hearing, indicates that most local committees are not actively involved in vocational education program planning and evaluation, and in many instances, when they are active, their suggestions are not given very serious consideration.

A representative from industry (58:4) mentioned that persons responsible for education programs are often unresponsive to suggestions

from local industry, regarding new programs or training. He pleaded for better communication between industry and educators, and flexibility in programs.

The importance of the study and the rationale for the design of the study are directly related to the following statements:

1. Business and industry involvement in public secondary vocational education in Tennessee may be of major importance in planning, implementing and evaluating effective vocational programs at the local level.

2. The extent of business and industry involvement in public secondary vocational education in Tennessee may not be adequate.

3. It may be desirable to have a better understanding of factors which facilitate or restrict business and industry involvement in public secondary vocational education programs in Tennessee.

## V. ASSUMPTIONS

1. It was assumed that school administrators, vocational educators, and business and industry personnel utilized in this study were qualified to offer professionally valid opinions and recommendations on business and industry involvement that presently exists, business and industry involvement that should exist, and factors which facilitate or restrict business and industry involvement in public secondary vocational education in Tennessee.

2. It was assumed that the survey instrument had been adequately validated and accurately reflected the opinions and recommendations of the respondents.

3. It was assumed that the attitudes of school administrators, vocational educators, and business and industry personnel utilized in this study were representative of such persons throughout Tennessee.

## VI. DEFINITION OF TERMS

For the purpose of the study the following definitions were used:

Business and industry - Business and industry is any firm that is classified as a business or industry, public or private, that hires, or has the potential to hire vocational students who exit from public high schools.

Business and industry involvement - Business and industry involvement includes any cooperation or assistance that may be provided by business and industry personnel to vocational education in the high school such as assisting with curriculum development or providing summer employment for teachers.

Business and industry personnel - Business and industry personnel includes managers, supervisors or foremen, and skilled employees.

Facilitating factors - Facilitating factors are those factors that tend to promote or encourage business and industry involvement in vocational education such as commitment of school administrators to business and industry involvement, or commitment by business and industry to involvement in vocational education.

Panel of experts - The term "panel of experts" is used to denote a group of educational personnel qualified as being knowledgeable of the proper methods and techniques of developing instruments to elicit needed information.

Restricting factors - Restricting factors are those factors that tend to inhibit business and industry involvement in vocational education such as lack of appropriate staff to work with business and industry, or possible fear of school administrators that business and industry personnel will become special interest pressure groups.

School administrators - School administrators include superintendents and public high school principals.

Vocational education - Vocational education is that integral part of the educational system and/or process that provides systematic learning experiences designed primarily to equip individuals with the necessary skills for gainful employment.

Vocational educators - Vocational educators include vocational directors and vocational teachers in public high schools.

## VII. SCOPE AND LIMITATIONS

The population included in the study was delimited to school administrators, vocational educators, and business and industry personnel in the State of Tennessee. Within the state the study was delimited to the twenty counties within the sample.

The study was further limited to the information that could be secured by means of mailed questionnaires. An additional limitation was the degree of cooperation of the sample in providing responses and/or accurate information regarding the data collected for the study.

## VIII. NATURE AND SOURCES OF DATA

A review of the literature resulted in the compilation of many possible aspects of involving the business and industry community in vocational education programs. It was determined that those identified components would fit into five primary areas, namely: (1) need for involvement, (2) methods of involvement, (3) services provided by business and industry, (4) adequacy of involvement and (5) facilitating and restricting factors to business and industry involvement.

Questionnaires that would suffice in gathering needed data were located in a study completed by McBryde (36:117-120) in Texas during 1973. In addition, a panel of experts in vocational education was utilized to provide additional input, to add clarity and to revise items already compiled in the instruments. Comprising the panel of experts were state department personnel in vocational education, teacher educators in vocational education, superintendents, high school principals and vocational teachers. A copy of the letter and comment sheet sent to the panel of experts is included in Appendix A.

For the purposes of the study, data were secured from persons in counties representing a stratified cross section of the state. Included from each county selected were: (1) all school superintendents, (2) all secondary school principals, (3) all vocational directors, (4) four vocational instructors and (5) four business and industry establishments (including one manager, one supervisor or foreman and one skilled employee from each).

## IX. ORGANIZATION OF THE STUDY

The main body of the study is reported in five chapters. In addition, reference materials are included in the form of a list of references and a set of appendices.

Chapter I contains an introduction to the problem, statement of the problem, significance of the problem, purpose of the study, assumptions, questions to be answered, definition of terms, scope and limitations and nature and sources of data. The organization of the study is also included.

Chapter II presents the results of the review of related literature and pertinent research. The review was conducted to obtain information from other sources relative to the study.

Chapter III contains the methodology and procedures of the study. Included is the method of research, the identification of the population and the sample, data gathering techniques and methods of data analysis.

Chapter IV contains the presentation and discussion of the data collected in the study. Analyses are presented in regard to the perceptions of the various reference groups and all groups, collectively, concerning the present and desired involvement in each of the services listed. Additional analyses are presented regarding the facilitating and restricting factors perceived by the various groups.

Chapter V is the concluding chapter in the study. A summary of the overall findings, conclusions drawn from the findings, and recommendations are given.

# CHAPTER II

## REVIEW OF THE LITERATURE

To serve as a basis for the investigation, an exhaustive attempt was made to review all relevant literature and research from the many sources available. The review of literature relating to business and industry involvement in public secondary vocational education was concentrated within five primary areas: (1) need for involvement, (2) methods of involvement, (3) services provided by business and industry, (4) adequacy of involvement, and (5) facilitating and restricting factors to business and industry involvement.

Special concern was given to reports regarding the Tennessee situation primarily through publications from the Tennessee State Advisory Council on Vocational Education and the Tennessee State Board for Vocational Education. A general investigation of business and industry involvement in vocational education was accomplished through a review of pertinent periodical literature, a computer search of ERIC documents, textbooks, dissertation abstracts and literature published by the National Advisory Council for Vocational Education and the American Vocational Association.

### I. NEED FOR INVOLVEMENT

Business and industry personnel and educators appear to be in agreement that there is a definite need for business and industry

involvement in the vocational education process at the secondary level. Adams (1:23), Barlow (5:274), Budke (7:34), Burt (10:4, 114, 169), Day (17:23), Horne (25:70-72), Lee (31:42), McBryde (36:10), Marland (35: 616-620), Nealon (45:70-73) and Venn (77:112-122) agreed that this involvement is essential for successful programs. The Tennessee Advisory Council on Vocational Education (56:3-10; 59:4-12) and the Tennessee State Board of Vocational Education (67:appendix) agreed with this concern. Byram (13:261) has pointed out the willingness of the National Association of manufacturers to assist in ways illustrated in the following statement.

> The responsibility of industry for more active participation in the preparation of young people who enter industrial employment . . . has increased each year. A complex industrial society, a multiplicity of jobs, the increasingly urgent need for intelligent citizenship, leave no alternative. Industry is a natural co-partner in the education of tomorrow's full-time adult workers. The days when schools were self-contained within their institutional walls are past. Those walls are being pushed out to encompass the entire community. Industrial and business establishments are becoming the daily laboratories and workshops of both secondary schools and colleges in the all-important task of training youth, while they are still in school, for jobs of their own choosing.

Choosing a vocation is more difficult for today's young people than it has been for any other generation. There is an increased number of different jobs and careers from which to choose. In the traditional programs of our educational institutions today, the student has no opportunity to get a personal acquaintance with more than one or two jobs, if indeed he has that opportunity. The student of today rarely has a first hand opportunity to observe the industrial processes which produce the products of our society. These products and processes are

the foundation of the wealth and technological development of our country. The rapid development of this technology, the increase of occupational specialization, and the development of man's interdependence socially, economically, and vocationally has created a need for career guidance and exposure (75:37-38; 76:51).

In its Sixth Report, the Tennessee State Advisory Council on Vocational Education (60:2) stated: "A more informed and concerned public will assist in developing an educational system that will do more for all people." One of the best ways to improve the educational system is to strengthen communications between educators and the lay public. "The council encourages utilization of local vocational advisory committees and increased input from local business and industry." At a public hearing by the Council (58:4), an industry participant pleaded for communication between industry and vocational education with more flexibility in programs. In other reports, the Council (56:5-6; 57:17-18) suggested that a greater degree of acceptability on the part of employers can be achieved by closer cooperation with employers and organized labor.

Horne (25:70-72) reported that industry is not on top of education, nor education on top of industry. Teamwork is essential; education and industry must work together, but most educators do not know or understand industry. The California State Board of Education passed a resolution and publicized it specifying:

> Our education today urgently needs the participation and understanding of business and industry. We urge that business, industry, and education in all parts of the State of California get together, know of each other, and participate.

Hamilton (24:64), Vice President of the National Association of Manufacturers, stated: "The interdependence of business and industry is understood well by most businessmen. In fact, this dependency is probably better understood by businessmen than by most educators." In another article, Lee (31:43) reported that education depends upon the rest of the community to absorb its products, and industry depends upon education to provide the raw materials which are required to produce the products and provide the services we all require. It is essential that industry and education work together to utilize the tremendous resources which are vital to both for future existence. Carlson (14:45) said the partnership involves an exchange of commitment between the school and industry.

In addition, Weatherford (79:219-221) referred to cooperative planning efforts between school personnel and the community as being valuable for insuring educational relevancy, beginning with the passage of the Smith-Hughes Act in 1917. All persons concerned with the needs of vocational education should be included in planning the programs. Striner (52:4-9) and Struck (53:89-107) emphasized local interest, initiative and effort in giving strength, vitality and dynamic power to vocational education.

Burt (10:42) summed up the need for industry-vocational education cooperation by stating:

> When industry and education ignore each other or fail actively to cooperate, the inevitable result is schools turning out unqualified workers and industry suffering skilled manpower shortages. The student and the community are cheated while industry is forced to engage in expensive in-plant training

> or be satisfied with untrained workers giving low-grade performance. The cost is passed on to the public who thus pays twice--once for ineffective schools and again for the expense of ineffectively trained workmen in industry. The effect on our nation's manpower development and utilization efforts is not only negative, but, when allowed to persist, disastrous.

Technological changes in our society have brought about a need for increased emphasis on business and industry--vocational education cooperation. Willis (81:620) stated that industry and education must join forces in creating opportunities for meeting requirements for supervision, research, engineering, maintenance, and cost analysis. There must be training and retraining in job skills to keep pace with technological progress which requires a continual reappraisal and revision of the vocational curriculum.

Evans (21:1-5) implied that indifference or a lack of urgency on the part of community representatives concerning the value of training specifically for employment, in light of changing technology and the changing mix of industries, services and business establishments, could be detrimental to the total community. Horne (25:72) suggested that in our educational institutions it is not the rate of change, but the lack of community participation that causes the problem. Even so, he agreed that a time of rapid change is forthcoming. Many jobs are disappearing and new ones are being created. The skill levels and types of skills required are also changing with the various occupations.

Toffler (71:24-31) has suggested that in order to create a super industrial education program, it is necessary to look twenty to fifty years in the future in trying to determine professions and vocations that may be needed. Assumptions must also be made about the kind of

family form and human relationships that will prevail, the kinds of ethical and moral problems that will arise, and the kind of technology that will surround us. He further predicted a need for a council of the future in every school and community. Lamar (30:34) also warned us to be aware of the many problems confronting our educational system which could include a multi-faceted curriculum, appropriate types of school organizations, and school-community cooperation that could come to grips with the realities of our social, economic, educational and cultural environment. Service type occupations growing at a rapid pace is one facet of this envisioned problem.

At a conference in Florida (22:17), it was mentioned that ". . . a terrible disservice is being done to our young people today by intellectual leaders, insurance and banking executives, by government and industrial leaders who keep on telling young people they are destined for poverty and inferiority unless they get a college degree." Less than a fourth of American youth are graduated from a four-year college course and earn a degree. "Why not train the three fourths so they can answer the basic employment question, 'What can you do?'" Marland (33:7-24) pointed out that our high schools have not been able to assure that each young man or woman who receives a diploma is qualified either for immediate employment or for further education. He further speculated that "we must guarantee job entry skills for all high school graduates and most dropouts; skills as basic as typing and food preparation, but undergirded by a sound foundation in mathematics, the social sciences, and English that all of us need to function in virtually any

field of employment." Venn (77:115) has added: "In the past, education for the majority of people did not relate to their life's work and did not need to." He also indicated the need for today's education to be directly related to future work roles as education must be the bridge between each person and the world of work in all its modern complexity.

In the Newark report (46:65), the writer specified: "In order for vocational education programs to be worthwhile, they should be related to the job needs of the city and surrounding area. There is little point in training students for jobs which do not exist, and are not expected to exist." Cesta (15:6) further pointed out the need for training programs that will provide proficiency in experiences which will mean success or failure in the work world. Courses must be meaningful and realistic in preparing the student for a career goal available to him in the market place.

At the Sixty-First Annual American Vocational Association meeting, Representative Pucinski spoke of "learning to earn" as being an inalienable right. Vocational education's goal should be to provide a marketable skill for each youth and adult. The idea of providing vocational education for all of our young people would make vocational education more effective. He further stated: "Nothing less can answer to our social needs and the needs of the individuals that we serve."

From the U. S. Office of Education (74:1):

> In typical schools throughout the country young people complain that curriculums are dull and irrevelant. . . . More appropriate curriculums must be developed, validated, and installed, and they must be used more realistically if we are to meet the needs and desires of students and serve the purposes of society.

# II. METHODS OF INVOLVEMENT

The majority of the literature that relates to specific activities performed by industry personnel is concerned primarily with advisory committees and cooperative education. In addition to these two major kinds of activities, the National Advisory Council on Vocational Education (44:2-3) and the U. S. Office of Education (74:6-12) made reference to youth organizations and teacher training programs as being viable means through which business and industry services may be available to educational institutions.

## Local Advisory Committees

The Tennessee State Board for Vocational Education (67:appendix) has required each local education agency to establish an advisory committee to assist in planning, conducting and evaluating programs of vocational education. A document published by the Tennessee State Advisory Council on Vocational Education (60:2) stated that "Volunteer citizen advisory committees have historically been a feature of American education. Vocational education has utilized such committees in some form since 1917." Weatherford (79:219-220) said: "Community involvement is not a new concept to vocational education. Since the passage of the Smith-Hughes Act in 1917, cooperative planning efforts between school personnel and the community have always been deemed valuable for insuring educational relevancy." He also pointed out that all persons concerned with the need of vocational education should be involved in planning the program. In its 1970 report, the Tennessee State Advisory

Council on Vocational Education (56:3-12) reported that local advisory committees including employers and organized labor are involved in the planning, operation and evaluation of vocational education programs. It also suggested that a greater degree of acceptability on the part of employers can be achieved by close cooperation with employers and organized labor.

Burt (9:31) indicated that local advisory committees have the most direct influence and provide the most tangible assistance to vocational programs. He further suggested that without an advisory committee involving industry personnel, occupational education programs will probably not be of much value in preparing students for the world of work. Burt also alluded to the fact that when an administrator decides not to make use of an advisory committee, he may as well decide to eliminate his vocational programs.

Struck (53:171) said it is local interest, initiative and effort that give "strength, vitality and dynamic power" to vocational education. McMahan (39:58) supported the use of local advisory committees and suggested that they be carefully chosen to provide leadership in addition to expertise in skill areas. Persons selected must know what they are talking about and not be inhibited in expressing their opinions. Deshler (18:174-175) said it appears that involvement of the community in the life of the school is fundamental and urgently needed if education is to move toward its maximum potential.

Burt (9:114-123) mentioned that the advisory committee must be involved in an activity that will make some important and worthwhile

contribution in the field of education. "Industry wants an effective utilization of expertise, knowledge and interest in serving one of the most important components of the community--the school and its students."

The Tennessee State Advisory Council on Vocational Education (59:2) listed some of the purposes and duties of advisory committees, particularly in dealing with high school students.

-- Help determine the occupations for which training is needed.
-- Set up short-term goals for the program.
-- Recruit students that are in need of the training.
-- Help keep the curriculum up-to-date as to the jobs available.
-- Provide jobs for the students.
-- Act as public relations people.
-- Help secure materials needed.
-- Give advice and encouragement to students.
-- Create rapport between industry, business, and the vocational education program.
-- Make suggestions for sub or occupational committees.
-- Make plans for the growth and expansion of the program.
-- Assist in securing permanent job placements for students.
-- Make suggestions for other types of programs needed in the community.
-- Assist in the evaluation of the program.
-- Help in finding suitable training stations.

Sturm (54:48-49) added such advisory committee responsibilities as:

1. Assist in updating course of study each year.
2. Evaluate labs and instructors at the end of each semester.
3. Assist in instructor in-service training.
4. Serve as members of instructor interview panel.
5. Act in an advisory capacity to regulate the number of students who enter the trade so as not to produce more graduates than business and industry can employ.

Burt (12:11) said that advisory committees are usually most effective when:

1. The reason for the committee is understood by committee members and school officials.
2. The committee functions are clearly defined.
3. There is no question on the part of the committee that those functions are needed.

4. The committee is competent to perform its functions.
5. The committee is wanted by the school; its contributions are valued by the administration; and the superintendent and his staff are willing to give necessary time, energy, and support to make it successful.

Morse (41:107) pointed out that it is essential for educators to have knowledge about the effective use of advisory groups if they are to be beneficial. Program personnel are better able to provide more realistic and meaningful education for individuals in their communities when assisted by advisory groups.

## Cooperative Vocational Education

Cooperative vocational education is defined in Part G of the Vocational Education Amendments of 1968 (73:24-25) as follows:

> . . . a program of vocational education for persons, who, through a cooperative arrangement between the school and employers, receive instruction, including required academic courses and related vocational instruction by alternation of study in school with a job in any occupational field, but these two experiences must be planned and supervised by the school and employers so that each contributes to the student's education and to his employability.

Either public or private enterprise may provide on-the-job training in cooperative programs. Cooperative education students may not displace other workers and must be compensated in accordance with applicable laws and regulations. Evans (20:283) stated:

> Studies of the economics of vocational education show higher rates on investment in cooperative education than in other types of vocational education. (Capital costs for the school are lower, and since the student is receiving wages for the on-the-job portion of the program, the costs for the individual are lower).

According to Evans (20:285-286), there are numerous inherent advantages to cooperative education programs.

1. Quick adaptatibility to changes in labor market demands.
2. Training stations are most easily obtained in fields with the greatest labor shortages, and the coordinator is therefore most likely to use such stations.
3. The cooperative work education program needs lower capital investment in space and equipment than does instruction in the school laboratory.
4. Cooperative work education stimulates desirable attitudes toward work in a real-work situation.
5. A student who performs effectively in a cooperative education program is very likely to stay on in full-time employment after completing the school program. The employer knows the student's strengths and weaknesses and the student has had ample opportunity to determine whether or not he likes and can succeed in a particular field of work and with that particular employer.
6. If a suitable training station is available, cooperative education can be offered in a given occupational field for a small group or even an individual.
7. Business and industry spokesmen, who participate with youth in cooperative education, may provide the community with vital understandings about education when they speak to civic clubs or in other ways to participate in community activities.

Marland (34:43) suggested that subsidies or other kinds of encouragement to industry to help increase cooperative education may be necessary. Wenrich (80:250) said that industry, if it perceives education programs to be of high quality, can provide the use of its own plant facilities for some educational programs.

Byram (13:272), Nealon (45:73), Venn (77:116), Walberg (78:619), Tennessee State Advisory Council on Vocational Education (57:8-15) and the Newark Chamber of Commerce (46:7) promoted the expansion of cooperative education programs in meeting the needs of students and the community. Many business and industry personnel think this is an excellent method of improving the relationship between school and community. Cooperative vocational education is characterized as a "three dimensional complex--a job program, a school program and

vocational learning styles--all so fully interwoven and coordinated as to form the most comprehensive educational program that can be designed for youth."

Youth Organizations

Johnson (27:236) said that vocational youth organizations represent a vital force in any instructional program. The youth organizations can provide members with both general education experiences and occupational related learning experiences. Students need more than occupational skills and related knowledge in preparation for a working role. Leadership, motivation, attitudes and relationships with others are components of the youth organizations.

Wenrich (80:177-178) advocated the development and use of vocational student organizations. "Through such organizations vocational students can be involved in the decision-making process at a point where they are most directly affected." Local chapters of the youth clubs can be a powerful influence in bringing the world of work and the school into a closer working relationship which results in more realistic vocational instruction. Youth club activities are an integral part of the vocational curriculum, not an extracurricular activity.

The National Advisory Council on Vocational Education (44:2) reported that an excellent, though often neglected, mechanism for industry involvement in vocational education is already in operation, having existed among us for forty-five years. The report continued by stating:

> They reach 1.5 million more young people every year--year after year. Industry invests an estimated three million dollars a year to help pay their modest costs, but these contributions

> are even more important as a measure of the esteem American industry holds for this vital organization. But much more important, thousands of business, industry, labor and community representatives participate in the daily activities of these organizations. The value of the time they contribute is inestimable, but infinitely more valuable are the solid links between industry and our young people that are being built. These vocational youth organizations whose membership is voluntary, are quietly doing more to close the relevancy gap than any other movement on the education scene.

The Tennessee State Board for Vocational Education (67:7-8) has recognized the need for vocational youth organizations. They give the local schools the responsibility for developing, conducting and providing opportunities for student participation in a local chapter of an approved youth leadership organization related to each vocational program being conducted. State youth leadership camps are also available to assist in developing local chapter leadership skills.

The National Advisory Council (44:3) and Wenrich (80:177-178) have listed six national vocational student organizations:

DECA: Distributive Education Clubs of America for students taking marketing, merchandising, and management courses in the secondary and post-secondary schools.

FBLA-PBL: Future Business Leaders of America--Phi Beta Lambda is a national organization serving students preparing for careers in business.

FFA: Future Farmers of America for students preparing for careers in agricultural production, processing, supply and service, agricultural mechanics, natural resources and environmental science, horticulture, and forestry.

FHA: Future Homemakers of America for students enrolled in consumer and home economics-related occupations courses in the secondary schools.

OEA: Office Education Association for students enrolled in office occupations education in the secondary and post-secondary schools.

