AN ABSTRACT OF THE THESIS OF

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Title: A Comparison of the Perceptions of Educational Personnel Toward Trade and Industrial Teacher Certification Procedures in Selected States

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Purpose of the Study

The main focus of this study was to compare the perceptions of district superintendents, vocational administrators and trade and industrial teachers toward vocational teacher certification procedures and ramifications. The population consisted of 225 respondents randomly selected from 15 states.

The following hypotheses were tested:

1. There is no significant difference between group mean scores for occupational groups with regard to status I.

2. There is no significant difference between group mean scores for occupational groups with regard to status II.

3. There is no significant difference among group mean scores for states with respect to status I.

4. There is no significant difference among group mean scores for

states with respect to status II.

5. There is no significant difference between mean scores for occupational groups.

6. There is no significant difference between mean scores for respondents with respect to years of education for status II.

7. There is no significant interaction effect between the levels of the main effects for status I and status II.

Procedures

Two two-factor ANOVA (analysis of variance) models were used for testing the null hypotheses. The demographic data was used to determine the effect due to years of education. The Newman-Keuls multiple comparisons test was utilized to analyze differences in the cases where F was in the critical region.

Findings

The following six objectives were answered:

1. To review current related literature on certification procedures and requirements for T & I teachers. Results: The review of literature revealed a national need to provide guidelines and synthesis of procedural elements in certification procedures.

2. To employ the Delphi technique to generate an instrument to measure agreement on certification issues. Results: The Delphi panel and review panel generated a questionnaire to measure perceptions of respondents to critical certification issues.

3. To determine which certification procedures were most acceptable

to the respondent groups. Results: (1) Trade and industrial teachers should be represented by the certifying agency; (2) vocational administrators should be selected from the ranks of vocationally certified personnel; (3) occupational experience for certification should be relevant and recent; (4) trade and industrial teachers should acquire occupational competency by apprenticeship or equivalent learning period; (5) there should be uniformity in certification requirements throughout a state; (6) trade and industrial teachers should be required to take professional teaching and methods classes for classroom effectiveness.

4. To determine how the respondents perceptions of actual conditions regarding certification requirements compared with the perceptions of more desirable conditions. Results: Differences existed in 24 of the 50 tests for Hypothesis 1 and Hypothesis 2. These findings indicate basic philosophical differences on certification issues exist especially between superintendents and T & I teachers.

5. To provide state certification agencies, commissions, and boards with relevant, current opinion on certification procedures of national significance. Results: In those cases where differences did exist, analysis reveals that states differences were few. So, the issues at variance have national significance in establishing a model procedure.

6. To make recommendations concerning state trade and industrial teacher certification practices. Results: Occupational qualifications for vocational certification are a national concern, as are core courses for vocational teacher preparation.

Conclusions

1. Trade and industrial teacher certification requirements demand proven occupational experience and professional teaching and methods classes.

2. The mean years of education for T & I teachers (3.6) indicates a strong move toward the bachelors level for all.

3. Occupational competency testing is a viable method of obtaining advanced credits toward the bachelors degree and for verifying competence.

4. Representation by T & I teachers on the certifying agency or board is a concern.

5. Vocational administrators should only be selected from the ranks of experienced vocational teachers.

6. There should be uniformity in certification requirements from one district to another in a state.

A Comparison of the Perceptions of Educational Personnel Toward Trade and Industrial Teacher Certification Procedures in Selected States

by

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I. INTRODUCTION

> Vocational education, occupational education, manpower development ... whatever the title ... cannot be any better than the people in it. This is perhaps an oversimplification of a very complex problem that has plagued vocational education for decades. And at a time when our nation is facing a severe test of its way of life, the question is raised, "are those in vocational education prepared for the challenge?" (Schaefer and Ward 1972, p. 7)

We live in a technological age which frequently refers to certain changes as being "revolutionary." Some of these revolutionary developments and changes in education take the form of instructional technology, curriculum innovations, research, teacher education and teacher recruitment. The recruitment, selection, preparation and continuing education of vocational education personnel is of paramount importance to the efficacy of vocational programs in the nation (Hanson 1968, p. 76).