VICA: Vocational Industrial Clubs of America for students taking trade, industrial, technical, and health education courses in the secondary and post-secondary schools.

Teacher Training Programs

The vocational teacher is the key to effective vocational programs. Keller (28:288) said that if faculty and advisory committees maintain the highest ethical standards for the profession and demand them of the students, the students are likely to carry on worthily the highest ideals of the profession. Barlow (5:268-270) has pointed out that instructors must be thoroughly acquainted with the standards of quality inherent in the occupation for which they are preparing students. The vocational teacher is the heart and brains of the instructional program. If we don't have good, qualified teachers, we don't have anything with which to start. "Instructors should be good to get into the program; they must be better to stay." Burt (10:186-187) has supported this philosophy, saying that successful applicants for teaching positions should pass a qualifying examination in theory and practice in addition to an oral interview.

Walberg (78:610-611) said that business depends on the public schools to produce graduates having the basic skills and work attitudes necessary to fill entry-level positions. In addition, Conners (16:23) pointed out that a number of organizations use the products of vocational schools, and some use the teachers in summer programs and must, therefore, have a continuing concern for the quality of instruction. In another report, Beasley and Smiley (6:5) indicated that vocational education, through cooperation with industry, can operate viable new programs to help teachers gain occupational competency to meet the demand for skilled and recently trained workers.

Sexton (49:29) said that some means must be established whereby a cooperative arrangement could be made between vocational teachers and personnel in business and industry. This is particularly important with respect to an in-service program in business and industry for vocational teachers.

Beasley and Smiley (6:5) have stated:

> A problem of growing concern for vocational and technical education is that of improving the occupational competency of teachers. . . . Many vocational education teachers are failing to provide students with the relevant knowledge and contemporary skills needed for successful employment because they are not keeping abreast to the degree necessary for occupational changes brought about by the advancing technology in business and industry.

Conners (16:23) agreed with Beasley and Smiley (6:8-9) that education and industry must work closely together in developing teacher training programs. Burt (8:185-186) suggested that the community could assist in the establishment of teacher qualification requirements and also conduct clinics and in-service training programs for teachers. It has continually been pointed out that working relationships between industry and education could be improved when maximum input from industry and employers is used to make professional development activities realistic and current.

## III. SERVICES PROVIDED BY BUSINESS AND INDUSTRY

The Tennessee State Board for Vocational Education (67:appendix) has recommended that when a new program is initiated, industry's input is especially valuable in planning, initiating, and providing public support for the program. In a conference at the University of Wisconsin

(82:15), it was brought out that there must be a closer relationship with industry and other groups in developing information about the "world of work" and how it fits into society. Prizzia (48:1) indicated that too often "curriculum decisions are made solely by 'experts' who are somewhat detached from the problems and generally untouched by the consequences of their decisions."

The University of Wisconsin (83:8) has indicated that industry welcomes an opportunity to be of greater service and to be used as a community resource. Developing this potential will call for "imaginative thinking by both educators and businessmen." Business wants to do more to improve and supplement existing vocational programs. Emphasis should be placed upon using resource people from the community in agriculture and business and industry as a means of helping students learn about career opportunities. Cesta (15:6) mentioned that adjustments in course curriculum must be implemented which develop appropriate proficiency in the experiences which will mean success or failure in the world of work. The courses must be meaningful and realistic in order to motivate the learner and direct him to a career goal available to him in the marketplace.

Willis (81:620) said that industry and education can join forces in creating opportunities for meeting the requirements for "supervision, research, engineering, maintenance, and cost analysis." Another component could include training and retraining in job skills to keep pace with technological progress which will require a continuing canvassing of the labor market and a corresponding reappraisal and revision of the

vocational curriculum. Kraft (28:13-15), Meek (40:29-31), Lamar (30: 31-35), Marland (34:44-48), Sturm (54:49-51) and Stamps (51:42-44) reflected the possible impact of business and industry on curriculum within local school systems.

McCracken and Magisos (38:2) supported active feedback and support from persons associated with the related occupations. Assistance in placement of graduates is enhanced when the program is in tune with the needs of business and industry for trained personnel.

Burt (10:5-10) and Beasley and Smiley (6:9-11) have identified services that may be provided by industry personnel to vocational education programs. These services included:

1. Program and curriculum design.
2. Program evaluation.
3. Determine and verify need for training.
4. Establish standards for selecting equipment and instructional materials.
5. Establish standards for shop and laboratory planning.
6. Develop cooperative programs for students.
7. Determine criteria for evaluation of student performance.
8. Select production work to be used as instructional vehicles for accomplishing course objectives.
9. Provide occupational information.
10. Counsel and guide students in relation to the world of work.
11. Determine qualifications for selecting instructors.
12. Assist in development of teacher training programs.
13. Provide summer employment for teachers.
14. Assist in development of teacher training programs.
15. Provide part-time consultants.
16. Provide part-time instructional staff.
17. Provide legislative, financial, public and moral support.

## IV. ADEQUACY OF INVOLVEMENT

In the annual reports from the Tennessee State Board for Vocational Education (61:19-20; 66:27), it was frequently pointed out there

is more need for business and industry involvement in vocational programs. The Tennessee State Advisory Council (58) reported a need for additional community involvement as voiced by participants in public hearings throughout the State. Conners (16:1-27) and Nealon (45:70-73) agreed that there is a serious communication barrier between industry and vocational education. In addition, Weatherford (79:226) said that "the community is truly a storehouse of resources, human and material, that can provide the most realistic training environment available." Community involvement should be planned carefully and not allowed to develop in a haphazard manner, without direction or purpose. Effective communication which gets people actively involved will help attain more desirable community support.

Nealon (45:70) stated: ". . . a profound lack of communication between educators and business and industry. If this communication gap is not closed soon, it may become an unbridgeable chasm." This could prove fatal to occupational education. Venn (77:117) said that new links must be formed between business, industry and education.

Conners (16:1-27) has implied that after many years of lip service to the tank of developing a close business-industry/industrial-vocational education alliance, neither side seems to have found a way to break the communications barrier which could prevent effective mutual assistance. It seems that for a number of years the existence of such an alliance has been taken for granted. Neither side has vigorously promoted the importance or necessity for such an alliance. Vocational personnel must know industry, study it, and understand the extent of its ability to get involved.

The Tennessee State Advisory Council on Vocational Education (57:6) reported:

> The State Advisory Council encountered overwhelming evidence that the need for meaningful input from local citizens is even greater than previously thought. Informal sampling of various local committees, along with testimony given during the Council's public hearing indicates that most local committees are not actively involved in vocational education program planning and evaluation, and in many instances, when they are active their suggestions are not given very serious consideration.

A representative from industry (58:4) accused local vocational education personnel of being unresponsive to suggestions from local industry regarding new programs or training. He pleaded for better communication between industry and vocational education, and flexibility in programs.

## V. FACILITATING AND RESTRICTING FACTORS

Conners (16:8-17) suggested that the quality most needed in men to bring about effective partnership between education and industry, and the quality most significantly absent in our world today, is leadership. In both education and industry, leadership has become a concept identified all too often with a person's position. He also implied that leadership seems to have lost its identity with the requirements to influence people to accomplish desired results. According to Wenrich (80:246), many formal leaders holding positions of authority in the local community must be effectively drawn into the vocational technical education picture. This is essential in providing good working relationships. Support of local labor council and the mass media are critical in developing and maintaining adequate programs.

Burt (10:6-20) pointed out the great need for state level guidance, leadership, and coordination of industry-education activities. He also reported that leadership for industry-education cooperation should come from the educators since they are the ones responsible for administration of the public schools. It is the quality of school leadership which is decisive in determining the nature and extent of industry cooperation. An understanding of the factors which motivate industrial personnel "to offer their cooperation, counsel, advice, and participation in school programs to prepare students for particular occupations" will assist educators in performing their "critical role of leadership." Educators must broaden their vision to recognize that industry participation and involvement in the occupational program of our public school systems is not a goal in itself, but can add new dimensions to vocational education.

In a study conducted by Kraft (29:16-17), he concluded: ". . . all interviewed representatives of industry associated the major problems in vocational-technical education with the absence of appropriate mechanisms to initiate changes and with the need to develop attitudes which would make innovations more acceptable." He further said that the present lack of interest by industry seems "to be an indication that only to a very limited extent does it recognize the possibility of influencing the curriculum structure." Mackenzie (32:400-404) pointed out that community participants have control of certain sources of power and methods of influence to have changes made in the curriculum. Supporting these ideas, Budke (7:35) said that ". . . given a

willingness on the part of schools to seek assistance from industry, considerable help will be made available as a matter of public service on the part of industry."

Striner (52:5) suggested that few of the business leaders in the various communities were aware that they had a crucial role to play. In addition, he pointed out that many school superintendents feel that outsiders are "prying into educational matters well beyond their scope and understanding," and that their problems could be dealt with much better internally.

Burt (10:39-40) has identified the fifteen most frequently mentioned reasons, "real and imagined," which tend to restrict effective industry participation and involvement in occupational education programs. They are as follows:

1. Confusion on the part of school administrators as to what they want from industry.
2. Lack of knowledge on the part of the school administrators of how to approach industry or how industry is organized.
3. Suspicion on the part of school administrators of motivations of industry in working with schools.
4. Fear of school administrators that industry groups will become special interest pressure groups.
5. Lack of willingness by school administrators to provide staff to work with industry in developing cooperative relationships.
6. Overemphasis by school administrators at local, state and national levels on advisory committees as the sole technique for achieving industry-education cooperation.
7. Lack of understanding by school administrators of the role of the instructor in achieving industry-education cooperation.
8. Lack of coordination of industry participation in the individual schools of the school system by administrators at central office level.
9. Jealousy of perogatives on the part of supervisory staff, at both the central office and individual school levels, so that industry participation in school programs becomes diffused and relatively impotent.

10. Preference by many supervisors of occupational education programs for developing and maintaining personal relationships with individuals in industry so that they become supportive of the educator rather than involved in the program.
11. Confusion on the part of industry concerning how to effectively work with the schools.
12. Disillusionment on the part of industry after inability to establish effective relationships with educators.
13. Lack of organization on the part of industry to effectively channel their desire to work with schools.
14. Lack of knowledge and leadership on the part of industry as to what they may rightfully demand of schools.
15. Lack of guidance from state officials, national educational organizations, and the U. S. Office of Education in providing realistic guidelines and adequate staff to enlist and encourage industry participation in school matters.

## VI. SUMMARY

The review of literature on business and industry--vocational education cooperation was accomplished from a general viewpoint, but specific concern was given to the Tennessee situation. Concentration was within five primary areas: (1) need for involvement, (2) methods of involvement, (3) services provided by business and industry, (4) adequacy of involvement, and (5) facilitating and restricting factors to business and industry involvement.

Business and industry personnel and educators indicated that business and industry involvement in the vocational education process is necessary and essential. Increased emphasis on business and industry--vocational education cooperation was felt necessary by many of the authors due to the rapid technological changes in our society. Many of the authors said that the schools have not been responsive to change and that business and industry has the potential to participate extensively in innovation and change in the educational system.

There appeared to be a gulf between business and industry and public education which has not been bridged in spite of the expressed interest by both parties to develop cooperatively on-going programs. A number of authors listed a variety of services that may be provided to vocational education by business and industry. Services most prominently mentioned were program and curriculum design, program evaluation, developing cooperative programs for students, and providing occupational information to teachers and students. Other services included determining and verifying the need for training, establishing standards within programs, determining criteria for student evaluation, selecting production work, counseling students in relation to the world of work, determining qualifications for teachers, assisting in teacher training programs, providing summer employment for teachers, providing part-time consultants and instructional staff, and providing legislative, financial, public and moral support.

The bulk of the literature related to advisory committees and cooperative education programs as the primary methods of business and industry involvement. The Tennessee State Board for Vocational Education has required that local education agencies establish advisory committees to assist in planning, conducting and evaluating vocational programs. Many authors have stated that cooperative vocational education is desirable because of the necessitated close relationship the student has with the vocational program and his employer in the community. Expansion of the cooperative programs was reiterated by many of the authors. Youth organizations and teacher training programs were

also included in the literature as viable means through which business and industry services may be available to educational institutions.

It was indicated by a number of authors that the extent of business and industry involvement may be less than some would consider adequate or desirable. Some authors pointed out that there is a serious communication barrier between business and industry and vocational education and that involvement, primarily to fulfill a duty, may be meaningless.

The literature revealed a variety of facilitating and restricting factors to business and industry involvement in vocational education. Strong leadership in vocational education was emphasized and was considered by some authors to be the primary facilitating factor. Commitment by the administration in business, industry and education was another facilitating factor frequently mentioned. Fifteen factors which restrain effective business and industry involvement in occupational education programs were pointed out in the literature.

# CHAPTER III

## METHODOLOGY AND PROCEDURES

The purpose of this study was to determine the business and industry involvement that presently exists, business and industry involvement that is desired, and factors which facilitate or restrict business and industry involvement in public secondary vocational education in Tennessee as perceived by school administrators, vocational educators, and business and industry personnel.

### I. METHOD OF RESEARCH

The design of the study may be classified as a descriptive survey. It was assumed that the school administrators, vocational educators, and business and industry personnel would provide information to the researcher so that conclusions based on the data obtained from them could be applied to the entire group.

The Chi Square statistic was used to determine if the relationship was significantly different from the relationship which could be expected to occur by chance.

### II. THE POPULATION

The population consisted of a sample of public school administrators, vocational educators, and business and industry personnel in the State of Tennessee (as defined in Definition of Terms). Computer

printouts provided by the Tennessee Research Coordinating Unit were used for the purpose of identifying the population. The printouts were complemented by the use of directories of public schools and vocational personnel published by the Tennessee State Department of Education

## III. THE SAMPLE

The ninety-five counties in the State of Tennessee were divided into the three regions identified (East Tennessee, Middle Tennessee, West Tennesse) in the 1975 Directory of Personnel (68:15-164) published by the Tennessee State Board for Vocational Education. This delineation placed thirty-four counties in the East Tennessee region, forty counties in the Middle Tennessee region and twenty-one counties in the West Tennessee region (Appendix B). In addition to dividing the State into three regions, the counties were stratified into four population sizes: (a) 3,500 to 14,999, (b) 15,000 to 24,999, (c) 25,000 to 44,999, and (d) 45,000 to 725,000. The small number of counties with a population greater than 45,000 (17) caused the researcher to have a great population size differential as shown in (d) above. County populations were taken from "Estimates of the Population of Counties: July 1, 1973 and 1974," Current Population Reports (72), published by the U. S. Bureau of the Census.

From the ninety-five counties in Tennessee, a sample of twenty counties was drawn. The number of counties in each population size, in each region of the State, was used to prorate the number selected for the sample as shown in Table 1.

TABLE 1

STRATIFICATION OF COUNTIES

| Population Size | No. of Counties | | | No. of Counties in Sample | | |
|---|---|---|---|---|---|---|
| | East Tenn | Middle Tenn | West Tenn | East Tenn | Middle Tenn | West Tenn |
| 3,500 - 14,999 | 6 | 11 | 3 | 1 | 2 | 1 |
| 15,000 - 24,999 | 10 | 13 | 8 | 2 | 3 | 2 |
| 25,000 - 44,999 | 9 | 11 | 7 | 2 | 2 | 1 |
| 45,000 -725,000 | 9 | 5 | 3 | 2 | 1 | 1 |
| Subtotal | 34 | 40 | 21 | 7 | 8 | 5 |
| Total | | 95 | | | 20 | |

A procedure for selecting a sample from a small population is described by McCarthy (37:1-4) and can be expected to give each of the samples an equal chance of selection. The procedure is to write the numbers on identical chips, place the chips in a receptacle and mix them thoroughly, draw one of the "blindly," and select the sample corresponding to the chosen number. Utilizing this procedure, the researcher selected the 20 counties, seven from the East Tennessee region, eight from the Middle Tennessee region, and five from the West Tennessee region, making certain that the proper number of counties in each population size was selected.

A listing of businesses and industries, from counties selected for this study, was obtained from the Tennessee Research Coordinating Unit. From this listing, a random sample of businesses and industries was selected. Because of the criterion and the number of persons questioned in each business and industry (manager, supervisor or foreman, and skilled employee), those having fewer than four employees were excluded from the lists. Even though this procedure eliminated a large number of small businesses and industries, it was necessary in making certain a sufficient number of personnel were employed to complete the questionnaires as previously outlined in the study.

After the sample was selected, a letter was sent to each of the school superintendents in the twenty counties to obtain permission to involve that school system in the study. Included with each letter was a self-addressed, stamped envelope, and a reply form for the superintendent to indicate his willingness to cooperate in the study (See Appendix C).

Within two weeks after the letters were mailed to the superintendents, twenty reply forms had been returned with all twenty consenting to participate in the study. Telephone calls were made to the remaining five superintendents, all of whom consented to cooperate in the study. This gave a total of twenty-five school systems (100 percent of those contacted) agreeing to participate, thus making it possible for the researcher to receive information from all categories within the three grand divisions of the state. Four of the twenty counties selected for the study contained more than one school system, thereby accounting for the twenty-five school systems (three counties had two school systems and one county had three).

## IV. DATA GATHERING TECHNIQUES

In order to comply with the objectives established for this study, it was necessary to develop or locate instruments that would elicit information regarding methods, levels, adequacy, and nature of business and industry involvement. Determining facilitating and restricting factors regarding the involvement was also to be included in the instruments.

Questionnaires were located in a study conducted by Neal Maddox McBryde at Texas A and M University in 1973 entitled The Role of Industry in Public Secondary Vocational Education in Medium Sized School Systems in Texas. In his study, McBryde (36:117) developed and used two questionnaires which were adequate to gather needed information.

Burt (10) was the primary source for statements included in the questionnaires. McBryde (36:35) used faculty advisors and literature in wording and designing the instruments. Criteria for attitude statements provided by Edwards (19:13,14) are listed below and were adhered to in the original design.

1. Avoid statements that refer to the past rather than to the present.
2. Avoid statements that may be interpreted in more than one way.
3. Avoid statements that are irrelevant to the psychological object under consideration.
4. Avoid statements that are likely to be endorsed by almost everyone or no one.
5. Select statements that are believed to cover the entire range of the effective scale of interest.
6. Keep the language of the statements simple, clear and direct.
7. Statements should be short, rarely exceeding 20 words.
8. Each statement should contain only one complete thought.
9. Avoid universals such as "all," "always," "none," and "never."
10. Words such as "only," "just," "merely" . . . should be used with care and moderation. . . .
11. Whenever possible, statements should be in the form of simple sentences, rather than compound or complex sentences.
12. Avoid the use of words that may not be understood. . . .

McBryde (36:35) validated the questionnaires through the use of a panel of experts and pretested them in a school system not included in the sample, but meeting the criteria of the sample community. No suggestions were given for revision of the questionnaires, nor comments given indicating any difficulty in completing the questionnaires.

The instruments were further validated by this researcher through the use of a panel of experts and testing of the instruments in a school system not included in the sample population. No need for revising the questionnaires was suggested by either group.

The first questionnaire (Appendix D) was developed to elicit opinions concerning methods, adequacy, levels and the nature of business and industry involvement. Forty-two items relating to the nature of business and industry involvement were selected and included in the questionnaire. These items pertain to business and industry involvement in four main areas: (1) vocational programs in general, (2) public relations, (3) involvement with students and (4) involvement with teachers. Items were grouped in accordance with the above listed four main areas. Items one through eighteen pertain to vocational programs in general, nineteen through twenty-four pertain to public relations, twenty-five through thirty-two pertain to vocational students and thirty-three through forty-two pertain to vocational teachers.

Two identical opinion scales were developed for questionnaire No. 1, to elicit opinions as to the present and desired levels of business and industry involvement for each of the forty-two items. These opinion scales, and instructions for marking the scales are shown below as they appeared on the questionnaire.

> The following is a list of services that may be provided by local business and industry* to high school vocational programs. A space is provided for you to indicate your opinion as to the business and industry involvement that presently exists for each service that is listed. A space is also provided for you to indicate your opinion as to the business and industry involvement that is desirable for each of the listed services. Place an "X" in the appropriate blocks.
>
> *Business and Industry--any firm, public or private, that hires, or has the potential to hire vocational students who exit from public high schools.

| BUSINESS AND INDUSTRY INVOLVEMENT | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Present | | | | | | Desired | | | | | |
| Don't know | Uncertain | None | Some | A great deal | *Business and Industry--Any firm, public or private, that hires, or has the potential to hire vocational students who exit from public high schools. | Don't know | Uncertain | None | Some | A great deal |
| | | | | | 1 Develop curricula and establish objectives | | | | | |

The "don't know" and "uncertain" categories were included in order that an opportunity to express some opinion for each item would be available for all respondents.

The second questionnaire (Appendix E) was developed primarily to elicit opinions regarding facilitating and restricting factors to business and industry involvement in vocational education. Twenty-five statements relating to facilitating and restraining factors were selected to be utilized in this questionnaire. The opinion scale, and instructions for marking the scale are shown below as they appeared on the questionnaire.

> The following statements relate to local business and industry* involvement in public secondary vocational education. A space is provided for you to indicate your opinion as to the validity of the statements. Indicate your opinion by placing an "X" in the appropriate block following each statement.

| | *Business and Industry--Any firm, public or private, that hires, or has the potential to hire vocational students who exit from public high schools. | Don't know | Strongly Disagree | Mildly Disagree | Uncertain | Mildly Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|
| 1 | Business and industry have been able to establish effective relationships in working with local vocational education programs. | | | | | | |

The "don't know" category was included to insure that each respondent have an appropriate response opportunity in expressing his opinion as to the validity of each of the twenty-five statements.

In addition to the twenty-five statements relating to facilitating and restricting factors, the second questionnaire included two general information questions and employment data on respondents as shown below:

Have you ever participated in a formal business and industry--vocational education cooperative endeavor? __Yes __No

If the answer to the above question was yes, was the relationship fruitful? __Yes __No

Employment Data

| Educators | Industry | Associated vocational area (To be filled in by vocational instructors and skilled employees) |
|---|---|---|
| ___Superintendent | ___Manager | ___Agriculture |
| ___Principal | ___Supervisor or Foreman | ___Distributive |

___Vocational Director ___Skilled Employee ___Health

___Vocational Instructor ___Homemaking

___Industrial

___Office

Both of the questionnaires had a section for respondents to make comments, if desired. In addition, the questionnaires were numbered and a log sheet for each section in the sample was set up to maintain a record showing: to whom questionnaires were sent, when they were received, and when follow-ups were sent out.

The following were accomplished in an attempt to increase the response rate of the questionnaires:

1. Type size was reduced so that each questionnaire could be printed on only one sheet, using front and back sides.

2. Professional printing was utilized.

3. Each questionnaire had the heading "Research Project in Business and Industry--Vocational Education Cooperation." All letters were written on University of Tennessee letterhead to denote the "worthwhileness" and "official" status of the project.

## Collecting the Data

A personal letter of transmittal and copies of the two questionnaires were sent to school administrators, vocational educators, and business and industry personnel in the twenty sample counties. The school administrators included twenty-five superintendents and sixty-two high school principals. Fourteen local directors and eighty vocational

teachers (four from each county) were included in the sample. The vocational teachers were selected at random from agriculture, distributive, health, homemaking, industrial, and office programs. Care was taken to insure all the service areas listed above have representation in the sample from each of the three regions of the state.

The names and school addresses of the superintendents and principals were obtained from the 1975-76 Directory of Public Schools published by the Tennessee State Department of Education. Names and school addresses of vocational directors and vocational instructors were obtained from the Vocational-Technical Education Directory of Personnel, 1975, and computer printouts provided by the Tennessee Research Coordinating Unit.

The distribution of vocational instructors included in the sample is shown in Table 2.

The distribution of the total sample by position and region of the state is shown in Table 3.

A copy of the letter of transmittal for the questionnaires sent to school superintendents is included in Appendix F. The letter of transmittal sent to principals, vocational directors and vocational instructors is included in Appendix G.

Four business and industry concerns were randomly selected from each of the counties (excluding those with fewer than four employees), using the computer printouts obtained from the Tennessee Research Coordinating Unit. Questionnaires with letters of transmittal (Appendix H) were mailed to the manager of each of the selected business and

TABLE 2

DISTRIBUTION OF VOCATIONAL INSTRUCTORS IN THE SAMPLE

| Region | Instructional Area | | | | | |
|---|---|---|---|---|---|---|
| | Agric. | Dist. | Health | Homemaking | Indust. | Office |
| East Tenn. | 7 | 2 | 3 | 4 | 10 | 2 |
| Middle Tenn. | 9 | 3 | 1 | 8 | 8 | 3 |
| West Tenn. | 3 | 2 | 1 | 4 | 6 | 4 |
| Subtotal | 19 | 7 | 5 | 16 | 24 | 9 |

Total vocational instructors = 80

TABLE 3

DISTRIBUTION OF TOTAL SAMPLE BY POSITION AND REGION OF STATE

| Position | Region of State | | | |
|---|---|---|---|---|
| | East Tenn. | Middle Tenn. | West Tenn. | Total |
| Superintendents | 10 | 8 | 7 | 25 |
| High School Principals | 32 | 14 | 16 | 62 |
| Vocational Directors | 7 | 4 | 3 | 14 |
| Vocational Instructors | 28 | 32 | 20 | 80 |
| Business and Industry Personnel | 82 | 96 | 60 | 240 |
| Totals | 161 | 154 | 106 | 421 |

industry concerns. Included with the letter to each manager were sets of questionnaires with cover letters (Appendix I) for one supervisor or foreman and one skilled employee in the firm. The manager was asked to give the questionnaires to those two employees in his firm and ask that they fill them out and return them to the researcher. A total of two-hundred-forty sets of questionnaires were mailed to business and industry managers, including eighty each for managers, supervisors or foremen and skilled employees.

Two follow-up letters were went to nonrespondents in the sample. The first was sent three weeks after the questionnaires were first mailed. The follow-up letter to the educators is included in Appendix J and to business and industry managers in Appendix K. The second follow-up letter was sent to the educators (Appendix L) and business and industry managers (Appendix M) three weeks after the first follow-up letter (six weeks after the questionnaires were first mailed). Additional sets of questionnaires were mailed with the second follow-up. Included with each set of questionnaires in the original mail-out and the second follow-up were stamped, self-addressed envelopes for convenience in returning the questionnaires.

A summary of the questionnaire distribution, follow-ups and returns is given in Table 4.

## V. METHODS OF DATA ANALYSIS

Contingency tables and the Chi Square test for independence, described by Guilford (23:241-243), Huck (26:218-220) and others, were

TABLE 4

SUMMARY OF QUESTIONNAIRE DISTRIBUTIONS, FOLLOW-UPS AND RETURNS

| Category | Number in 1st Mailing | Received Prior to 1st Follow-up | Received Between 1st and 2nd Follow-up | Received After 2nd Follow-up | Total Received | Percentage Return |
|---|---|---|---|---|---|---|
| School Administrators | 87 | 41 | 4 | 19 | 64 | 73.56 |
| Superintendents | 25 | 14 | 2 | 5 | 21 | 84.00 |
| Principals | 62 | 27 | 2 | 14 | 43 | 69.35 |
| Vocational Educators | 94 | 51 | 6 | 20 | 77 | 81.91 |
| Vocational Directors | 14 | 11 | 1 | 1 | 13 | 92.96 |
| Vocational Instructors | 80 | 40 | 5 | 19 | 64 | 80.00 |
| Industry Personnel | 240 | 51 | 12 | 39 | 102 | 42.50 |
| Managers | 80 | 22 | 7 | 18 | 47 | 58.75 |
| Supervisors or Foremen | 80 | 17 | 3 | 12 | 32 | 40.00 |
| Skilled Employees | 80 | 12 | 2 | 9 | 23 | 28.75 |
| Totals | 421 | 143 | 22 | 78 | 243 | 57.92 |

used to test the qualitative data from the completed survey instruments.

A contingency table has been described by Shao (50:401-404) as a cross classified table showing observed frequencies of a sample. A contingency table with r rows and c columns is known as rXc contingency table. An example of a 4X4 contingency table is shown below:

| | $C_1$ | $C_2$ | $C_3$ | $C_4$ | |
|---|---|---|---|---|---|
| $R_1$ | $O_{11}$ | $O_{12}$ | $O_{13}$ | $O_{14}$ | $TR_1$ |
| $R_2$ | $O_{21}$ | $O_{22}$ | $O_{23}$ | $O_{24}$ | $TR_2$ |
| $R_3$ | $O_{31}$ | $O_{32}$ | $O_{33}$ | $O_{34}$ | $TR_3$ |
| $R_4$ | $O_{41}$ | $O_{42}$ | $O_{43}$ | $O_{44}$ | $TR_4$ |
| | $TC_1$ | $TC_2$ | $TC_3$ | $TC_4$ | N |

$O_{11}$ is the observed frequency of $R_1$ with respect to $C_1$, $O_{12}$ is the observed frequency of $R_1$ with respect to $C_2$, and so on through the remainder of the table. $O_{11}$, $O_{12}$ . . . are called cell frequencies. The total of the frequencies in each row or each column is called the marginal frequency. $TR_1$, $TR_2$, $TR_3$, and $TR_4$ are the marginal row frequencies and $TC_1$, $TC_2$, $TC_3$, and $TC_4$ are the marginal column frequencies. N is the sum of all the cell frequencies. N also equals marginal column frequencies.

When a hypothesis is tested using a contingency table, corresponding expected cell frequencies are computed according to the hypothesis based on the rules of probability. The sum of all the expected frequencies must equal the sum of all the observed frequencies. The expected frequencies are obtained by multiplying the marginal row

frequency by the marginal column frequency and dividing the product by N. $(TR_1 \times TC_1) \div N$ gives the expected frequency of $E_{11}$ associated with the observed frequency $O_{11}$.

Data gathered for the study were grouped and analyzed through the use of a special computer package entitled the Statistical Package for the Social Sciences (SPSS). The program provided a categorial frequency count and percentage for the responses to each variable in relationship to the categorical responses of every other variable. The Chi Square statistic was applied and computed for the relationship existing between any two variables. Chi Square served as a test to determine if the relationship was significantly different from the relationship which could be expected to occur by chance.

The value of Chi Square was calculated using the following formula:

$$X^2 = \Sigma \frac{(O - E)}{E}$$

The hypothesis of independence is rejected at the level of significance ($\alpha$) specified, if and only if

$$X^2 > X^2_{d.f.,\alpha}$$

where d.f. is the degrees of freedom associated with the contingency table. Degrees of freedom is computed as follows: d.f. = (r-1) (c-1), or in the case of a 3x4 table, d.f. = (3-1) (4-1) = 6.

Tests of Independence

According to Huck (26:219), "The independent samples of Chi-Square is frequently referred to as being based on a contingency table."

The independence test will tell whether or not the two bases of classification used respectively in rows and columns in a contingency table are independent, or not related. The two bases of classification in this study were position (school administrator, vocational educator, or business and industry personnel) and opinions of these different groups on various aspects of business and industry involvement in public secondary vocational education. The basic null hypothesis tested for in this study was: there is no relationship between opinions (of school administrators, vocational educators, and business and industry personnel) and position. If the hypothesis is accepted, then the two bases, opinions and position, are independent, or not related. According to the test performed and the level of significance specified, acceptance of the hypothesis means that there is no difference (or a general consensus) in the opinions of school administrators, vocational educators, and business and industry personnel. Rejection of the hypothesis at the specified significance level indicates no consensus between school administrators, vocational educators, and business and industry personnel.

Chi Square values and response percentages were calculated for each of the forty-two items in Questionnaire No. 1 (Appendix D) and each of the twenty-five items in Questionnaire No. 2 (Appendix E). The test for independence utilizing the calculated Chi Square values was applied to each item. The results in conjunction with the calculated response percentages were used to determine: (1) levels and adequacy of business and industry involvement as they pertain to forty-two possible services selected for the study, (2) methods of business and industry

involvement, and (3) facilitating and restraining factors to business and industry involvement.

The author acknowledges the use of the University of Tennessee Computing Center, Knoxville, Tennessee, in obtaining the results shown in this study.

# CHAPTER IV

## PRESENTATION OF THE DATA

Hypotheses were tested on the following aspects of business and industry involvement in public secondary vocational education in Tennessee: (1) present involvement, (2) desired involvement, (3) methods of involvement, (4) adequacy of involvement, and (5) facilitating and restricting factors to involvement.

All hypotheses were tested using contingency tables and the Chi Square test for independence as described in Chapter III. The two bases, in relation to contingency table columns and rows, used in the tests (with the exception of the adequacy test) were position (school administrator, vocational educator, or business and industry personnel) and opinions of these persons. The adequacy test was not required as there was no general consensus on any statement for both present and desired involvement.

Each item, except for the adequacy of involvement items, was tested using three different position bases: (1) school administrators vs. vocational educators vs. business and industry personnel (SA-VE-BI), (2) school administrators vs. vocational educators (SA-VE), and (3) business and industry personnel vs. vocational educators (BI-VE). The opinion bases used for tests involving present and desired involvement, and methods and adequacy of business and industry involvement were: (1) don't know (DK), (2) uncertain (UN), (3) none (NO), (4) some (SO), and (5) a great deal (GD). Opinion bases for the facilitating and

restricting factors included: (1) don't know, (2) disagree (strongly + mildly), (3) uncertain, and (4) agree (mildly + strongly). Further explanation is given in the section on facilitating and restricting factors.

## I. OBSERVED FREQUENCIES AND PERCENTAGES

The observed frequencies and observed frequency percentages are included in the Appendices as follows:

1. Present involvement (observed response frequencies) - Appendix N.

2. Present involvement (observed response percentages) - Appendix O.

3. Desired involvement (observed response frequencies) - Appendix P.

4. Desired involvement (observed response percentages) - Appendix Q.

5. Facilitating and restricting factors (observed response frequencies) - Appendix R.

6. Facilitating and restricting factors (observed response percentages) - Appendix S.

The data in Appendices N, P, and R (observed response frequencies) were used to calculate the total percentages and Chi Square values shown on pages 58 through 65 and 77, respectively. Total percentages are the averages for all respondents (school administrators, vocational educators, and business and industry personnel). Item numbers in the tables correspond with the item numbers in the questionnaires.

## II. LEVELS OF INVOLVEMENT

Tables 5 and 6 give the Chi Square values, levels of significance, and total percentages for present and desired involvement. The .01 level of significance for (SA-VE-BI) was selected as sufficient to indicate consensus by school administrators, vocational educations, and business and industry personnel as to present and desired involvement. Data in Tables 5 and 6 were used to establish the following categories: (1) present (none) - desired (some), (2) present (some) - desired (some), (3) present (some) - desired (a great deal), (4) present (none) - desired (none), (5) no general consensus as to present or desired involvement, (6) general consensus as to present involvement only, and (7) general consensus as to desired involvement only.

There were several items where there was not a general consensus as to present and/or desired involvement, but where there was a consensus between school administrators and vocational educators (SA-VE) and/or between business and industry personnel and vocational educators (BI-VE).

The levels of significance ($\alpha$'s) are identified as follows:

| Position Base | Level of Significance | |
|---|---|---|
| | Present | Desired |
| School administrators vs. vocational educators vs. business and industry personnel. (SA-VE-BI) | $\alpha_p$ | $\alpha_d$ |
| School administrators vs. vocational educators. (SA-VE) | $\alpha_{svp}$ | $\alpha_{svd}$ |
| Business and industry personnel vs. vocational educators. (BI-VE) | $\alpha_{bvp}$ | $\alpha_{bvd}$ |

TABLE 5

PRESENT INVOLVEMENT, TOTAL PERCENTAGES AND STATISTICAL VALUES

| Item No. | Response Percentages N=243 | | | Chi Square Statistic | | | Level of Significance | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | SA-VE-BI | SA-VE | BI-VE | SA-VE-BI ($\alpha_p$) | SA-VE ($\alpha_{svp}$) | BI-VE ($\alpha_{bvp}$) |
| 1 | 32.4 | 40.7 | 6.2 | 30.309 | 13.317 | 5.903 | .0002 | .0098 | .2065 |
| 2 | 31.5 | 44.8 | 6.2 | 29.096 | 1.785 | 18.161 | .0003 | .7753 | .0011 |
| 3 | 23.7 | 44.4 | 11.6 | 24.454 | 3.294 | 11.654 | .0019 | .5098 | .0201 |
| 4 | 48.3 | 24.8 | 3.8 | 23.778 | 7.612 | 7.999 | .0025 | .1069 | .0916 |
| 5 | 61.2 | 12.2 | 1.3 | 13.628 | 4.142 | 5.685 | .0920 | .3871 | .2239 |
| 6 | 49.6 | 26.4 | 2.9 | 32.109 | 5.914 | 12.665 | .0001 | .2056 | .0130 |
| 7 | 43.8 | 30.2 | 3.7 | 35.303 | 6.211 | 17.733 | .0000 | .1839 | .0014 |
| 8 | 51.7 | 24.0 | 3.7 | 22.297 | 6.437 | 9.696 | .0044 | .1688 | .0459 |
| 9 | 42.4 | 30.7 | 4.6 | 33.128 | 4.237 | 14.037 | .0001 | .3749 | .0072 |
| 10 | 41.4 | 33.1 | 3.3 | 27.947 | 10.115 | 6.293 | .0005 | .0385 | .1783 |
| 11 | 43.8 | 30.6 | 3.7 | 28.006 | 6.663 | 13.856 | .0005 | .1548 | .0078 |
| 12 | 47.1 | 27.3 | 2.5 | 29.481 | 3.892 | 16.315 | .0003 | .4208 | .0026 |

TABLE 5 (Cont'd)

| Item No. | Response Percentages N=243 | | | Chi Square Statistic | | | Level of Significance | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | SA-VE-BI | SA-VE | BI-VE | SA-VE-BI ($\alpha_p$) | SA-VE ($\alpha_{svp}$) | BI-VE ($\alpha_{bvp}$) |
| 13 | 46.6 | 26.9 | 3.4 | 26.605 | 4.351 | 13.135 | .0008 | .3606 | .0106 |
| 14 | 20.4 | 44.2 | 19.6 | 53.393 | 5.376 | 38.042 | .0000 | .2508 | .0000 |
| 15 | 36.4 | 38.8 | 5.4 | 25.239 | 3.174 | 13.524 | .0014 | .5292 | .0090 |
| 16 | 24.1 | 44.4 | 17.0 | 34.128 | 5.420 | 17.398 | .0000 | .2468 | .0016 |
| 17 | 47.9 | 27.7 | 5.0 | 41.597 | 3.890 | 26.436 | .0000 | .4211 | .0000 |
| 18 | 24.1 | 39.2 | 8.0 | 15.472 | 4.010 | 11.272 | .0506 | .4047 | .0237 |
| 19 | 33.3 | 41.8 | 3.8 | 26.480 | 7.436 | 17.016 | .0009 | .1146 | .0019 |
| 20 | 48.9 | 19.4 | 3.0 | 26.472 | 3.589 | 12.022 | .0009 | .4645 | .0172 |
| 21 | 43.9 | 27.4 | 4.2 | 35.851 | 2.568 | 20.547 | .0000 | .6326 | .0004 |
| 22 | 49.2 | 18.2 | 2.1 | 22.879 | 4.538 | 10.213 | .0035 | .3381 | .0370 |
| 23 | 31.1 | 45.5 | 5.1 | 48.564 | 7.753 | 19.793 | .0000 | .1010 | .0005 |
| 24 | 39.4 | 35.2 | 5.1 | 26.934 | 1.663 | 16.107 | .0007 | .7975 | .0029 |
| 25 | 23.0 | 51.5 | 8.4 | 44.836 | 2.507 | 24.960 | .0000 | .4741 | .0001 |

TABLE 5 (Cont'd)

| Item No. | Response Percentages N=243 | | | Chi Square Statistic | | | Level of Significance | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | SA-VE-BI | SA-VE | BI-VE | SA-VE-BI ($\alpha_p$) | SA-VE ($\alpha_{svp}$) | BI-VE ($\alpha_{bvp}$) |
| 26 | 30.5 | 42.7 | 4.2 | 24.861 | 8.717 | 7.356 | .0016 | .0686 | .1182 |
| 27 | 40.5 | 34.2 | 3.8 | 52.044 | 6.048 | 36.038 | .0000 | .1956 | .0000 |
| 28 | 47.9 | 24.4 | 2.1 | 31.383 | 2.424 | 16.000 | .0001 | .6582 | .0030 |
| 29 | 34.7 | 41.0 | 8.8 | 41.795 | 3.837 | 23.746 | .0001 | .2796 | .0001 |
| 30 | 52.5 | 24.4 | 4.2 | 40.874 | 2.902 | 21.143 | .0000 | .5743 | .0003 |
| 31 | 34.6 | 37.6 | 8.4 | 24.905 | 4.401 | 16.415 | .0016 | .3545 | .0025 |
| 32 | 52.7 | 17.0 | 2.5 | 44.027 | 4.144 | 22.852 | .0000 | .3869 | .0001 |
| 33 | 58.4 | 12.4 | 1.7 | 35.250 | 10.232 | 15.995 | .0000 | .0367 | .0030 |
| 34 | 57.3 | 12.1 | 2.5 | 43.493 | 4.951 | 24.835 | .0000 | .2923 | .0001 |
| 35 | 56.7 | 16.0 | 1.7 | 55.037 | 2.846 | 35.911 | .0000 | .5839 | .0000 |
| 36 | 70.1 | 4.6 | 0.8 | 45.579 | 2.238 | 28.508 | .0000 | .6921 | .0000 |
| 37 | 67.8 | 6.7 | 2.1 | 50.667 | 2.359 | 30.607 | .0000 | .6701 | .0000 |
| 38 | 72.4 | 2.1 | 0.8 | 46.843 | 3.877 | 26.193 | .0000 | .4230 | .0000 |

TABLE 5 (Cont'd)

| Item No. | Response Percentages N=243 | | | Chi Square Statistic | | | Level of Significance | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | SA-VE-BI | SA-VE | BI-VE | SA-VE-BI ($\alpha_p$) | SA-VE ($\alpha_{svp}$) | BI-VE ($\alpha_{bvp}$) |
| 39 | 64.1 | 11.8 | 1.7 | 48.293 | 0.682 | 34.434 | .0000 | .9535 | .0000 |
| 40 | 67.9 | 6.3 | 2.1 | 54.401 | 3.045 | 33.883 | .0000 | .5504 | .0000 |
| 41 | 67.5 | 7.5 | 0.8 | 52.655 | 2.957 | 36.911 | .0000 | .5651 | .0000 |
| 42 | 37.7 | 34.7 | 3.3 | 35.544 | 2.935 | 20.105 | .0000 | .5688 | .0005 |

SA - School Administrators

VE - Vocational Educators

BI - Business and Industry Personnel

TABLE 6

DESIRED INVOLVEMENT, TOTAL PERCENTAGES AND STATISTICAL VALUES

| Item No. | Response Percentages N=243 | | | Chi Square Statistic | | | Level of Significance | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | SA-VE-BI | SA-VE | BI-VE | SA-VE-BI ($\alpha_d$) | SA-VE ($\alpha_{svd}$) | BI-VE ($\alpha_{bvd}$) |
| 1 | 2.5 | 53.0 | 31.4 | 20.620 | 8.568 | 5.600 | .0082 | .0728 | .2311 |
| 2 | 2.6 | 52.8 | 31.3 | 20.039 | 8.759 | 4.879 | .0102 | .0674 | .3000 |
| 3 | 2.5 | 38.7 | 47.5 | 18.459 | 5.202 | 5.235 | .0180 | .2672 | .2640 |
| 4 | 16.0 | 41.6 | 29.4 | 18.265 | 6.245 | 4.958 | .0193 | .1816 | .2916 |
| 5 | 24.4 | 40.8 | 20.6 | 29.383 | 2.247 | 16.703 | .0003 | .6905 | .0022 |
| 6 | 25.2 | 44.1 | 13.4 | 10.111 | 1.265 | 4.888 | .2573 | .8673 | .2990 |
| 7 | 18.0 | 50.2 | 16.7 | 11.397 | 3.659 | 6.167 | .1802 | .4542 | .1870 |
| 8 | 22.6 | 46.8 | 14.0 | 22.155 | 3.595 | 9.030 | .0046 | .3086 | .0604 |
| 9 | 12.0 | 54.1 | 23.2 | 22.844 | 4.918 | 8.458 | .0036 | .2958 | .0762 |
| 10 | 8.8 | 54.4 | 26.4 | 26.017 | 2.156 | 12.074 | .0010 | .5406 | .0168 |
| 11 | 8.0 | 58.2 | 23.6 | 27.177 | 6.700 | 11.784 | .0007 | .0821 | .0190 |
| 12 | 13.1 | 60.3 | 16.9 | 29.920 | 8.037 | 13.525 | .0002 | .0453 | .0090 |

TABLE 6 (Cont'd)

| Item No. | Response Percentages N=243 | | | Chi Square Statistic | | | Level of Significance | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | SA-VE-BI | SA-VE | BI-VE | SA-VE-BI ($\alpha_d$) | SA-VE ($\alpha_{svd}$) | BI-VE ($\alpha_{bvd}$) |
| 13 | 9.6 | 59.0 | 20.9 | 28.675 | 9.438 | 8.104 | .0004 | .0240 | .0878 |
| 14 | 4.6 | 35.3 | 51.7 | 44.361 | 2.120 | 25.618 | .0000 | .5478 | .0000 |
| 15 | 7.6 | 51.3 | 31.1 | 30.834 | 1.473 | 18.511 | .0002 | .8314 | .0010 |
| 16 | 4.7 | 32.8 | 51.9 | 63.604 | 3.784 | 39.672 | .0000 | .2858 | .0000 |
| 17 | 17.7 | 56.1 | 15.2 | 19.237 | 1.294 | 9.557 | .0136 | .8625 | .0486 |
| 18 | 4.2 | 38.6 | 49.6 | 45.932 | 2.831 | 28.923 | .0000 | .2427 | .0000 |
| 19 | 6.7 | 42.4 | 42.4 | 44.544 | 8.359 | 24.732 | .0000 | .0793 | .0001 |
| 20 | 17.8 | 48.3 | 21.6 | 44.614 | 3.406 | 32.394 | .0000 | .4923 | .0000 |
| 21 | 13.9 | 47.1 | 29.8 | 38.138 | 1.854 | 22.862 | .0000 | .6032 | .0001 |
| 22 | 14.4 | 48.3 | 26.7 | 48.415 | 1.463 | 31.846 | .0000 | .6908 | .0000 |
| 23 | 5.5 | 47.5 | 41.1 | 41.454 | 1.595 | 29.043 | .0000 | .4506 | .0000 |
| 24 | 9.2 | 47.9 | 34.5 | 44.184 | 5.050 | 31.359 | .0000 | .1682 | .0000 |
| 25 | 1.3 | 36.7 | 57.4 | 34.434 | 2.699 | 20.260 | .0000 | .2594 | .0004 |

TABLE 6 (Cont'd)

| Item No. | Response Percentages N=243 | | | Chi Square Statistic | | | Level of Significance | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | SA-VE-BI | SA-VE | BI-VE | SA-VE-BI ($\alpha_d$) | SA-VE ($\alpha_{svd}$) | BI-VE ($\alpha_{bvd}$) |
| 26 | 4.2 | 37.1 | 49.4 | 23.381 | 4.421 | 10.807 | .0029 | .2195 | .0288 |
| 27 | 12.7 | 44.3 | 33.3 | 49.380 | 5.185 | 35.341 | .0000 | .1588 | .0000 |
| 28 | 19.4 | 43.9 | 25.7 | 48.850 | 5.265 | 32.842 | .0000 | .1534 | .0000 |
| 29 | 9.4 | 42.3 | 40.2 | 35.884 | 1.783 | 24.097 | .0000 | .6186 | .0001 |
| 30 | 18.1 | 48.5 | 20.7 | 40.149 | 7.029 | 19.811 | .0000 | .0710 | .0005 |
| 31 | 9.8 | 57.0 | 26.8 | 31.366 | 7.985 | 21.127 | .0001 | .0463 | .0003 |
| 32 | 22.6 | 47.2 | 14.0 | 31.946 | 11.072 | 12.370 | .0001 | .0113 | .0148 |
| 33 | 21.4 | 50.8 | 12.6 | 34.704 | 3.634 | 19.065 | .0000 | .3038 | .0008 |
| 34 | 23.0 | 44.4 | 18.8 | 26.831 | 1.641 | 15.514 | .0008 | .6502 | .0037 |
| 35 | 20.4 | 44.7 | 23.0 | 30.903 | 2.971 | 17.791 | .0001 | .5627 | .0014 |
| 36 | 34.7 | 33.5 | 10.5 | 27.913 | 11.088 | 17.880 | .0005 | .0256 | .0013 |
| 37 | 34.2 | 34.6 | 15.2 | 43.458 | 5.310 | 29.868 | .0000 | .1504 | .0000 |
| 38 | 47.1 | 22.3 | 8.0 | 31.201 | 2.528 | 19.884 | .0001 | .6396 | .0005 |

TABLE 6 (Cont'd)

| Item No. | Response Percentages N=243 | | | Chi Square Statistic | | | Level of Significance | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | SA-VE-BI | SA-VE | BI-VE | SA-VE-BI ($\alpha_d$) | SA-VE ($\alpha_{svd}$) | BI-VE ($\alpha_{bvd}$) |
| 39 | 25.6 | 39.3 | 18.4 | 39.585 | 1.108 | 25.602 | .0000 | .7751 | .0000 |
| 40 | 33.2 | 37.0 | 13.9 | 19.597 | 2.556 | 9.809 | .0120 | .6346 | .0438 |
| 41 | 34.6 | 41.5 | 9.4 | 19.550 | 2.937 | 8.386 | .0122 | .5685 | .0784 |
| 42 | 13.5 | 47.7 | 27.0 | 51.391 | 2.469 | 29.875 | .0000 | .4810 | .0000 |

SA - School Administrators

VE - Vocational Educators

BI - Business and Industrial Personnel

The hypothesis of independence was accepted for an item only if the computed Chi Square statistic failed to reach significance at the .01 level. Acceptance of the hypothesis indicates a consensus of opinion and rejection of the hypothesis indicates no consensus of opinion.

Items* where a consensus was reached (level of involvement given in parentheses at end of statement) for present involvement only are as follows:

1-5. Do follow-up studies of vocational program dropouts (none).

$\alpha_p$ - .0920 $\alpha_d$ = .0003

1-18. Provide legislative support for vocational education (some).

$\alpha_p$ = .0506 $\alpha_d$ = .0000

Items where a consensus was reached (level of involvement given in parentheses at end of statement) for desired involvement only are as follows:

1-2. Evaluate programs (some).

$\alpha_p$ = .0003 $\alpha_d$ = .0102

1-3. Determine and verify need for training (a great deal).

$\alpha_p$ = .0019 $\alpha_d$ = .0180

1-4. Do follow-up studies of vocational graduates (some).

$\alpha_p$ = .0025 $\alpha_d$ = .0193

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*Note: Items are identified by questionnaire number and questionnaire item number. For example, 1-5 indicates item 5 in questionnaire number 1 and 2-1 indicates item 1 in questionnaire number 2.

1-6. Formulate policy (some).

$\alpha_p = .0001$ $\alpha_d = .2573$

1-7. Provide administrative aid (some).

$\alpha_p = .0000$ $\alpha_d = .1802$

1-17. Provide facilities for meetings (some).

$\alpha_p = .0000$ $\alpha_d = .0136$

1-40. Provide substitute teachers (some).

$\alpha_p = .0000$ $\alpha_d = .0120$

1-41. Provide part time teachers (some).

$\alpha_p = .0000$ $\alpha_d = .0122$

Items where there was no consensus for present and/or desired involvement are as follows:

1-1. Develop curricula and establish objectives.

$\alpha_p = .0002$ $\alpha_d = .0082$

1-8. Determine teaching methodology.

$\alpha_p = .0044$ $\alpha_d = .0046$

1-9. Determine criteria for evaluating student performance.

$\alpha_p = .0001$ $\alpha_d = .0036$

1-10. Select production work to be used as instructional vehicles for accomplishing course objectives.

$\alpha_p = .0005$ $\alpha_d = .0010$

1-11. Establish standards for selecting equipment for vocational programs.

$\alpha_p = .0005$ $\alpha_d = .0007$

1-12. Establish standards for selecting instructional materials.

$\alpha_p$ = .0003 $\alpha_d$ = .0002

1-13. Establish standards for shop and lab planning.

$\alpha_p$ = .0008 $\alpha_d$ = .0004

1-14. Provide members for advisory committees.

$\alpha_p$ = .0000 $\alpha_d$ = .0000

1-15. Provide part time consultants.

$\alpha_p$ = .0014 $\alpha_d$ = .0002

1-16. Provide work stations for cooperative education students.

$\alpha_p$ = .0000 $\alpha_d$ = .0000

1-19. Interpret vocational programs to the community.

$\alpha_p$ = .0009 $\alpha_d$ = .0000

1-20. Provide funds to advertise school occupational education and training programs.

$\alpha_p$ = .0009 $\alpha_d$ = .0000

1-21. Provide news stories concerning school vocational programs to local news media.

$\alpha_p$ = .0000 $\alpha_d$ = .0000

1-22. Provide news stories concerning school vocational programs to business and industry trade journals and magazines.

$\alpha_p$ = .0035 $\alpha_d$ = .0000

1-23. Provide speakers to discuss vocational education at school assemblies.

$\alpha_p$ = .0000 $\alpha_d$ = .0000

1-24. Provide speakers to address civic and business and industrial groups concerning vocational education programs.

$\alpha_p = .0007$ $\alpha_d = .0000$

1-25. Furnish information on specific occupations to vocational students.

$\alpha_p = .0000$ $\alpha_d = .0000$

1-26. Counsel and guide students in relation to the world of work.

$\alpha_p = .0016$ $\alpha_d = .0029$

1-27. Provide prizes to outstanding vocational students.

$\alpha_p = .0000$ $\alpha_d = .0000$

1-28. Provide financial assistance to needy vocational students.

$\alpha_p = .0001$ $\alpha_d = .0000$

1-29. Participate in student award and recognition programs.

$\alpha_p = .0000$ $\alpha_d = .0000$

1-30. Provide advisors for student club programs.

$\alpha_p = .0000$ $\alpha_d = .0000$

1-31. Coordinate student field trips.

$\alpha_p = .0016$ $\alpha_d = .0001$

1-32. Tutor vocational students.

$\alpha_p = .0000$ $\alpha_d = .0001$

1-33. Determine qualifications needed for teachers.

$\alpha_p = .0000$ $\alpha_d = .0000$

1-34. Develop teacher training programs.

$\alpha_p = .0000$ $\alpha_d = .0008$

1-35. Conduct training programs for teachers.

$\alpha_p = .0000$ $\alpha_d = .0001$

1-36. Subsidize teachers' salaries when necessary to obtain qualified instructors.

$\alpha_p = .0000$ $\alpha_d = .0005$

1-37. Provide funds to assist local teachers to attend regional and national meetings of business and industry and teacher organizations.

$\alpha_p = .0000$ $\alpha_d = .0000$

1-38. Pay business and industry organization membership dues for teachers.

$\alpha_p = .0000$ $\alpha_d = .0001$

1-39. Provide awards and prizes to outstanding teachers.

$\alpha_p = .0000$ $\alpha_d = .0000$

1-42. Provide summer employment for teachers

$\alpha_p = .0000$ $\alpha_d = .0000$

None of the forty-two items in the first questionnaire had a general consensus, at any level, for both present and desired involvement.

The total percentages as given in Tables 5, and 6 (pages 58 and 62) and data shown on page 77 were calculated using the total N (243) which includes the no responses and no opinion responses. The percentage of no responses and no opinion responses was higher from the business and industry personnel (an average of 39 percent for present involvement and 25 percent for desired involvement). School administrators had

the low percentage of no responses and no opinion responses (an average of 6 percent for present and 3 percent for desired involvement). No responses and no opinion responses from vocational educators averaged 11 percent for present and 6.5 percent for desired involvement.

## III. METHODS OF INVOLVEMENT

The methods of involvement as discussed in Chapter II included: (1) advisory committees, (2) part time consultants, (3) cooperative education programs, (4) student organizations, and (5) teacher training programs. Items 1-14, 1-15, 1-16, 1-30, 1-34 and 1-35 apply to the methods of involvement listed above. In addition, items 2-22 and 2-24 apply to advisory committees and individual consultants. A summary of business and industry involvement in these methods is listed below:

1-14. Provide members for advisory committees.

(No consensus for either present or desired involvement). $\alpha_p = .0000$ $\alpha_d = .0000$

1-15. Provide part time consultants.

(No consensus for either present or desired involvement). $\alpha_p = .0014$ $\alpha_d = .0002$

1-16. Provide work stations for cooperative education students.

(No consensus for either present or desired involvement). $\alpha_p = .0000$ $\alpha_d = .0002$

1-30. Provide advisors for student club programs.

(No consensus for either present or desired involvement). $\alpha_p = .0000$ $\alpha_d = .0000$

1-34. Develop teacher training programs.
(No consensus for either present or desired involvement). $\alpha_p = .0000$ $\alpha_d = .0008$

1-35. Conduct training programs for teachers.
(No consensus for either present or desired involvement). $\alpha_p = .0000$ $\alpha_d = .0001$

2-22. The advisory committee is overemphasized as the sole technique in achieving business and industry--vocational educatdon cooperation. (No consensus). 39.2 percent Agree, 19.2 percent Uncertain, 24.2 percent Disagree.

2-24. Individual specialists from business and industry should be available for part time consultation to local vocational education programs.
(General agreement with the statement). 78.6 percent Agree, 11.5 percent Uncertain, 4.5 percent Disagree.

Even though there was a higher percentage of involvement in the traditional methods (advisory committees and cooperative education), there was little agreement as to the amount of involvement. Thirty-one percent of the school administrators expressed an opinion of "a great deal" of present involvement to 23 percent by vocational educators and 9 percent by business and industry personnel. Corresponding "none" opinions were 17, 8, and 32 percent, respectively. Opinions concerning present involvement in cooperative education in the "a great deal"

category were 27 percent for school administrators, 21 percent for vocational educators, and 8 percent for business and industry personnel. Corresponding "none" opinions were 16, 20, and 33 percent, respectively. This pointed out the lack of involvement by all groups, even in the traditional methods of involvement.

Questionnaire Number 2 included two general questions which are closely related to methods of involvement, especially advisory committees and cooperative education, since these are the most common means of formal business and industry--vocational education cooperation. The summary of the responses to these questions is given in Table 7. Sixty-two percent of the vocational educators had not been involved in a formal business and industry--vocational education endeavor, while 36 percent had been involved. This compared to 41 percent of school administrators who had not and 58 percent who had been involved.

Table 7 also shows that school superintendents are more likely to be formally involved than school principals, and vocational directors are involved more than vocational instructors. Distributive, health, agriculture and office instructors had participated the most while the homemaking and industrial instructors had participated the least.

Twenty-four percent of the business and industry personnel had participated in a cooperative endeavor while 64 percent had not. Business and industry managers had participated the most (30 percent), supervisor or foreman (25 percent), and skilled employees participated the least (9 percent).

TABLE 7

SUMMARY OF RESPONSES TO GENERAL INFORMATION QUESTIONS

| Position | 1st Question Responses* | | | 2nd Question Responses** | | |
|---|---|---|---|---|---|---|
| | Yes(%) | No(%) | NR(%) | Yes(%) | No(%) | NR(%) |
| Superintendent | 16(76.2) | 5(23.8) | 0 | 15(93.8) | 1(6.2) | 0 |
| Principal | 21(48.8) | 21(48.8) | 1(2.4) | 18(85.7) | 3(14.3) | 0 |
| Total - SA | 37(57.8) | 26(40.6) | 1(1.6) | 33(89.2) | 4(10.8) | 0 |
| Vocational Director | 11(84.6) | 1(7.7) | 1(7.7) | 11(100.0) | 0 | 0 |
| Instructor | 17(26.6) | 47(73.4) | 0 | 15(88.2) | 0 | 2(11.8) |
| Agriculture | 5(38.5) | 8(61.5) | 0 | 5(100.0) | 0 | 0 |
| Distributive | 2(50.0) | 2(50.0) | 0 | 2(100.0) | 0 | 0 |
| Health | 2(40.0) | 3(60.0) | 0 | 2(100.0) | 0 | 0 |
| Homemaking | 2(14.3) | 12(85.7) | 0 | 1(50.0) | 0 | 1(50.0) |
| Industrial | 4(18.2) | 18(81.8) | 0 | 3(75.0) | 0 | 1(25.0) |
| Office | 2(33.3) | 4(66.7) | 0 | 2(100.0) | 0 | 0 |
| Total - VE | 28(36.4) | 48(62.3) | 1(1.3) | 26(92.9) | 0 | 2(7.1) |
| Business and Industry | 24(23.5) | 65(63.7) | 13(12.8) | 16(66.7) | 2(8.3) | 6(25.0) |

TABLE 7 (Cont'd)

| Position | 1st Question Responses* | | | 2nd Question Responses** | | |
|---|---|---|---|---|---|---|
| | Yes(%) | No(%) | NR(%) | Yes(%) | No(%) | NR(%) |
| Manager | 14(29.8) | 29(61.7) | 4(8.5) | 9(64.3) | 1(7.1) | 4(28.6) |
| Supervisor or Foreman | 8(25.0) | 21(65.6) | 3(9.4) | 6(75.0) | 1(12.5) | 1(12.5) |
| Skilled Employee | 2(8.7) | 15(65.2) | 6(26.1) | 1(50.0) | 0 | 1(50.0) |
| Total - BI | 24(23.5) | 65(63.7) | 13(12.8) | 16(66.7) | 2(8.3) | 6(25.0) |

*Have you ever participated in a formal business and industry-vocational education cooperative endeavor?

**If the answer to the above question was yes, was the relationship fruitful?

SA - School Administrator

VE - Vocational Educator

BI - Business and Industry Personnel

NR - No Response

Most of the respondents were satisfied with their cooperative participation. None of the vocational educators, 8 percent of the business and industry personnel, and 10 percent of the school administrators were not satisfied with the cooperative endeavor in which they had participated.

## IV. ADEQUACY OF INVOLVEMENT

None of the items had a general concensus for both present and desired involvement, thus making it impossible to have a significant measurement of adequacy. A lack of consensus eliminated the possibility of finding the starting or ending reference point for determining the precise adequacy of involvement.

## V. FACILITATING AND RESTRICTING FACTORS

Appendix R (observed response frequencies) and Appendix S (observed response percentages) contain data pertaining to facilitating and restricting factors. These data were used to calculate the total percentages and statistical values given in Table 8. The data in Table 8 were used to identify facilitating and restricting factors. A significance level ($\alpha_g$) of .01 or greater for (SA-VE-BI) was selected to indicate general agreement, or disagreement, among school administrators, vocational educators, and business and industry personnel. The wording of each statement and the percentage agreement, or disagreement, determined whether the statement represented a facilitating or restricting factor, or was neutral.

TABLE 8

FACILITATING AND RESTRICTING FACTORS, TOTAL PERCENTAGES AND STATISTICAL VALUES

| Item No. | Response Percentages N=243 Disagree ($\%_d$) | Uncertain ($\%_u$) | Agree ($\%_a$) | Chi Square Statistic SA-VE-BI | SA-VE | BI-VE | Level of Significance SA-VE-BI ($\alpha_g$) | SA-VE ($\alpha_{sv}$) | BI-VE ($\alpha_{bv}$) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.9 | 12.8 | 65.8 | 11.526 | 2.129 | 3.921 | .0734 | .5461 | .2701 |
| 2 | 4.1 | 12.8 | 77.4 | 33.250 | 3.450 | 15.299 | .0000 | .3273 | .0016 |
| 3 | 24.8 | 21.1 | 45.9 | 12.512 | 6.282 | 6.763 | .0515 | .0987 | .0798 |
| 4 | 15.6 | 14.8 | 60.9 | 20.341 | 1.424 | 10.539 | .0024 | .7000 | .0145 |
| 5 | 14.4 | 18.5 | 54.7 | 13.476 | 7.045 | 4.707 | .0361 | .0705 | .1945 |
| 6 | 46.3 | 21.3 | 20.0 | 24.298 | 2.672 | 10.824 | .0005 | .4450 | .0127 |
| 7 | 7.4 | 12.8 | 74.1 | 25.157 | 1.034 | 17.858 | .0003 | .7929 | .0005 |
| 8 | 21.5 | 19.8 | 47.5 | 20.257 | 3.915 | 7.087 | .0025 | .2708 | .0692 |
| 9 | 33.6 | 21.6 | 31.1 | 28.834 | 1.823 | 13.128 | .0006 | .6099 | .0044 |
| 10 | 4.9 | 16.5 | 63.8 | 37.991 | 3.705 | 25.634 | .0000 | .2952 | .0000 |
| 11 | 1.6 | 5.3 | 87.2 | 18.869 | 3.440 | 8.668 | .0044 | .3287 | .0340 |
| 12 | 29.6 | 27.2 | 31.3 | 21.163 | 9.603 | 3.831 | .0017 | .0223 | .2803 |

TABLE 8 (Cont'd)

| Item No. | Response Percentages N=243 Disagree ($\%_d$) | Uncertain ($\%_u$) | Agree ($\%_a$) | Chi Square Statistic SA-VE-BI | SA-VE | BI-VE | Level of Significance SA-VE-BI ($\alpha_g$) | SA-VE ($\alpha_{sv}$) | BI-VE ($\alpha_{bv}$) |
|---|---|---|---|---|---|---|---|---|---|
| 13 | 43.6 | 18.1 | 28.0 | 13.516 | 1.003 | 6.382 | .0355 | .8004 | .0944 |
| 14 | 21.8 | 20.2 | 44.4 | 24.081 | 10.153 | 5.880 | .0005 | .0173 | .1176 |
| 15 | 26.7 | 15.2 | 44.9 | 22.013 | 14.687 | 1.539 | .0012 | .0021 | .6733 |
| 16 | 38.7 | 21.8 | 25.5 | 16.216 | 5.071 | 5.114 | .0126 | .1667 | .1637 |
| 17 | 28.0 | 21.4 | 36.6 | 45.469 | 8.404 | 17.460 | .0000 | .0384 | .0006 |
| 18 | 21.8 | 16.9 | 46.1 | 30.419 | 3.091 | 13.771 | .0000 | .3779 | .0032 |
| 19 | 26.4 | 19.0 | 42.6 | 17.528 | 5.512 | 4.655 | .0075 | .1379 | .1988 |
| 20 | 18.8 | 20.1 | 49.4 | 29.750 | 6.939 | 18.408 | .0000 | .0739 | .0004 |
| 21 | 55.2 | 12.9 | 26.1 | 32.508 | 1.089 | 23.554 | .0000 | .7798 | .0000 |
| 22 | 24.2 | 19.2 | 39.2 | 59.694 | 0.779 | 36.916 | .0000 | .8545 | .0000 |
| 23 | 9.1 | 27.8 | 54.4 | 29.025 | 4.212 | 17.444 | .0001 | .2395 | .0006 |
| 24 | 4.5 | 11.5 | 78.6 | 16.409 | 2.224 | 8.922 | .0117 | .5272 | .0304 |
| 25 | 14.1 | 27.0 | 48.5 | 14.568 | 1.196 | 7.556 | .0239 | .7540 | .0561 |

TABLE 8 (Cont'd)

SA - School Administrators

VE - Vocational Educators

BI - Business and Industry Personnel

To identify facilitating and restricting factors it is sufficient to know only the amount of agreement, uncertainty, and disagreement, in addition to the critical level of significance. The opinion base for the contingency tables used to calculate the Chi Square values for items pertaining to facilitating and restricting factors consisted of: (1) don't know, (2) disagree (strongly + mildly), (3) uncertain, and (4) agree (mildly + strongly). For most of the items, the "disagree" and "agree" sums consisted of high percentages of "mildly" and low percentages of "strongly."

The items are grouped into three categories: (1) facilitating factors, (2) restricting factors, and (3) items where no general consensus ($\alpha_g$ less than .01) was reached. The general consensus levels of significance ($\alpha_g$) are included following each statement. Agree percentages ($\%_a$) and disagree percentages ($\%_d$) are also included for each item.

Items identified as facilitating factors include:

2-1. Business and industry have been able to establish effective relationships in working with local vocational education programs.

$\alpha_g = .0734$ $\%_a = 65.8$ $\%_d = 11.9$

2-24. Individual specialists from business and industry should be available for part time consultation to local vocational education programs.

$\alpha_g = .0017$ $\%_a = 78.6$ $\%_d = 4.5$

2-25. A "Constitution for Cooperation" should be drawn up and ratified by the school system and a representative

committee from local business and industry.

$\alpha_g$ = .0239 $\%_a$ = 48.5 $\%_d$ = 14.1

Restricting factors identified include:

2-3. Business and industry are not organized to effectively channel their desires to work with vocational education.

$\alpha_g$ = .0515 $\%_a$ = 45.9 $\%_d$ = 24.8

2-5. Business and industry are unaware of what their role should be in assisting vocational education.

$\alpha_g$ = .0361 $\%_a$ = 54.7 $\%_d$ = 14.4

2-13. School administrators provide adequate staff to work with business and industry in developing cooperative relationships.

$\alpha_g$ = .0355 $\%_a$ = 28.0 $\%_d$ = 43.6

No general consensus ($\alpha_g < .01$) was reached on many of the items. For each of these items, however, there was a consensus between school administrators and vocational educators ($\alpha_{sv}$ greater than or equal to .01) and/or between business and industry personnel and vocational educators ($\alpha_{bv}$ greater than or equal to .01). Items in this category are listed below:

2-2. Business and industry should make long range commitments to public vocational education.

$\alpha_g$ = .0000 $\alpha_{sv}$ = .3273 $\alpha_{bv}$ = .0016

$\%_a$ = 77.4 $\%_d$ = 4.1

2-4. Business and industry are unaware of what their role should be in assisting vocational education.

$\alpha_g$ = .0024 $\alpha_{sv}$ = .7000 $\alpha_{bv}$ = .0145

$\%_a$ = 60.9 $\%_d$ = 15.6

2-6. Most business and industry--vocational education cooperation is initiated by business and industry.

$\alpha_g$ = .0005 $\alpha_{sv}$ = .4450 $\alpha_{bv}$ = .0127

$\%_a$ = 20.0 $\%_d$ = 46.3

2-7. Educators should initiate and offer the leadership for business and industry--vocational education cooperation.

$\alpha_g$ = .0003 $\alpha_{sv}$ = .7929 $\alpha_{bv}$ = .0005

$\%_a$ = 74.1 $\%_d$ = 7.4

2.8. Educators do not have a good feel for the factors which motivate business and industry to become involved in vocational education.

$\alpha_g$ = .0025 $\alpha_{sv}$ = .2708 $\alpha_{bv}$ = .0692

$\%_a$ = 47.5 $\%_d$ = 21.5

2-9. State level leadership has been effective in promoting business and industry participation in vocational education.

$\alpha_g$ = .0006 $\alpha_{sv}$ = .6099 $\alpha_{bv}$ = .0044

$\%_a$ = 31.1 $\%_d$ = 33.6

2-10. The Board of Education is in favor of business and industry's participation in vocational education programs.

$\alpha_g$ = .0000 $\alpha_{sv}$ = .2952 $\alpha_{bv}$ = .0000

$\%_a$ = 63.8 $\%_d$ = 4.9

2-11. Commitment by the school superintendent to business and industry--vocational education cooperation is essential.

$\alpha_g = .0044$ $\alpha_{sv} = .3287$ $\alpha_{bv} = .0340$

$\%_a = 87.2$ $\%_d = 1.6$

2-12. School administrators are fearful that business and industry groups which work with vocational programs will become special interest pressure groups.

$\alpha_g = .0017$ $\alpha_{sv} = .0223$ $\alpha_{bv} = .2803$

$\%_a = 31.3$ $\%_d = 29.6$

2-14. School administrators are uncertain as to how business and industry should be approached in establishing cooperative relationships.

$\alpha_g = .0005$ $\alpha_{sv} = .0173$ $\alpha_{bv} = .1176$

$\%_a = 44.4$ $\%_d = 21.8$

2-15. School administrators are uncertain as to what they want from business and industry in establishing cooperative relationships.

$\alpha_g = .0012$ $\alpha_{sv} = .0021$ $\alpha_{bv} = .6733$

$\%_a = 44.9$ $\%_d = 26.7$

2-17. School administrators do not fully understand the role of the instructor in achieving business and industry--vocational education cooperation.

$\alpha_g = .0000$ $\alpha_{sv} = .0384$ $\alpha_{bv} = .0006$

$\%_a = 36.6$ $\%_d = 28.0$

2-18. There is a preference by many vocational educators to develop and maintain personal relationships with individuals in business and industry so that they become supportive of the educator rather than involved in the program.

$\alpha_g = .0000$ $\alpha_{sv} = .3779$ $\alpha_{bv} = .0032$

$\%_a = 46.1$ $\%_d = 21.8$

2-19. Business and industry personnel and vocational educators converse but do not communicate.

$\alpha_g = .0075$ $\alpha_{sv} = .1379$ $\alpha_{bv} = .1988$

$\%_a = 42.6$ $\%_d = 26.4$

2-20. When business and industry furnish relevant inputs which are adequately used by vocational education, then vocational education is fully accountable to the public.

$\alpha_g = .0000$ $\alpha_{sv} = .0739$ $\alpha_{bv} = .0004$

$\%_a = 49.4$ $\%_d = 18.8$

2-21. Business and industry--vocational education cooperation should be shaped more by education's needs than by business and industry's desires of what the needs should be.

$\alpha_g = .0000$ $\alpha_{sv} = .7798$ $\alpha_{bv} = .0000$

$\%_a = 26.1$ $\%_d = 55.2$

2-22. The advisory committee is overemphasized as the sole technique in achieving business and industry--vocational education cooperation.

$\alpha_g = .0000$ $\alpha_{sv} = .8545$ $\alpha_{bv} = .0000$

$\%_a = 39.2$ $\%_d = 24.2$

2-23. Regional business and industry--vocational education cooperative councils should be established.

$\alpha_g = .0001$ $\alpha_{sv} = .2395$ $\alpha_{bv} = .0006$

$\%_a = 54.4$ $\%_d = 9.1$

An item identified by consensus as neutral (neither facilitating or restricting) was:

2-16. School administrators are suspicious of business and industry's motivations in working with vocational programs.

$\alpha_g = .0126$ $\%_a = 25.5$ $\%_d = 38.7$

It should be noted that the $\%_a$ and $\%_d$ values given in the list above have significance only at the $\alpha_g$ level specified.

# CHAPTER V

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### I. SUMMARY OF PROCEDURES

The purpose of the study was to determine the extent of agreement of the opinions of school administrators, vocational educators, and business and industry personnel as they pertain to: (1) present business and industry involvement in public secondary vocational education in Tennessee, (2) desired business and industry involvement in public secondary vocational education in Tennessee, and (3) factors which facilitate or restrict business and industry involvement in public secondary vocational education in Tennessee.

Data for the study were obtained from school administrators, vocational educators, and business and industry personnel in twenty (21 percent) of the ninety-five counties in Tennessee. The State was divided into three regions and stratified into four population sizes to insure representation of various size counties throughout the State.

Two questionnaires were developed to gather the data for the study. The first contained forty-two items relating to business and industry services to public secondary vocational education and was designed to determine present and desired involvement, methods, and adequacy of business and industry involvement. Questionnaire number two contained twenty-five items designed primarily to identify

facilitating and restricting factors to business and industry involvement in public secondary vocational education.

A total of four-hundred-twenty-one sets of questionnaires were mailed to the sample population: eighty-seven to school administrators, ninety-four to vocational educators, and two-hundred-forty to business and industry personnel. Fifty-eight percent of those distributed were returned: sixty-four (73.56 percent) from school administrators, seventy-seven (81.91 percent) from vocational educators and one-hundred-two (42.50 percent) from business and industry personnel.

Hypotheses, using contingency tables and the Chi Square test for independence, were tested. The results were used to determine: (1) the levels and adequacy of business and industry involvement as they pertain to the forty-two business and industry services selected for the study, (2) the methods of involvement as they pertain to six items selected from the forty-two services identified, and (3) facilitating and restricting factors listed on the twenty-five item questionnaire.

## II. SUMMARY OF FINDINGS

The summary of the findings as stated in this section relate to: (1) present involvement, (2) desired involvement, (3) methods of involvement, (4) adequacy of involvement, and (5) facilitating and restricting factors to business and industry involvement in public secondary vocational education in Tennessee. A consensus indicated no significant difference at the .01 level.

Present Involvement

One objective of the study was to determine business and industry involvement that presently exists in public secondary vocational education. There was a general consensus as to present involvement for only two of the forty-two business and industry services listed on the first questionnaire. The level of involvement for each item is noted at the end of the item statement.

1-3. Determine and verify need for training. None

1-18. Provide legislative support for vocational education. Some

No general consensus was obtained for the remaining forty items regarding present involvement. There was, however, a consensus between school administrators and vocational educators on thirty-nine of the forty items. Responses to the forty items with no general consensus indicated twenty-nine no involvement and eleven some involvement.

Desired Involvement

A second objective of the study was to determine business and industry involvement that is desired in public secondary vocational education. There was a general consensus as to desired involvement for eight of the forty-two business and industry services. The level of involvement for each item is noted at the end of the item statement.

1-3. Determine and verify need for training. A Great Deal

1-2. Evaluate programs. Some

1-4. Do fullow-up studies on vocational graduates. Some

1-6. Formulate policy. Some

1-7. Provide administration aid. Some

1-17. Provide facilities for meetings. Some

1-40. Provide substitute teachers. Some

1-41. Provide part time teachers. Some

No general consensus was obtained for the remaining thirty-four items regarding desired involvement. There was, however, a consensus between school administrators and vocational educators on all the remaining items.

Services where there was no general consensus as to desired involvement. There were thirty-four services without a general consensus as to desired involvement. Services listed on the questionnaire were divided into four major categories pertaining to: (1) vocational programs in general, (2) public relations, (3) vocational students, and (4) vocational teachers.

1. Items pertaining to vocational programs in general (Items 1-1 through 1-18). There was a consensus on all items between school administrators and vocational educators. School administrators and vocational educators indicated a higher desired level of participation by business and industry than did business and industry personnel on the following items:

1-1. Develop curricula and establish objectives.

1-5. Do follow-up studies of vocational program dropouts.

1-8. Determine teaching methodology.

1-9. Determine criteria for evaluating student performance.

1-10. Select production work to be used as instructional vehicles for accomplishing course objectives.

1-11. Establish standards for selecting equipment for vocational programs.

1-12. Establish standards for selecting instructional materials.

1-13. Establish standards for shop and lab planning.

1-14. Provide members for advisory committees.

1-15. Provide part time consultants.

1-16. Provide work stations for cooperative education students.

1-18. Provide legislative support for vocational education.

Business and industry personnel denoted a desire for no involvement in doing follow-up studies of vocational program dropouts, a direct conflict with the desires of educators. Of the three groups, school administrators were most opposed to business and industry being involved in determining teaching methodology, determining criteria for evaluating students, and establishing standards for selecting materials and equipment for programs.

2. Items pertaining to public relations (Items 1-19 through 1-24). There was a consensus on all items between school administrators and vocational educators. There was no consensus on any of the items between vocational educators and business and industry personnel. School administrators and vocational educators strongly favored the services while business and industry mildly favored the services. Items in this category with no general consensus included:

1-19. Interpret vocational programs to the community.

1-20. Provide funds to advertise school occupational education and training programs.

1-21. Provide news stories concerning school vocational programs to local news media.

1-22. Provide news stories concerning school vocational programs to business and industry trade journals and magazines.

1-23. Provide speakers to discuss vocational education at school assemblies.

1-24. Provide speakers to address civic and business and industrial groups concerning vocational education programs.

3. Items pertaining to vocational students (Items 1-25 through 1-32). There was a consensus on all items between school administrators and vocational educators. Items included in this category with no general consensus were:

1-25. Furnish information on specific occupations to vocational students.

1-26. Counsel and guide students in relation to the world of work.

1-27. Provide prizes to outstanding vocational students.

1-28. Provide financial assistance to needy vocational students.

1-29. Participate in student award and recognition programs.

1-30. Provide advisors for student club programs.

1-31. Coordinate student field trips.

1-32. Tutor vocational students.

School administrators and vocational educators strongly favored items 1-25 and 1-26 while business and industry personnel mildly favored the services. Business and industry personnel also indicated less desired involvement in items 1-27, 1-28, 1-29, 1-30, 1-31, and 1-32 than the educators.

4. Items pertaining to vocational teachers (Items 1-33 through 1-42). There was a consensus on all items between school administrators and vocational educators. Items in this category with no general consensus included:

1-33. Determine qualifications needed for teachers.

1-34. Develop teacher training programs.

1-35. Conduct training programs for teachers.

1-36. Subsidize teachers' salaries when necessary to obtain qualified instructors.

1-37. Provide funds to assist local teachers to attend regional and national meetings of business and industry and teacher organizations.

1-38. Pay business and industry organization membership dues for teachers.

1-39. Provide awards and prizes to outstanding teachers.

1-42. Provide summer employment for teachers.

The school administrators were opposed to business and industry subsidizing teacher salaries (Item 1-36). Neither group supported paying business and industry organization membership dues for teachers (Item 1-38). Excluding these exceptions, the educators desired more

business and industry involvement than the business and industry personnel. Contrasting degrees of desired involvement accounted for the lack of general consensus for most items.

Methods of Involvement

There was no general consensus on any of the six items relating to the methods of business and industry involvement in vocational education. Items included in this category were:

1-14. Provide members for advisory committee.

1-15. Provide part time consultants.

1-16. Provide work stations for cooperative education students.

1-30. Provide advisors for student club programs.

1-34. Develop teacher training programs.

1-35. Conduct training programs for teachers.

Although there was no general consensus concerning advisory committees (Item 1-14) and cooperative education (Item 1-16), all groups were in favor of business and industry's participation by these methods. The difference was in the degree of desired participation. The desired participation was a great deal for school administrators and vocational educators and some for business and industry personnel. The extent of agreement concerning those two traditional methods of business and industry involvement was as little as for any other item in the study.

School administrators, vocational educators, and business and industry personnel agreed that some involvement in providing part time consultants (Item 1-15), providing advisors for student club programs

(Item 1-30), developing teacher training programs (Item 1-34), and conducting training programs for teachers (Item 1-35) was desired, but there was a difference as to the degree of involvement. Business and industry personnel reflected less desired involvement on all four items than the educators.

Findings concerning the general information questions. Responses indicated that 57.8 percent of the school administrators had been involved in a business and industry--vocational education cooperative endeavor while only 36.4 percent of the vocational educators and 23.5 percent of the business and industry personnel had been involved. Eighty-nine percent of the school administrators and 93 percent of the vocational educators had a fruitful relationship when they were involved in those cooperative endeavors.

## Adequacy of Involvement

A third objective of the study was to determine the adequacy of involvement by business and industry. To determine adequacy it is necessary to compare opinions for present and desired involvement. There was a general consensus for only two of the forty-two items reflecting present involvement and eight of the forty-two items reflecting desired involvement. None of the items had a general consensus for both present and desired involvement, thus making it impossible to have a significant measurement of adequacy.

Comments by respondents. Some comments were made on the questionnaires that related to the adequacy of business and industry involvement.

1. School superintendent: "Very interesting, should help us in providing better vocational programs."

2. High school principal: "Our school is more academic than vocationally oriented, additional involvement would be beneficial."

3. High school principal: "Vocational instructors have not gotten the assistance provided for academic teachers."

4. Vocational director: "This questionnaire has given me some ideas for more community involvement."

5. Vocational instructor (industrial): "Both educators and business are responsible for cooperative efforts."

6. Vocational instructor (homemaking): "Our advisory committee has not met regularly, but has assisted me in many ways."

7. Vocational instructor (industrial): "More communication is definitely needed between business and industry and educators."

8. Vocational instructor (industrial): "Advisory committee and instructor meet and give input to administrators, but it is never put to practice."

9. Vocational instructor (health): "Good cooperation from some places, but very little from others."

10. Vocational instructor (industrial): "The needs of industry should be known to update the teacher."

11. Vocational instructor (agriculture): "Industry is not interested in some of these activities."

Facilitating and Restricting Factors

Another objective was to determine those factors which facilitate or restrict business and industry involvement in vocational programs. There was a general consensus concerning three facilitating factors and three restricting factors.

The items identified as facilitaing factors were:

2-1. Business and industry have been able to establish effective relationships in working with local vocational education programs.

2-24. Individual specialists from business and industry should be available for part time consultation to local vocational education programs.

2-25. A "Constitution for Cooperation" should be drawn up and ratified by the school system and a representative committee from local business and industry.

The following items were identified as restricting factors:

2-3. Business and industry are not organized to effectively channel their desires to work with vocational education.

2-5. Business and industry are unaware as to what they may rightfully demand of schools in establishing cooperative relationships.

2-13. School administrators provide adequate staff to work with business and industry in developing cooperative relationships.

Item 2-16 became a neutral factor (neither facilitating or restricting) by the general consensus of disagreement to the item as stated.

2-16. School administrators are suspicious of business and industry's motivations in working with vocational programs.

Eighteen of the statements relating to facilitating and restricting factors had no general consensus of opinion. There was, however, a consensus between school administrators and vocational educators on 17 of the eighteen statements.

All three reference groups agreed with twelve of the eighteen statements with the agreement ranging from mildly agree to strongly agree. Items included in this category were:

2-2. Business and industry should make long range commitments to public vocational education.

2-4. Business and industry are unaware of what their role should be in assisting vocational education.

2-7. Educators should initiate and offer the leadership for business and industry--vocational education cooperation.

2-8. Educators do not have a good feel for the factors which motivate business and industry to become involved in vocational education.

2-10. The Board of Education is in favor of business and industry's participation in vocational education programs.

2-11. Commitment of the school superintendent to business and industry--vocational education cooperation is essential.

2-14. School administrators are uncertain as to how business and industry should be approached in establishing cooperative relationships.

2-15. School administrators are uncertain as to what they want from business and industry in establishing cooperative relationships.

2-18. There is a preference by many vocational educators to develop and maintain personal relationships with individuals in business and industry so that they become supportive of the educator rather than involved in the program.

2-19. Business and industry personnel and vocational educators converse but do not communicate.

2-20. When business and industry furnish relevant inputs which are adequately used by vocational education, then vocational education is fully accountable to the public.

2-23. Regional business and industry--vocational education cooperative councils should be established.

All three reference groups disagreed with the following statements:

2-6. Most business and industry--vocational education cooperation is initiated by business and industry.

2-21. Business and industry--vocational education cooperation should be shaped more by education's needs than by business and industry's desires of what the needs should be.

School administrators and vocational educators agreed that the advisory committee is overemphasized as the sole technique in achieving business and industry--vocational education cooperation (Item 2-22), but business and industry personnel were uncertain as to the validity of the statement. Business and industry personnel were also uncertain as to whether state level leadership has been effective in promoting business and industry participation in vocational education (Item 2-9), but school administrators and vocational educators disagreed with the statement.

School administrators and vocational educators agreed that "school administrators are fearful that business and industry groups which work with vocational programs will become special interest pressure groups" (Item 2-12), but business and industry personnel disagreed with the statement. School administrators disagreed, vocational educators agreed, and business and industry personnel were uncertain as to whether "school administrators do not fully understand the role of the instructor in achieving business and industry--vocational education cooperation" (Item 2-17).

## III. CONCLUSIONS

The following conclusions were drawn based upon the analysis of the data, interpretations of the statistical tests and other information.

1. There was a high percentage of business and industry personnel nonrespondents and "no responses" and "no opinion" responses from business and industry personnel who did return questionnaires. This could

be interpreted to mean that a high percentage of business and industry personnel are unaware of their opportunities to cooperate with high school vocational education programs.

2. The low number of general consensus opinions to questionnaire items and the high number of "no" responses to the general information questions could indicate a lack of communication and cooperation among the three reference groups.

3. The tremendous growth of vocational education within the past two years in Tennessee could account for the low participation within the reference groups in cooperative endeavors between vocational education and business and industry. New teachers in new programs, many with little or no teaching experience, may not have become involved with business and industry at the time the questionnaires were answered.

4. Business and industry are not adequately involved in public secondary vocational education programs. More business and industry involvement could assist in improving vocational education programs.

5. A consensus between school administrators and vocational educators, with no general consensus among all reference groups, indicated a significant no consensus between school administrators and business and industry personnel. This is interpreted to mean that vocational educators should be a liaison between education and business and industry.

6. Responses by educators suggest that school personnel are fully aware of their leadership responsibilities in cooperative endeavors. There was an indication that school personnel have not exercised their role of leadership.

# IV. RECOMMENDATIONS

On the basis of the findings of this investigation, the following recommendations appear pertinent:

1. A study similar to this one should be completed in the near future to determine if recent Tennessee legislation, recent regulations by the Tennessee State Department of Education, growth in secondary vocational programs, and other factors have caused business and industry--vocational education cooperation to become greater.

2. State staff in vocational education and local administration in school districts should direct attention to the results of this study and other related research in order to gain insight into the nature of business and industry--vocational education cooperation.

3. Local directors of vocational education should give serious consideration to the findings of this research in promoting business and industry--vocational education cooperation.

4. Workshops should be conducted by the Tennessee State Department of Education, in cooperation with the Tennessee State Advisory Council for Vocational Education, for the purpose of informing local school systems and local advisory committees for vocational education of the many ways and means of promoting cooperative activities between education and business and industry.

5. Local school superintendents and boards of education should voice and show their support of vocational education as vocational educators strive to make vocational education relevant to the needs of business and industry.

6. Vocational educators in local school districts should seek assistance and support from the business and industrial community in order that vocational programs become a more viable part of the total educational program.

7. A viable public relations program within the local school districts should better inform educators, business and industry, and the total community of the availability and productivity of vocational education.

8. A special course, taught by college or university personnel on business and industry--vocational education cooperation, should be helpful to local school district personnel.

9. There should be a subcommittee on vocational education within the Education Committee of Chambers of Commerce.

10. Other states or regions should conduct similar studies to determine if opinions of school administrators, vocational educators, and business and industry personnel are congruent. This is particularly important at a time when skilled personnel are needed to fill the majority of the jobs in this country.

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# APPENDICES

APPENDIX A

VALIDATING QUESTIONNAIRES

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

April 19, 1976

To: Selected school administrators, vocational educators, and business and industry personnel.

Your assistance is needed in validating the two attached questionnaires which pertain to local business and industry involvement in public secondary vocational education in Tennessee.

Please fill out the questionnaires and use the comment sheets to record any suggestions, questions or problems you may encounter in completing the questionnaires. I will return later this week to pick up the completed questionnaires and comments.

Many thanks in advance for your cooperation and assistance with this special project.

/a/ Jerry D. Scott

Jerry D. Scott

COMMENT SHEET
QUESTIONNAIRE NO. ____

| Statement Number | Suggestions, Questions or Problems |
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General Comments:

## TENNESSEE

### Planning and Development Regions

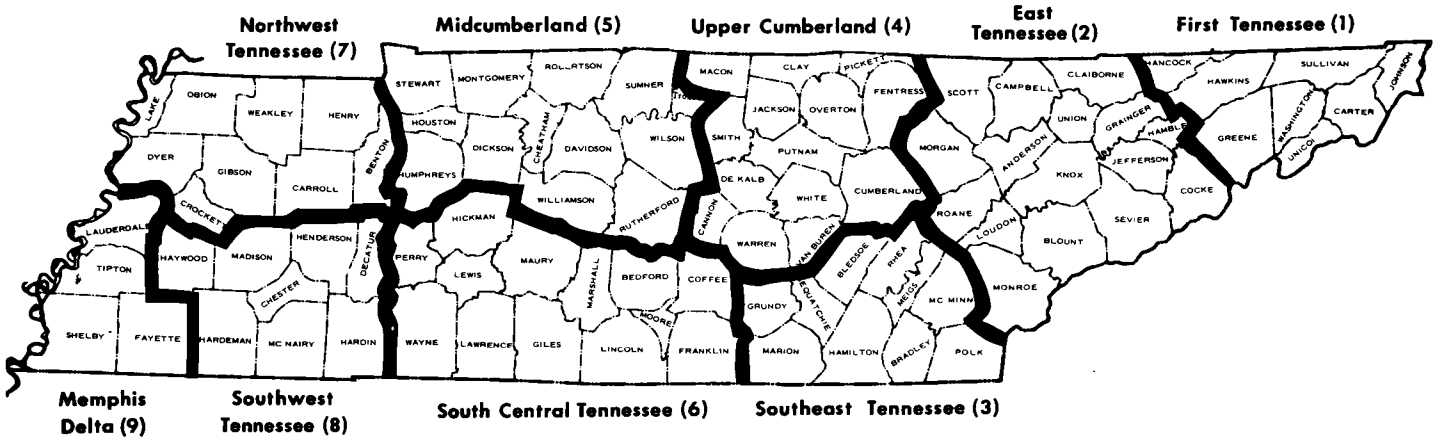



Figure 1. Map of counties.

EAST TENNESSEE = Planning and Development Regions 1, 2 and 3
MIDDLE TENNESSEE = Planning and Development Regions 4, 5 and 6
WEST TENNESSEE = Planning and Development Regions 7, 8 and 9

## APPENDIX C

### LETTER ASKING WILLINGNESS TO COOPERATE

April 27, 1976

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

Local education agencies frequently involve business and industry personnel in planning, implementing, and evaluating activities associated with vocational education programs. The business and industry involvement may be through advisory committees, cooperative programs, or other cooperative efforts. An analysis of this involvement will be of benefit to educators and business and industry in planning for and participating in this business and industry--vocational education cooperation. This is particularly important with the implementation of the Comprehensive Vocational Education Act. As a director of vocational education in a local school system, I feel this kind of information will prove beneficial to all public school systems in promoting education and community cooperation.

This study is designed to determine certain factors relating to business and industry involvement in public secondary vocational education programs in Tennessee as perceived by school administrators, vocational educators, and business and industry personnel. Your school system's assistance is of major importance in completing this research.

The system's cooperation in this research will involve the filling out of mailed questionnaires by school personnel. These personnel include the superintendent, high school principal(s), vocational director, and four (4) vocational teachers, randomly selected. I would appreciate having your permission to involve these personnel in the study. All data in the study will be handled and presented in such a manner that all participants will remain anonymous.

Please check the appropriate square on the enclosed reply sheet indicating your system's willingness to cooperate in this study. A self-addressed stamped envelope is enclosed for your convenience in returning the form.

Your cooperation in this study is appreciated, and I look forward to hearing from you by May 5.

Sincerely,

/s/ Jerry D. Scott

Jerry D. Scott

JDS:bb
Encs.

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☐ We will cooperate in the business and industry--vocational education study.

☐ We cannot cooperate in the business and industry--vocational education study.

Remarks:

_____
Superintendent

_____
School System

APPENDIX D

RESEARCH PROJECT IN BUSINESS AND INDUSTRY--VOCATIONAL EDUCATION COOPERATION

QUESTIONNAIRE NO. 1

The following is a list of services that may be provided by local business and industry* to high school vocational programs. A space is provided for you to indicate your opinion as to the business and industry involvement that presently exists for each service that is listed. A space is also provided for you to indicate your opinion as to the business and industry involvement that is desirable for each of the listed services. Place an "X" in the appropriate blocks.

Your additional comments are welcome. A space is provided at the end of this questionnaire for that purpose, or if you prefer, they may be written on a separate sheet and attached to this questionnaire.

| BUSINESS AND INDUSTRY INVOLVEMENT | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PRESENT | | | | | | *Business and Industry--Any firm, public or private, that hires, or has the potential to hire vocational students who exit from public high schools. | DESIRED | | | | |
| Don't know | Uncertain | None | Some | A great deal | | | Don't know | Uncertain | None | Some | A great deal |
| | | | | | 1 | Develop curricula and establish objectives | | | | | |
| | | | | | 2 | Evaluate programs | | | | | |
| | | | | | 3 | Determine and verify need for training | | | | | |
| | | | | | 4 | Do follow-up studies of vocational graduates | | | | | |

| PRESENT | | | | | | | DESIRED | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Don't know | Uncertain | None | Some | A great deal | | | Don't know | Uncertain | None | Some | A great deal |
| | | | | | 5 | Follow-up studies of vocational program dropouts | | | | | |
| | | | | | 6 | Formulate policy | | | | | |
| | | | | | 7 | Provide administration aid | | | | | |
| | | | | | 8 | Determine teaching methodology | | | | | |
| | | | | | 9 | Determing criteria for evaluating student performance | | | | | |
| | | | | | 10 | Select production work to be used as instructional vehicles for accomplishing course objectives | | | | | |
| | | | | | 11 | Establish standards for selecting equipment for vocational programs | | | | | |
| | | | | | 12 | Establish standards for selecting instructional materials | | | | | |
| | | | | | 13 | Establish standards for shop and lab planning | | | | | |
| | | | | | 14 | Provide members for advisory committees | | | | | |
| | | | | | 15 | Provide part time consultants | | | | | |
| | | | | | 16 | Provide work stations for cooperative education students | | | | | |
| | | | | | 17 | Provide facilities for meetings | | | | | |
| | | | | | 18 | Provide legislative support for vocational education | | | | | |
| | | | | | 19 | Interpret vocational programs to the community | | | | | |
| | | | | | 20 | Provide funds to advertise school occupational education training programs | | | | | |

| PRESENT | | | | | | | DESIRED | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Don't know | Uncertain | None | Some | A great deal | | | Don't know | Uncertain | None | Some | A great deal |
| | | | | | 21 | Provide news stories concerning school vocational programs to local news media | | | | | |
| | | | | | 22 | Provide news stories concerning school vocational programs to business and industry trade journals and magazines | | | | | |
| | | | | | 23 | Provide speakers to discuss vocational education at school assemblies | | | | | |
| | | | | | 24 | Provide speakers to address civic and business and industrial groups concerning vocational education programs | | | | | |
| | | | | | 25 | Fusnish information on specific occupations to vocational students | | | | | |
| | | | | | 26 | Counsel and guide students in relation to the world of work | | | | | |
| | | | | | 27 | Provide prizes to outstanding vocational students | | | | | |
| | | | | | 28 | Provide financial assistance to needy vocational students | | | | | |
| | | | | | 29 | Participate in student award and recognition programs | | | | | |
| | | | | | 30 | Provide advisors for student club programs | | | | | |
| | | | | | 31 | Coordinate student field trips | | | | | |
| | | | | | 32 | Tutor vocational students | | | | | |
| | | | | | 33 | Determine qualifications needed for teachers | | | | | |
| | | | | | 34 | Develop teacher training programs | | | | | |
| | | | | | 35 | Conduct training programs for teachers | | | | | |
| | | | | | 36 | Subsidize teachers' salaries when necessary to obtain qualified instructors | | | | | |

| PRESENT | | | | | | | DESIRED | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Don't know | Uncertain | None | Some | A great deal | | | Don't know | Uncertain | None | Some | A great deal |
| | | | | | 37 | Provide funds to assist local teachers to attend regional and national meetings of business and industry and teacher organizations | | | | | |
| | | | | | 38 | Pay business and industry organization membership dues for teachers | | | | | |
| | | | | | 39 | Provide awards and prizes to outstanding teachers | | | | | |
| | | | | | 40 | Provide substitute teachers | | | | | |
| | | | | | 41 | Provide part time teachers | | | | | |
| | | | | | 42 | Provide summer employment for teachers | | | | | |

Comments:

APPENDIX E

RESEARCH PROJECT IN BUSINESS AND INDUSTRY--VOCATIONAL EDUCATION COOPERATION

QUESTIONNAIRE NO. 2

The following statements relate to local business and industry* involvement in public secondary vocational education. A space is provided for you to indicate your opinion as to the validity of the statements. Indicate your opinion by placing an "X" in the appropriate block following each statement.

Your additional comments are welcome. A space is provided at the end of this questionnaire for that purpose, or if you prefer they may be written on a separate sheet and attached to this questionnaire.

*Business and Industry--Any firm, public or private, that hires, or has the potential to hire vocational students who exit from public high schools.

| | | Don't Know | Strongly Disagree | Mildly Disagree | Uncertain | Mildly Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|
| 1 | Business and industry have been able to establish effective relationships in working with local vocational education programs | | | | | | |
| 2 | Business and industry should make long range commitments to public vocational education | | | | | | |
| 3 | Business and industry are not organized to effectively channel their desires to work with vocational education | | | | | | |
| 4 | Business and industry are unaware of what their role should be in assisting vocational education | | | | | | |
| 5 | Business and industry are unaware as to what they may rightfully demand of schools in establishing cooperative relationships | | | | | | |
| 6 | Most business and industry--vocational education cooperation is initiated by business and industry | | | | | | |

| | | Don't Know | Strongly Disagree | Mildly Disagree | Uncertain | Mildly Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|
| 7 | Educators should initiate and offer the leadership for business and industry--vocational education cooperation | | | | | | |
| 8 | Educators do not have a good feel for the factors which motivate business and industry to become involved in vocational education | | | | | | |
| 9 | State level leadership has been effective in promoting business and industry participation in vocational education | | | | | | |
| 10 | The Board of Education is in favor of business and industry's participation in vocational education programs | | | | | | |
| 11 | Commitment of the school superintendent to business and industry--vocational education cooperation is essential | | | | | | |
| 12 | School administrators are fearful that business and industry groups which work with vocational programs will become special interest pressure groups | | | | | | |
| 13 | School administrators provide adequate staff to work with business and industry in developing cooperative relationships | | | | | | |
| 14 | School administrators are uncertain as to how business and industry should be approached in establishing cooperative relationships | | | | | | |
| 15 | School administrators are uncertain as to what they want from business and industry in establishing cooperative relationships | | | | | | |
| 16 | School administrators are suspicious of business and industry's motivations in working with vocational programs | | | | | | |
| 17 | School administrators do not fully understand the role of the instructor in achieving business and industry--vocational education cooperation | | | | | | |

| | | Don't Know | Strongly Disagree | Mildly Disagree | Uncertain | Mildly Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|
| 18 | There is a preference by many vocational educators to develop and maintain personal relationships with individuals in business and industry so that they become supportive of the educator rather than involved in the program | | | | | | |
| 19 | Business and industry personnel and vocational educators converse but do not communicate | | | | | | |
| 20 | When business and industry furnish relevant inputs which are adequately used by vocational education, then vocational education is fully accountable to the public | | | | | | |
| 21 | Business and industry--vocational education cooperation should be shaped more by education's needs than by business and industry's desires of what the needs should be | | | | | | |
| 22 | The advisory committee is overemphasized as the sole technique in achieving business and industry--vocational education cooperation | | | | | | |
| 23 | Regional business and industry--vocational education cooperative councils should be established | | | | | | |
| 24 | Individual specialists from business and industry should be available for part time consultation to local vocational education programs | | | | | | |
| 25 | A "Constitution for Cooperation" should be drawn up and ratified by the school system and a representative committee from local business and industry | | | | | | |

Have you ever participated in a formal business and industry--vocational education cooperative endeavor? ___Yes ___No

If the answer to the above question was yes, was the relationship fruitful? ___Yes ___No

Employment Data:

| Educators | Industry | Associated vocational area (To be filled in by vocational instructors and skilled employees) |
|---|---|---|
| ___ Superintendent | ___ Manager | |
| ___ Principal | ___ Supervisor or foreman | ___ Agriculture |
| ___ Vocational Director | ___ Skilled employee | ___ Distributive |
| ___ Vocational Instructor | | ___ Health |
| | | ___ Homemaking |
| | | ___ Industrial |
| | | ___ Office |

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Comments:

## APPENDIX F

### TRANSMITTAL LETTER TO SUPERINTENDENTS

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

You recently gave me permission to involve your school system in a study pertaining to certain aspects of local business and industry involvement in public secondary vocational education in Tennessee. The enclosed questionnaires are part of this study. These questionnaires are also being forwarded to your high school principal(s), vocational director, and four vocational instructors.

Your input into this study is vital. As a school superintendent, your opinions concerning local business and industry involvement in secondary vocational education are important. You can make known your opinions by furnishing the information requested in the enclose questionnaires. This information is essential in order to determine the business and industry involvement that is desirable and also to determine the methods which may facilitate this involvement. It may also be of benefit to educators and business and industry in planning for and participating in business and industry--vocational education cooperative endeavors.

Your completing the questionnaires and returning them as quickly as possible is appreciated. A self-addressed, stamped envelope is enclosed for your convenience in returning the questionnaires.

Thanks in advance for your cooperation.

Sincerely,

/s/ Jerry D. Scott

Jerry D. Scott

JDS:bb
Encs.

## APPENDIX G

### TRANSMITTAL LETTER TO PRINCIPALS, VOCATIONAL DIRECTORS, VOCATIONAL INSTRUCTORS

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

Your superintendent recently gave me permission to contact you regarding a study pertaining to certain aspects of local business and industry involvement in public secondary vocational education in Tennessee. The enclosed questionnaires are part of this study.

Your input into this study is vital. As a _____, your opinions concerning local business and industry involvement in secondary vocational education are important. You can make known your opinions by furnishing the information requested in the enclosed questionnaires. This information is essential in order to determine the business and industry involvement that is desirable and also to determine the methods which may facilitate this involvement. It may also be of benefit to educators and business and industry in planning for and participating in business and industry--vocational education cooperative endeavors.

Your completing the questionnaires and returning them as quickly as possible is appreciated. A self-addressed, stamped envelope is enclosed for your convenience in returning the questionnaires.

Thanks in advance for your cooperation.

Sincerely,

/s/ Jerry D. Scott

Jerry D. Scott

JDS:bb
Encs.

APPENDIX H

TRANSMITTAL LETTER TO MANAGERS OF SELECTED

BUSINESSES AND INDUSTRIES

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

The enclosed questionnaires are part of a study conducted in my doctoral program at the University of Tennessee to determine certain aspects of local business and industry involvement in public secondary vocational education in Tennessee.

Your input into this study is vital. As a manager, your opinions concerning business and industry involvement in secondary vocational education are important. You can make known your opinions by furnishing the information requested in the enclosed questionnaires. This information is essential in order to determine the business and industry involvement that is desirable and also to determine the methods which may facilitate this involvement. It may also be of benefit to educators and business and industry in planning for and participating in business and industry--vocational education cooperative endeavors.

Your completing the questionnaires and returning them as quickly as possible is appreciated. A self-addressed, stamped envelope is enclosed for your convenience in returning the questionnaires.

Also enclosed are questionnaires for one foreman or supervisor and one skilled employee in your firm. It is my desire that you will pass the questionnaires on to them and ask that they complete them and return them to me. Self-addressed, stamped envelopes are also enclosed for their convenience in returning the questionnaires.

Thanks in advance for your cooperation.

Sincerely,

/s/ Jerry D. Scott

JDS:bb
Encs.

Jerry D. Scott

APPENDIX I

TRANSMITTAL LETTER TO SUPERVISORS OR FOREMEN

AND SKILLED EMPLOYEES

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

The enclosed questionnaires are part of a study conducted in my doctoral program at the University of Tennessee to determine certain aspects of local business and industry involvement in public secondary vocational education in Tennessee.

Your input into this study is vital. As a_____, in business and/or industry, your opinions concerning business and industry involvement in secondary vocational education are important. You can make known your opinions by furnishing the information requested in the enclosed questionnaires. This information is essential in order to determine the business and industry involvement that is desirable and also to determine the methods which may facilitate this involvement. It may also be of benefit to educators and business and industry in planning for and participating in business and industry--vocational education cooperative endeavors.

Your completing the questionnaires and returning them as quickly as possible is appreciated. A self-addressed, stamped envelope is enclosed for your convenience in returning the questionnaires.

Thanks in advance for your cooperation.

Sincerely,

/s/ Jerry D. Scott

Jerry D. Scott

JDS:bb
Encs.

APPENDIX J

FOLLOW-UP LETTER TO EDUCATORS

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

On May 19 you were mailed questionnaires designed to provide information indicating your opinion of certain aspects of local business and industry involvement in public secondary vocational education. You and 180 other educators in the state were selected for this study. In addition, questionnaires were sent to 240 business and industry personnel throughout the state. As a result of this study, we think there will be a more valid basis for determining methods for improved cooperation in Tennessee.

At this time I have not received your input which is greatly needed. If you have not completed and mailed the questionnaires, please do so today. Please disregard this letter if you have mailed the questionnaires.

Thanks for your consideration and cooperation.

Sincerely,

/s/ Jerry D. Scott

Jerry D. Scott

JDS:ee

APPENDIX K

FOLLOW-UP LETTER TO BUSINESS AND INDUSTRY MANAGERS

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

You were recently mailed questionnaires designed to provide information concerning your opinion of certain aspects of local business and industry involvement in public secondary vocational education. Your company was one of eighty randomly selected state-wide to participate in this study. Educators in your county were also invited to respond to the same questionnaires.

After obtaining your opinion and others who were invited to respond, we feel that there will be a more valid basis for determining methods for improving industry-vocational education cooperation in Tennessee. You can be assured that all data will be handled and presented in such a manner that all participants will remain anonymous.

Will you please help us by completing the questionnaires and returning them today. If you have already returned them, please disregard this request and accept our thanks for your assistance in expediting this study. Please contact me if you have misplaced your forms so that I may send you additional ones.

Sincerely,

/s/ Jerry D. Scott

Jerry D. Scott

JDS:ee

APPENDIX L

SECOND FOLLOW-UP LETTER TO EDUCATORS

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

Dear Educator:

On May 19, I forwarded to you questionnaires designed to provide information indicating your opinion of certain aspects of local business and industry involvement in public secondary vocational programs. As of this date, I have not received your input.

Enclosed is another copy of the questionnaires along with a self-addressed stamped envelope for your convenience in returning the completed forms.

Please take a few minutes today to complete and mail the questionnaires as you were selected in a choice group to provide the input requested. It is highly desirable and necessary that your input be received in order that an accurate assessment of business and industry involvement in public secondary vocational programs can be made. Please disregard this letter if you have mailed the questionnaires.

Thanks for your expediency and cooperation in this matter. I hope to receive your input no later than next week.

Sincerely,

/s/ Jerry D. Scott

Jerry D. Scott

JDS:bb
Encs.

APPENDIX M

SECOND FOLLOW-UP LETTER TO BUSINESS

AND INDUSTRY MANAGERS

RESEARCH PROJECT IN BUSINESS AND INDUSTRY
VOCATIONAL EDUCATION COOPERATION

Project Director: Jerry D. Scott
7801 Cranley Road
Powell, Tn. 37849

On May 19, I forwarded to you questionnaires designed to provide information indicating your opinion of certain aspects of local business and industry involvement in public secondary vocational programs. As of this date, I have not received your input.

Enclosed are three more copies of the questionnaires along with self-addressed stamped envelopes for your convenience in returning the completed forms. One set is for you, one for a supervisor or foreman and the other for a skilled employee.

Please take a few minutes today to complete and mail the questionnaires as you were selected in a choice group to provide the input requested. It is highly desirable and necessary that your input be received in order that an accurate assessment of business and industry involvement in public secondary vocational programs can be made. Please disregard this letter if you have mailed the questionnaires.

Thanks for your expediency and cooperation in this matter. I hope to receive your input no later than next week.

Sincerely,

/s/ Jerry D. Scott

Jerry D. Scott

JDS:bb
Encs.

APPENDIX N

TABLE 9

PRESENT INVOLVEMENT, OBSERVED RESPONSE FREQUENCIES

| Item No. | School Administrators N = 64 | | | | | | Vocational Educators N = 77 | | | | | | Business and Industry Personnel N = 102 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD |
| 1 | 0 | 1 | 1 | 21 | 39 | 2 | 0 | 5 | 10 | 29 | 28 | 5 | 2 | 17 | 16 | 28 | 31 | 8 |
| 2 | 0 | 1 | 3 | 22 | 35 | 3 | 0 | 4 | 4 | 22 | 44 | 3 | 2 | 18 | 12 | 32 | 29 | 9 |
| 3 | 0 | 1 | 4 | 13 | 36 | 10 | 1 | 4 | 9 | 15 | 40 | 8 | 1 | 17 | 14 | 29 | 31 | 10 |
| 4 | 0 | 1 | 10 | 27 | 23 | 3 | 1 | 6 | 6 | 42 | 18 | 4 | 4 | 21 | 11 | 46 | 18 | 2 |
| 5 | 0 | 3 | 13 | 41 | 6 | 1 | 0 | 7 | 8 | 49 | 11 | 2 | 6 | 18 | 11 | 55 | 12 | 0 |
| 6 | 0 | 1 | 3 | 33 | 26 | 1 | 0 | 4 | 7 | 42 | 20 | 4 | 1 | 22 | 14 | 45 | 18 | 2 |
| 7 | 0 | 1 | 4 | 38 | 19 | 2 | 0 | 3 | 9 | 31 | 28 | 6 | 1 | 23 | 14 | 37 | 26 | 1 |
| 8 | 0 | 0 | 8 | 38 | 18 | 0 | 0 | 3 | 7 | 41 | 22 | 4 | 1 | 14 | 18 | 46 | 18 | 5 |
| 9 | 0 | 1 | 3 | 34 | 25 | 1 | 1 | 4 | 7 | 35 | 26 | 4 | 4 | 21 | 17 | 32 | 22 | 6 |
| 10 | 0 | 1 | 3 | 28 | 32 | 0 | 0 | 6 | 10 | 32 | 26 | 3 | 4 | 18 | 15 | 39 | 21 | 5 |
| 11 | 0 | 3 | 3 | 34 | 24 | 0 | 0 | 3 | 8 | 32 | 29 | 5 | 1 | 18 | 18 | 40 | 21 | 4 |

TABLE 9 (Cont'd)

| Item No. | School Administrators N = 64 | | | | | | Vocational Educators N = 77 | | | | | | Business and Industry Personnel N = 102 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD |
| 12 | 0 | 2 | 6 | 33 | 23 | 0 | 0 | 4 | 7 | 36 | 26 | 4 | 1 | 23 | 14 | 45 | 17 | 2 |
| 13 | 0 | 2 | 5 | 36 | 21 | 0 | 1 | 4 | 7 | 36 | 25 | 4 | 4 | 18 | 19 | 39 | 18 | 4 |
| 14 | 0 | 2 | 1 | 11 | 30 | 20 | 0 | 3 | 3 | 6 | 47 | 18 | 3 | 16 | 13 | 32 | 29 | 9 |
| 15 | 0 | 1 | 5 | 26 | 30 | 2 | 0 | 4 | 5 | 26 | 36 | 6 | 1 | 21 | 11 | 36 | 28 | 5 |
| 16 | 0 | 0 | 3 | 10 | 34 | 17 | 0 | 5 | 2 | 15 | 39 | 16 | 2 | 15 | 10 | 33 | 34 | 8 |
| 17 | 0 | 2 | 2 | 37 | 21 | 2 | 0 | 3 | 3 | 35 | 28 | 8 | 5 | 20 | 16 | 42 | 17 | 2 |
| 18 | 0 | 6 | 7 | 16 | 27 | 8 | 0 | 8 | 14 | 11 | 37 | 7 | 6 | 15 | 18 | 30 | 29 | 4 |
| 19 | 0 | 2 | 6 | 24 | 32 | 0 | 0 | 5 | 7 | 18 | 42 | 5 | 6 | 15 | 15 | 37 | 25 | 4 |
| 20 | 0 | 2 | 9 | 40 | 12 | 1 | 2 | 6 | 10 | 39 | 16 | 4 | 4 | 27 | 14 | 37 | 18 | 2 |
| 21 | 0 | 1 | 6 | 35 | 20 | 2 | 0 | 4 | 7 | 34 | 29 | 3 | 6 | 25 | 15 | 35 | 16 | 5 |
| 22 | 0 | 2 | 12 | 37 | 13 | 0 | 0 | 7 | 10 | 41 | 17 | 2 | 7 | 24 | 17 | 38 | 13 | 3 |
| 23 | 2 | 0 | 1 | 14 | 43 | 4 | 1 | 2 | 6 | 25 | 38 | 5 | 5 | 20 | 14 | 34 | 26 | 3 |
| 24 | 0 | 2 | 4 | 24 | 30 | 4 | 0 | 3 | 9 | 28 | 31 | 6 | 7 | 19 | 11 | 41 | 22 | 2 |

TABLE 9 (Cont'd)

| Item No. | School Administrators N = 64 | | | | | | Vocational Educators N = 77 | | | | | | Business and Industry Personnel N = 102 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD |
| 25 | 1 | 0 | 3 | 12 | 40 | 8 | 0 | 0 | 7 | 17 | 48 | 5 | 3 | 23 | 8 | 26 | 35 | 7 |
| 26 | 0 | 0 | 5 | 24 | 34 | 1 | 2 | 5 | 10 | 21 | 34 | 5 | 2 | 20 | 14 | 28 | 34 | 4 |
| 27 | 1 | 0 | 4 | 29 | 28 | 2 | 0 | 4 | 4 | 25 | 39 | 5 | 5 | 21 | 18 | 42 | 14 | 2 |
| 28 | 0 | 1 | 6 | 40 | 16 | 1 | 0 | 2 | 12 | 39 | 23 | 1 | 9 | 18 | 21 | 33 | 18 | 3 |
| 29 | 0 | 0 | 1 | 24 | 34 | 5 | 1 | 0 | 6 | 22 | 40 | 8 | 3 | 14 | 16 | 37 | 24 | 8 |
| 30 | 0 | 0 | 2 | 39 | 20 | 3 | 0 | 2 | 5 | 43 | 22 | 5 | 5 | 22 | 14 | 43 | 16 | 2 |
| 31 | 0 | 2 | 4 | 27 | 26 | 5 | 0 | 0 | 8 | 26 | 34 | 9 | 6 | 12 | 20 | 29 | 29 | 6 |
| 32 | 0 | 1 | 4 | 45 | 12 | 2 | 0 | 5 | 9 | 46 | 13 | 4 | 2 | 27 | 21 | 36 | 16 | 0 |
| 33 | 1 | 1 | 5 | 47 | 10 | 0 | 0 | 6 | 12 | 41 | 14 | 4 | 9 | 16 | 24 | 48 | 5 | 0 |
| 34 | 0 | 2 | 4 | 47 | 10 | 1 | 0 | 5 | 9 | 44 | 15 | 4 | 4 | 25 | 22 | 46 | 4 | 1 |
| 35 | 1 | 2 | 2 | 43 | 15 | 1 | 1 | 3 | 7 | 44 | 20 | 2 | 3 | 26 | 21 | 48 | 3 | 1 |
| 36 | 0 | 2 | 3 | 55 | 3 | 1 | 0 | 2 | 7 | 60 | 7 | 1 | 2 | 22 | 23 | 54 | 1 | 0 |
| 37 | 0 | 1 | 3 | 54 | 4 | 2 | 0 | 2 | 6 | 57 | 9 | 3 | 4 | 25 | 19 | 51 | 3 | 0 |

TABLE 9 (Cont'd)

| Item No. | School Administrators N = 64 | | | | | | Vocational Educators N = 77 | | | | | | Business and Industry Personnel N = 102 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD |
| 38 | 0 | 1 | 5 | 57 | 0 | 1 | 1 | 2 | 7 | 62 | 4 | 1 | 3 | 26 | 18 | 54 | 1 | 0 |
| 39 | 0 | 1 | 6 | 44 | 11 | 2 | 0 | 2 | 5 | 53 | 15 | 2 | 6 | 26 | 13 | 55 | 2 | 0 |
| 40 | 0 | 2 | 3 | 55 | 2 | 2 | 0 | 3 | 3 | 60 | 8 | 3 | 6 | 29 | 16 | 46 | 5 | 0 |
| 41 | 1 | 3 | 3 | 52 | 4 | 1 | 0 | 3 | 3 | 58 | 12 | 1 | 2 | 26 | 20 | 52 | 2 | 0 |
| 42 | 1 | 2 | 3 | 27 | 29 | 2 | 1 | 3 | 9 | 27 | 33 | 4 | 2 | 23 | 18 | 36 | 21 | 2 |

NR - No Response

DK - Don't Know

UN - Uncertain

NO - None

SO - Some

GD - A Great Deal

## APPENDIX O

### TABLE 10

### PRESENT INVOLVEMENT, OBSERVED RESPONSE PERCENTAGES

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | None | Some | GD | None | Some | GD |
| 1 | 32.8 | 60.9 | 3.1 | 37.7 | 36.6 | 6.5 | 28.0 | 31.0 | 8.0 |
| 2 | 34.4 | 54.7 | 4.7 | 28.6 | 57.1 | 3.9 | 32.0 | 29.0 | 9.0 |
| 3 | 20.3 | 56.3 | 15.6 | 19.7 | 52.6 | 10.5 | 28.7 | 30.7 | 9.9 |
| 4 | 42.2 | 35.9 | 4.7 | 55.3 | 23.7 | 5.3 | 46.9 | 18.4 | 2.0 |
| 5 | 64.1 | 9.4 | 1.6 | 63.6 | 14.3 | 2.6 | 57.3 | 12.5 | 0.0 |
| 6 | 51.6 | 40.6 | 1.6 | 54.5 | 26.0 | 5.2 | 44.6 | 17.8 | 2.0 |
| 7 | 59.4 | 29.7 | 3.1 | 40.3 | 36.4 | 7.8 | 36.6 | 25.7 | 1.0 |
| 8 | 59.4 | 28.1 | 0.0 | 53.2 | 28.6 | 5.2 | 45.5 | 17.8 | 5.0 |
| 9 | 53.1 | 39.1 | 1.6 | 46.1 | 34.2 | 5.3 | 32.7 | 22.4 | 6.1 |
| 10 | 43.8 | 50.0 | 0.0 | 41.6 | 33.8 | 3.9 | 39.8 | 21.4 | 5.1 |
| 11 | 53.1 | 37.5 | 0.0 | 41.6 | 37.7 | 6.5 | 39.6 | 20.8 | 4.0 |
| 12 | 51.6 | 35.9 | 0.0 | 46.8 | 33.8 | 5.2 | 44.6 | 16.8 | 2.0 |
| 13 | 56.3 | 32.8 | 0.0 | 47.4 | 32.9 | 5.3 | 39.8 | 18.4 | 4.1 |
| 14 | 17.2 | 46.9 | 31.3 | 7.8 | 61.0 | 23.4 | 32.3 | 29.3 | 9.1 |
| 15 | 40.6 | 46.9 | 3.1 | 33.8 | 46.8 | 7.8 | 35.6 | 27.7 | 5.0 |
| 16 | 15.6 | 53.1 | 26.6 | 19.5 | 50.6 | 20.8 | 33.0 | 34.0 | 8.0 |

TABLE 10 (Cont'd)

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | None | Some | GD | None | Some | GD |
| 17 | 57.8 | 32.8 | 3.1 | 45.5 | 36.4 | 10.4 | 43.3 | 17.5 | 2.1 |
| 18 | 25.0 | 42.2 | 12.5 | 14.3 | 48.1 | 9.1 | 31.3 | 30.2 | 4.2 |
| 19 | 37.5 | 50.0 | 0.0 | 23.4 | 54.5 | 6.5 | 38.5 | 26.0 | 4.2 |
| 20 | 62.5 | 18.8 | 1.6 | 52.0 | 21.3 | 5.3 | 37.8 | 18.4 | 2.0 |
| 21 | 54.7 | 31.3 | 3.1 | 44.2 | 37.7 | 3.9 | 36.5 | 16.7 | 5.2 |
| 22 | 57.8 | 20.3 | 0.0 | 53.2 | 22.1 | 2.6 | 40.0 | 13.7 | 3.2 |
| 23 | 22.6 | 69.4 | 6.5 | 32.9 | 50.0 | 6.6 | 35.1 | 26.8 | 3.1 |
| 24 | 37.5 | 46.9 | 6.3 | 36.4 | 40.3 | 7.8 | 43.2 | 23.2 | 2.1 |
| 25 | 19.0 | 63.5 | 12.7 | 22.1 | 62.3 | 6.5 | 26.3 | 35.4 | 7.1 |
| 26 | 37.5 | 53.1 | 1.6 | 28.0 | 45.3 | 6.7 | 28.0 | 34.0 | 4.0 |
| 27 | 46.0 | 44.4 | 3.2 | 32.5 | 50.6 | 6.5 | 41.2 | 13.7 | 2.0 |
| 28 | 62.5 | 25.0 | 1.6 | 50.6 | 29.9 | 1.3 | 35.5 | 19.4 | 3.2 |
| 29 | 37.5 | 53.1 | 7.8 | 28.9 | 52.6 | 10.5 | 37.4 | 24.2 | 8.1 |
| 30 | 60.9 | 31.3 | 4.7 | 55.8 | 28.6 | 6.5 | 44.3 | 16.5 | 2.1 |
| 31 | 42.2 | 40.6 | 7.8 | 33.8 | 44.2 | 11.7 | 30.2 | 30.2 | 6.3 |
| 32 | 70.3 | 18.8 | 3.1 | 59.7 | 16.9 | 5.2 | 36.0 | 16.0 | 0.0 |
| 33 | 74.6 | 15.9 | 0.0 | 53.2 | 18.2 | 5.2 | 51.6 | 5.4 | 0.0 |
| 34 | 73.4 | 15.6 | 1.6 | 57.1 | 19.5 | 5.2 | 46.9 | 4.1 | 1.0 |
| 35 | 68.3 | 23.8 | 1.6 | 57.9 | 26.3 | 2.6 | 48.5 | 3.0 | 1.0 |

TABLE 10 (Cont'd)

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | None | Some | GD | None | Some | GD |
| 36 | 85.9 | 4.7 | 1.6 | 77.9 | 9.1 | 1.3 | 54.0 | 1.0 | 0.0 |
| 37 | 84.4 | 6.3 | 3.1 | 74.0 | 11.7 | 3.9 | 52.0 | 3.1 | 0.0 |
| 38 | 89.1 | 0.0 | 1.6 | 81.6 | 5.3 | 1.3 | 54.5 | 1.0 | 0.0 |
| 39 | 68.8 | 17.2 | 3.1 | 68.8 | 19.5 | 2.6 | 57.3 | 2.1 | 0.0 |
| 40 | 85.9 | 3.1 | 0.8 | 77.9 | 10.4 | 1.3 | 47.9 | 5.2 | 0.0 |
| 41 | 82.5 | 6.3 | 1.6 | 75.3 | 15.6 | 1.3 | 52.0 | 2.0 | 0.0 |
| 42 | 42.9 | 46.0 | 3.2 | 35.5 | 43.4 | 5.3 | 36.0 | 21.0 | 2.0 |

GD - A Great Deal

APPENDIX P

TABLE 11

DESIRED INVOLVEMENT, OBSERVED RESPONSE FREQUENCIES

| Item No. | School Administrators N = 64 | | | | | | Vocational Educators N = 77 | | | | | | Business and Industry Personnel N = 102 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD |
| 1 | 1 | 0 | 0 | 2 | 41 | 20 | 1 | 3 | 6 | 1 | 42 | 24 | 5 | 12 | 10 | 3 | 42 | 30 |
| 2 | 2 | 1 | 0 | 2 | 43 | 16 | 4 | 3 | 5 | 1 | 37 | 27 | 4 | 11 | 11 | 3 | 43 | 30 |
| 3 | 1 | 0 | 1 | 2 | 33 | 27 | 1 | 2 | 5 | 2 | 30 | 37 | 3 | 10 | 9 | 2 | 29 | 49 |
| 4 | 0 | 0 | 4 | 7 | 25 | 28 | 1 | 2 | 5 | 13 | 36 | 20 | 4 | 9 | 11 | 18 | 38 | 22 |
| 5 | 0 | 0 | 4 | 11 | 33 | 16 | 1 | 2 | 5 | 15 | 39 | 15 | 4 | 13 | 10 | 32 | 25 | 18 |
| 6 | 1 | 1 | 7 | 19 | 30 | 6 | 1 | 3 | 7 | 22 | 34 | 10 | 3 | 10 | 13 | 19 | 41 | 16 |
| 7 | 1 | 1 | 6 | 12 | 37 | 7 | 1 | 0 | 9 | 15 | 37 | 15 | 8 | 7 | 12 | 15 | 43 | 17 |
| 8 | 1 | 0 | 9 | 17 | 34 | 3 | 1 | 0 | 10 | 18 | 37 | 11 | 6 | 9 | 11 | 18 | 39 | 19 |
| 9 | 1 | 0 | 1 | 10 | 42 | 10 | 4 | 1 | 4 | 7 | 43 | 18 | 5 | 10 | 9 | 11 | 41 | 26 |
| 10 | 0 | 0 | 1 | 6 | 44 | 13 | 2 | 0 | 4 | 7 | 45 | 19 | 2 | 9 | 11 | 8 | 41 | 31 |
| 11 | 1 | 0 | 0 | 6 | 45 | 12 | 1 | 0 | 4 | 4 | 45 | 23 | 4 | 9 | 11 | 9 | 48 | 21 |

TABLE 11 (Cont'd)

| Item No. | School Administrators N = 64 | | | | | | Vocational Educators N = 77 | | | | | | Business and Industry Personnel N = 102 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD |
| 12 | 1 | 0 | 1 | 11 | 46 | 5 | 1 | 0 | 3 | 6 | 50 | 17 | 4 | 9 | 10 | 14 | 47 | 18 |
| 13 | 1 | 0 | 1 | 10 | 46 | 6 | 1 | 0 | 6 | 6 | 46 | 18 | 2 | 9 | 9 | 7 | 49 | 26 |
| 14 | 1 | 0 | 0 | 2 | 16 | 45 | 1 | 0 | 2 | 3 | 22 | 49 | 3 | 10 | 8 | 6 | 46 | 29 |
| 15 | 1 | 0 | 1 | 3 | 37 | 22 | 2 | 1 | 2 | 2 | 45 | 25 | 2 | 14 | 6 | 13 | 40 | 27 |
| 16 | 1 | 0 | 2 | 0 | 13 | 48 | 1 | 0 | 2 | 4 | 18 | 52 | 6 | 10 | 11 | 7 | 46 | 22 |
| 17 | 1 | 0 | 2 | 12 | 41 | 8 | 2 | 1 | 3 | 13 | 46 | 12 | 3 | 12 | 8 | 17 | 46 | 16 |
| 18 | 1 | 0 | 0 | 0 | 26 | 37 | 1 | 0 | 0 | 2 | 24 | 50 | 5 | 12 | 6 | 8 | 41 | 30 |
| 19 | 1 | 0 | 0 | 1 | 36 | 26 | 1 | 1 | 1 | 2 | 26 | 46 | 3 | 10 | 8 | 13 | 39 | 29 |
| 20 | 1 | 0 | 2 | 9 | 36 | 16 | 3 | 1 | 3 | 5 | 41 | 24 | 3 | 14 | 9 | 28 | 37 | 11 |
| 21 | 1 | 0 | 0 | 7 | 36 | 20 | 1 | 0 | 1 | 7 | 38 | 30 | 3 | 11 | 10 | 19 | 38 | 21 |
| 22 | 0 | 0 | 1 | 6 | 37 | 20 | 2 | 0 | 0 | 7 | 41 | 27 | 5 | 10 | 14 | 21 | 36 | 16 |
| 23 | 2 | 0 | 0 | 1 | 31 | 30 | 1 | 0 | 0 | 2 | 30 | 44 | 4 | 12 | 2 | 10 | 51 | 23 |
| 24 | 1 | 0 | 0 | 5 | 35 | 23 | 1 | 0 | 1 | 3 | 32 | 40 | 3 | 10 | 9 | 14 | 47 | 19 |

TABLE 11 (Cont'd)

| Item No. | School Administrators N = 64 | | | | | | Vocational Educators N = 77 | | | | | | Business and Industry Personnel N = 102 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD |
| 25 | 2 | 0 | 0 | 2 | 16 | 44 | 1 | 0 | 0 | 0 | 23 | 53 | 3 | 9 | 2 | 1 | 48 | 39 |
| 26 | 2 | 0 | 0 | 4 | 26 | 32 | 1 | 0 | 4 | 2 | 31 | 39 | 3 | 12 | 6 | 4 | 31 | 46 |
| 27 | 2 | 0 | 1 | 6 | 34 | 21 | 1 | 0 | 0 | 5 | 32 | 39 | 3 | 9 | 13 | 19 | 39 | 19 |
| 28 | 0 | 0 | 2 | 8 | 37 | 17 | 1 | 0 | 1 | 12 | 31 | 32 | 5 | 10 | 13 | 26 | 36 | 12 |
| 29 | 1 | 0 | 0 | 6 | 27 | 30 | 2 | 0 | 1 | 5 | 28 | 41 | 6 | 10 | 8 | 11 | 44 | 23 |
| 30 | 1 | 0 | 0 | 9 | 41 | 13 | 1 | 0 | 5 | 11 | 37 | 23 | 4 | 11 | 14 | 23 | 37 | 13 |
| 31 | 1 | 0 | 1 | 6 | 43 | 13 | 1 | 0 | 1 | 3 | 40 | 32 | 6 | 9 | 4 | 14 | 51 | 18 |
| 32 | 2 | 0 | 2 | 13 | 41 | 6 | 1 | 0 | 12 | 14 | 34 | 16 | 5 | 10 | 14 | 26 | 36 | 11 |
| 33 | 0 | 0 | 3 | 19 | 37 | 5 | 2 | 0 | 7 | 13 | 48 | 7 | 3 | 12 | 14 | 19 | 36 | 18 |
| 34 | 0 | 0 | 5 | 13 | 37 | 9 | 1 | 0 | 5 | 15 | 39 | 17 | 3 | 10 | 13 | 27 | 30 | 19 |
| 35 | 1 | 0 | 1 | 13 | 35 | 14 | 1 | 1 | 3 | 11 | 39 | 22 | 6 | 11 | 12 | 24 | 31 | 18 |
| 36 | 0 | 2 | 5 | 30 | 21 | 6 | 1 | 0 | 13 | 20 | 29 | 14 | 3 | 12 | 19 | 33 | 30 | 5 |
| 37 | 0 | 0 | 2 | 23 | 27 | 12 | 1 | 0 | 8 | 17 | 33 | 18 | 5 | 10 | 18 | 41 | 22 | 6 |

TABLE 11 (Cont'd)

| Item No. | School Administrators N = 64 | | | | | | Vocational Educators N = 77 | | | | | | Business and Industry Personnel N = 102 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD | NR | DK | UN | NO | SO | GD |
| 38 | 0 | 0 | 9 | 31 | 19 | 5 | 1 | 1 | 11 | 33 | 20 | 11 | 4 | 15 | 18 | 48 | 14 | 3 |
| 39 | 0 | 0 | 4 | 13 | 32 | 15 | 1 | 0 | 7 | 16 | 32 | 21 | 8 | 11 | 17 | 31 | 28 | 7 |
| 40 | 1 | 1 | 2 | 23 | 27 | 10 | 1 | 1 | 7 | 30 | 27 | 11 | 3 | 10 | 17 | 26 | 34 | 12 |
| 41 | 2 | 0 | 4 | 19 | 34 | 5 | 1 | 1 | 6 | 28 | 32 | 9 | 6 | 10 | 13 | 34 | 31 | 8 |
| 42 | 1 | 0 | 2 | 2 | 38 | 21 | 2 | 0 | 3 | 6 | 37 | 29 | 3 | 12 | 11 | 24 | 38 | 14 |

NR - No Response

DK - Don't Know

UN - Uncertain

NO - None

SO - Some

GD - A Great Deal

APPENDIX Q

TABLE 12

DESIRED INVOLVEMENT, OBSERVED RESPONSE PERCENTAGES

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | None | Some | GD | None | Some | GD |
| 1 | 3.2 | 65.1 | 31.7 | 1.3 | 55.3 | 31.6 | 3.1 | 43.3 | 30.9 |
| 2 | 3.2 | 69.4 | 25.8 | 1.4 | 50.7 | 37.0 | 3.1 | 43.9 | 30.6 |
| 3 | 3.2 | 52.4 | 42.9 | 2.6 | 39.5 | 48.7 | 2.0 | 29.3 | 49.5 |
| 4 | 10.9 | 39.1 | 43.8 | 17.1 | 47.4 | 26.3 | 18.4 | 38.8 | 22.4 |
| 5 | 17.2 | 51.6 | 25.0 | 19.7 | 51.3 | 19.7 | 32.7 | 25.5 | 18.4 |
| 6 | 30.2 | 47.6 | 9.5 | 28.9 | 44.7 | 13.2 | 19.2 | 41.4 | 16.2 |
| 7 | 19.0 | 58.7 | 11.1 | 19.7 | 48.7 | 19.7 | 16.0 | 45.7 | 18.1 |
| 8 | 27.0 | 54.0 | 4.8 | 23.7 | 48.7 | 14.5 | 18.8 | 40.6 | 19.8 |
| 9 | 15.9 | 66.7 | 15.9 | 9.6 | 58.9 | 24.7 | 11.3 | 42.3 | 26.8 |
| 10 | 9.4 | 68.8 | 20.3 | 9.3 | 60.0 | 25.3 | 8.0 | 41.0 | 31.0 |
| 11 | 9.5 | 71.4 | 19.0 | 5.3 | 59.2 | 30.3 | 9.2 | 49.0 | 21.4 |
| 12 | 17.5 | 73.0 | 7.9 | 7.9 | 65.8 | 22.4 | 14.3 | 48.0 | 18.4 |
| 13 | 15.9 | 73.0 | 9.5 | 7.9 | 60.5 | 23.7 | 7.0 | 49.0 | 26.0 |
| 14 | 3.2 | 25.4 | 71.4 | 3.9 | 28.9 | 64.5 | 6.1 | 46.5 | 29.3 |
| 15 | 4.8 | 58.7 | 34.9 | 2.7 | 60.0 | 33.3 | 13.0 | 40.0 | 27.0 |
| 16 | 0.0 | 20.6 | 76.2 | 5.3 | 23.7 | 68.4 | 7.3 | 47.9 | 22.9 |

TABLE 12 (Cont'd)

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | None | Some | GD | None | Some | GD |
| 17 | 19.0 | 65.1 | 12.7 | 17.3 | 61.3 | 16.0 | 17.2 | 46.5 | 16.2 |
| 18 | 0.0 | 41.3 | 58.7 | 2.6 | 31.6 | 65.8 | 8.2 | 42.3 | 30.9 |
| 19 | 1.6 | 57.1 | 41.3 | 2.6 | 34.2 | 60.5 | 13.1 | 39.4 | 29.3 |
| 20 | 14.3 | 57.1 | 25.4 | 6.8 | 55.4 | 32.4 | 28.3 | 37.4 | 11.1 |
| 21 | 11.1 | 57.1 | 31.7 | 9.2 | 50.0 | 39.5 | 19.2 | 38.4 | 21.2 |
| 22 | 9.4 | 57.8 | 31.3 | 9.3 | 54.7 | 36.0 | 21.6 | 37.1 | 16.5 |
| 23 | 1.6 | 50.0 | 48.4 | 2.6 | 39.5 | 57.9 | 10.2 | 52.0 | 23.5 |
| 24 | 7.9 | 55.6 | 36.5 | 3.9 | 42.1 | 52.6 | 14.1 | 47.5 | 19.2 |
| 25 | 3.2 | 25.8 | 71.0 | 0.0 | 30.3 | 69.7 | 1.0 | 48.5 | 39.4 |
| 26 | 6.5 | 41.9 | 51.6 | 2.6 | 40.8 | 51.3 | 4.0 | 31.3 | 46.5 |
| 27 | 9.7 | 54.8 | 33.9 | 6.6 | 42.1 | 51.3 | 19.2 | 39.4 | 19.2 |
| 28 | 12.5 | 57.8 | 26.6 | 15.8 | 40.8 | 42.1 | 26.8 | 37.1 | 12.4 |
| 29 | 9.5 | 42.9 | 47.6 | 6.7 | 37.3 | 54.7 | 11.5 | 45.8 | 24.0 |
| 30 | 14.3 | 65.1 | 20.6 | 14.5 | 48.7 | 30.3 | 23.5 | 37.8 | 13.3 |
| 31 | 9.5 | 68.3 | 20.6 | 3.9 | 52.6 | 42.1 | 14.6 | 53.1 | 18.8 |
| 32 | 21.0 | 66.1 | 9.7 | 18.4 | 44.7 | 21.1 | 26.8 | 37.1 | 11.3 |
| 33 | 29.7 | 57.8 | 7.8 | 17.3 | 64.0 | 9.3 | 19.2 | 36.4 | 18.2 |
| 34 | 20.3 | 57.8 | 14.1 | 19.7 | 51.3 | 22.4 | 27.3 | 30.3 | 19.2 |
| 35 | 20.6 | 55.6 | 22.2 | 14.5 | 51.3 | 28.9 | 25.0 | 32.3 | 18.8 |
| 36 | 46.9 | 32.8 | 9.4 | 26.3 | 38.2 | 18.4 | 33.3 | 30.3 | 5.1 |

TABLE 12 (Cont'd)

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | None | Some | GD | None | Some | GD | None | Some | GD |
| 37 | 35.9 | 42.2 | 18.8 | 22.4 | 43.4 | 23.7 | 42.3 | 22.7 | 6.2 |
| 38 | 48.4 | 29.7 | 7.8 | 43.4 | 26.3 | 14.5 | 49.0 | 14.3 | 3.1 |
| 39 | 20.3 | 50.0 | 23.4 | 21.1 | 42.1 | 27.6 | 33.0 | 29.8 | 7.4 |
| 40 | 36.5 | 42.9 | 15.9 | 39.5 | 35.5 | 14.5 | 26.3 | 34.3 | 12.1 |
| 41 | 30.6 | 54.8 | 8.1 | 36.8 | 42.1 | 11.8 | 35.4 | 32.3 | 8.3 |
| 42 | 3.2 | 60.3 | 33.3 | 8.0 | 49.3 | 38.7 | 24.2 | 38.4 | 14.1 |

GD - A Great Deal

APPENDIX R

TABLE 13

FACILITATING AND RESTRICTING FACTORS, OBSERVED RESPONSE FREQUENCIES

| Item No. | School Administrators N = 64 | | | | | | | Vocational Educators N = 77 | | | | | | | Business and Industry Personnel N = 102 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | SD | MD | UN | MA | SA | NR | DK | SD | MD | UN | MA | SA | NR | DK | SD | MD | UN | MA | SA |
| 1 | 0 | 2 | 1 | 4 | 7 | 39 | 11 | 0 | 6 | 3 | 5 | 10 | 43 | 10 | 0 | 15 | 2 | 14 | 14 | 43 | 14 |
| 2 | 0 | 0 | 0 | 0 | 4 | 29 | 31 | 0 | 1 | 0 | 2 | 8 | 32 | 34 | 0 | 13 | 3 | 5 | 19 | 38 | 24 |
| 3 | 0 | 1 | 3 | 15 | 12 | 23 | 10 | 0 | 7 | 3 | 9 | 17 | 26 | 15 | 1 | 12 | 9 | 21 | 22 | 29 | 8 |
| 4 | 0 | 1 | 1 | 6 | 9 | 34 | 13 | 0 | 4 | 1 | 8 | 11 | 36 | 17 | 0 | 16 | 4 | 18 | 16 | 32 | 16 |
| 5 | 0 | 3 | 1 | 8 | 18 | 25 | 9 | 0 | 8 | 2 | 9 | 9 | 35 | 14 | 0 | 19 | 4 | 11 | 18 | 32 | 18 |
| 6 | 2 | 3 | 14 | 25 | 7 | 12 | 1 | 1 | 6 | 13 | 27 | 15 | 12 | 3 | 0 | 21 | 12 | 20 | 29 | 14 | 6 |
| 7 | 0 | 1 | 1 | 4 | 5 | 23 | 30 | 0 | 1 | 0 | 3 | 6 | 37 | 30 | 0 | 12 | 4 | 6 | 20 | 38 | 22 |
| 8 | 0 | 1 | 6 | 15 | 13 | 28 | 1 | 1 | 6 | 6 | 12 | 15 | 36 | 1 | 0 | 20 | 4 | 9 | 20 | 32 | 17 |
| 9 | 2 | 4 | 6 | 19 | 8 | 23 | 2 | 0 | 5 | 14 | 17 | 16 | 18 | 7 | 0 | 24 | 12 | 13 | 28 | 18 | 7 |
| 10 | 0 | 5 | 0 | 4 | 5 | 26 | 24 | 0 | 2 | 1 | 4 | 12 | 35 | 23 | 0 | 29 | 0 | 3 | 23 | 26 | 21 |
| 11 | 0 | 1 | 1 | 0 | 0 | 13 | 51 | 0 | 1 | 0 | 1 | 4 | 14 | 57 | 0 | 12 | 0 | 2 | 9 | 27 | 52 |

TABLE 13 (Cont'd)

| Item No. | School Administrators N = 64 | | | | | | | Vocational Educators S = 77 | | | | | | | Business and Industry Personnel N = 102 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | SD | MD | UN | MA | SA | NR | DK | SD | MD | UN | MA | SA | NR | DK | SD | MD | UN | MA | SA |
| 12 | 0 | 0 | 9 | 12 | 14 | 21 | 8 | 0 | 9 | 9 | 13 | 21 | 19 | 6 | 0 | 20 | 13 | 16 | 31 | 16 | 6 |
| 13 | 0 | 2 | 15 | 19 | 11 | 14 | 3 | 0 | 5 | 24 | 13 | 14 | 14 | 7 | 0 | 18 | 14 | 21 | 19 | 21 | 9 |
| 14 | 0 | 0 | 4 | 15 | 10 | 32 | 3 | 0 | 9 | 1 | 13 | 16 | 30 | 8 | 0 | 24 | 6 | 14 | 23 | 29 | 6 |
| 15 | 0 | 0 | 7 | 17 | 5 | 34 | 1 | 0 | 11 | 2 | 18 | 14 | 25 | 7 | 0 | 21 | 8 | 13 | 18 | 34 | 8 |
| 16 | 0 | 2 | 15 | 17 | 13 | 15 | 2 | 0 | 9 | 8 | 20 | 16 | 16 | 8 | 0 | 23 | 13 | 21 | 24 | 18 | 3 |
| 17 | 0 | 1 | 11 | 20 | 8 | 21 | 3 | 0 | 6 | 4 | 17 | 14 | 25 | 11 | 0 | 27 | 1 | 15 | 30 | 23 | 6 |
| 18 | 0 | 2 | 4 | 7 | 11 | 34 | 6 | 0 | 6 | 6 | 11 | 16 | 32 | 6 | 0 | 29 | 4 | 21 | 14 | 27 | 7 |
| 19 | 0 | 1 | 6 | 16 | 16 | 22 | 3 | 1 | 7 | 7 | 14 | 13 | 28 | 7 | 0 | 21 | 3 | 18 | 17 | 36 | 7 |
| 20 | 1 | 2 | 1 | 14 | 17 | 21 | 8 | 2 | 3 | 1 | 11 | 10 | 36 | 14 | 1 | 23 | 1 | 17 | 21 | 26 | 13 |
| 21 | 1 | 0 | 12 | 20 | 9 | 16 | 6 | 1 | 1 | 18 | 17 | 11 | 21 | 8 | 0 | 13 | 34 | 32 | 11 | 5 | 7 |
| 22 | 1 | 2 | 5 | 11 | 9 | 28 | 8 | 2 | 2 | 5 | 16 | 14 | 26 | 12 | 0 | 38 | 4 | 17 | 23 | 16 | 4 |
| 23 | 1 | 0 | 1 | 5 | 18 | 29 | 10 | 1 | 2 | 4 | 7 | 27 | 17 | 19 | 0 | 19 | 4 | 1 | 22 | 39 | 17 |

TABLE 13 (Cont'd)

| Item No. | School Administrators N = 64 | | | | | | | Vocational Educators N = 77 | | | | | | | Business and Industry Personnel N = 102 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR | DK | SD | MD | UN | MA | SA | NR | DK | SD | MD | UN | MA | SA | NR | DK | SD | MD | UN | MA | SA |
| 24 | 0 | 0 | 2 | 1 | 9 | 24 | 28 | 0 | 1 | 2 | 2 | 6 | 30 | 36 | 0 | 12 | 2 | 2 | 13 | 44 | 29 |
| 25 | 1 | 2 | 3 | 6 | 21 | 19 | 12 | 1 | 4 | 3 | 7 | 20 | 27 | 15 | 0 | 19 | 3 | 12 | 24 | 20 | 24 |

NR - No Response

DK - Don't Know

SD - Strongly Disagree

MD - Mildly Disagree

UN - Uncertain

MA - Mildly Agree

SA - Strongly Agree

APPENDIX S

TABLE 14

FACILITATING AND RESTRICTING FACTORS, OBSERVED RESPONSE PERCENTAGES

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Disagree | Uncertain | Agree | Disagree | Uncertain | Agree | Disagree | Uncertain | Agree |
| 1 | 7.8 | 10.9 | 78.1 | 10.4 | 13.0 | 68.8 | 15.7 | 13.7 | 55.9 |
| 2 | 0.0 | 6.3 | 93.8 | 2.6 | 10.4 | 85.7 | 7.8 | 18.6 | 60.8 |
| 3 | 28.1 | 18.8 | 51.6 | 15.6 | 22.1 | 53.2 | 29.7 | 21.8 | 36.6 |
| 4 | 10.9 | 14.1 | 73.4 | 11.7 | 14.3 | 68.8 | 21.6 | 15.7 | 47.1 |
| 5 | 14.1 | 28.1 | 53.1 | 14.3 | 11.7 | 63.6 | 14.7 | 17.6 | 49.0 |
| 6 | 62.9 | 11.3 | 21.0 | 52.6 | 19.7 | 19.7 | 31.4 | 28.4 | 19.6 |
| 7 | 7.8 | 7.8 | 82.8 | 3.9 | 7.8 | 87.0 | 9.8 | 19.6 | 58.8 |
| 8 | 32.8 | 20.3 | 45.3 | 23.7 | 19.7 | 48.7 | 12.7 | 19.6 | 48.0 |
| 9 | 40.3 | 12.9 | 40.3 | 40.3 | 20.8 | 32.5 | 24.5 | 27.5 | 24.5 |
| 10 | 6.3 | 7.8 | 78.1 | 6.5 | 15.6 | 75.3 | 2.9 | 22.5 | 46.1 |
| 11 | 1.6 | 0.0 | 96.9 | 1.3 | 5.2 | 92.2 | 2.0 | 8.8 | 77.5 |

TABLE 14 (Cont'd)

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Disagree | Uncertain | Agree | Disagree | Uncertain | Agree | Disagree | Uncertain | Agree |
| 12 | 32.8 | 21.9 | 45.3 | 28.6 | 27.3 | 32.5 | 28.4 | 30.4 | 21.6 |
| 13 | 53.1 | 17.2 | 26.6 | 48.1 | 18.2 | 27.3 | 34.3 | 18.6 | 29.4 |
| 14 | 29.7 | 15.6 | 54.7 | 18.2 | 20.8 | 49.4 | 19.6 | 22.5 | 34.3 |
| 15 | 37.5 | 7.8 | 54.7 | 26.0 | 18.2 | 41.6 | 20.6 | 17.6 | 41.2 |
| 16 | 50.0 | 20.3 | 26.6 | 36.4 | 20.8 | 31.2 | 33.3 | 23.5 | 20.6 |
| 17 | 48.4 | 12.5 | 37.5 | 27.3 | 18.2 | 46.8 | 15.7 | 29.4 | 28.4 |
| 18 | 17.2 | 17.2 | 62.5 | 22.1 | 20.8 | 49.4 | 24.5 | 13.7 | 33.3 |
| 19 | 34.4 | 25.0 | 39.1 | 27.6 | 17.1 | 46.1 | 20.6 | 16.7 | 42.2 |
| 20 | 23.8 | 27.0 | 46.0 | 16.0 | 13.3 | 66.7 | 17.8 | 20.8 | 38.6 |
| 21 | 50.8 | 14.3 | 34.9 | 46.1 | 14.5 | 38.2 | 64.7 | 10.8 | 11.8 |
| 22 | 25.4 | 14.3 | 57.1 | 28.0 | 18.7 | 50.7 | 20.6 | 22.5 | 19.6 |
| 23 | 9.5 | 28.6 | 61.9 | 14.5 | 35.5 | 47.4 | 4.9 | 21.6 | 54.9 |

TABLE 14 (Cont'd)

| Item No. | School Administrators N = 64 | | | Vocational Educators N = 77 | | | Business and Industry Personnel N = 102 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Disagree | Uncertain | Agree | Disagree | Uncertain | Agree | Disagree | Uncertain | Agree |
| 24 | 4.7 | 14.1 | 81.3 | 5.2 | 7.8 | 85.7 | 3.9 | 12.7 | 71.6 |
| 25 | 14.3 | 33.3 | 49.2 | 13.2 | 26.3 | 55.3 | 14.7 | 23.5 | 43.1 |

# VITA

Jerry Deamus Scott, son of D. E. and Della Scott, was born June 20, 1936 in Greeneville, Tennessee. He attended elementary and secondary schools in Greene County and graduated from Greeneville High School in 1954. In the fall of 1954 he entered the University of Tennessee and received the Bachelor of Science degree in Agricultural Education and Dairy Manufacturing in August, 1958. He was drafted into the United States Army in September, 1958, and was discharged in September, 1960.

His educational experiences included eight years of teaching vocational agriculture in the Greene County School System, one and one-half years as a curriculum consultant with the Georgia State Department of Education, three years as local director of vocational education in the Unicoi County School System, and two years as local director of vocational education in the Oak Ridge School System. He has been awarded two educational fellowships: one year at Mississippi State University as a participant in the Experienced Teacher Fellowship Program, and one year at the University of Tennessee as a participant in the Education Professions Development Program. He received his Master of Education degree from Mississippi State University in 1970, with a major in Agricultural Education. In 1975 he earned a Master of Science degree at the University of Tennessee with major emphasis in Industrial Education.

He is presently Director of Career and Vocational-Technical Education in the Oak Ridge City School System, Oak Ridge, Tennessee.

Major emphasis for his doctoral program was administration and supervision with special emphasis on vocational-technical education.

He is married to the former Wilma Lee Clouse of Erwin, Tennessee.