In order to meet the increasing demand for teachers in vocational programs, most states have adopted requirements for certification that are quite different from their requirements for academic subject teachers (Schuler 1974, p. 49). In academic areas at the secondary level, a baccalaureate degree in education is the standard minimum requirement for teacher certification (Smith 1973, p. 28). However, vocational certification at both the secondary and post-secondary level is based upon occupational competency in the specialty areas, as well as academic accomplishment. In many states, certification of teachers in post-secondary technical and trades programs is not required at all

(Miller and Roehrich 1978, p. 26). Further, qualification requirements for vocational teachers are tailored by each individual state, and adjusted to alleviate varying teacher shortages in those states. Consequently, certification requirements are vastly different from state to state (Ramp and Reeder 1970, p. 1).

> Colleges and universities have for years graduated teachers in vocational agriculture, home economics and distributive education who were certified by the state to teach these vocational subjects on the basis of college preparation. For trade and industrial education teachers, however, the situation has been quite different. It has been rather common practice to recruit trade and industrial teachers from industry and/or business. Journeymen, who were willing to teach, were provided a number of "professional education" courses and a special certificate and were sent out into the classroom to teach--with very little consideration accorded to whether they were "qualified" to teach on any other basis than vocational experience. (Kazanas and Kieft 1966, p. 5)

The passage of the Vocational Education Act of 1963 gave renewed impetus to secondary school enrollment in vocational programs which reached over eight million in 1976 and is projected to 12 million by 1985. This dramatic increase in the need for skilled workers in a technological society (Hoyle 1977, p. 271) and the concomitant of finding well prepared teachers is an issue of major importance which both education institutions and government leaders must address. The critical shortage of vocational teachers (Swanson 1978, p. 88) and the certification of those available, are national concerns of major importance (Baker 1977, p. 41).

The recruiting of vocational teachers is complicated because of the uniqueness of each occupation (Allen 1974, p. 123). He further points up the necessity for the industrial teacher to bring the peculiar "language, traditions, interpersonal working relations, working conditions,

employee/employer relationships and contractual agreements, safety and health considerations, and other customs and practices" to the classroom and laboratory. Miller (1974) presents yet another aspect of the problem: "Many vocational teachers will feel entirely independent, based on secure knowledge of their employability outside the educational system." (p. 62).

"The good skilled craftsman or technician can earn far more in industry than he can within the present salary scale of a public school teacher." (Venn 1964, p. 35).

Finally, the problem narrows somewhat to that of identifying and certifying those persons who are competent, from the resource pool of those who are seeking teaching positions (Weatherford and Koeninger 1974, p. 225). It seems evident that the success of vocational education in the public schools lies in the instructional system and ultimately in the standards and quality of the instructors (Barlow 1974, p. 268).

> The personnel development system within our profession has been measured and found inadequate. There is neither the quantity nor quality of personnel needed to move forward the vocational component of the educational system. Qualified administrators, teachers and ancillary personnel are in short supply. (Schaefer and Ward 1972, p. 10)

These are fascinating but frustrating times replete with the problems of unemployment, reaction against the high costs of education, conflict between ethnic groups, minorities and between the young and the old (Friedlander 1966, pp. 143-152). The problems are complex as are the needs of today's technological society. The problem for educational leaders is to find better ways to bring people and information together for the benefit of society by reforming curriculum, supervisory

procedures and teacher training and certification (Frymier 1972, pp. 8-30).

Finally, Frank Cassell, former Director of the U. S. Employment Service said: "The demand by our people to raise the quality of life in the United States requires the spawning of hundreds of new occupations and careers...." This broadening scope of occupations and careers requires state educational agencies to take the lead in planning and establishing a greater diversity of educational opportunities to be able to "tap the unlimited potential of America's free enterprise system and enlist the human resources and talents that are in every neighborhood and community." (Minear 1969, pp. 33-50).

This is indeed an era of inflationary costs and competition for resources. All education, it seems, must be practical, efficient and accountable. Cutbacks in both programs and services are making this point across the nation today. "Practical education," however, must avoid the often undemocratic temptation to sort, shape and certify workers for an economic system.

> The kind of vocational education in which I am interested is not one which will "adapt" workers to the existing industrial regime ... to strive for a kind of vocational education which will first alter the existing industrial system and ultimately transform it. (Dewey 1917, p. 73)

Dewey also warned against separating vocational education from other kinds of education. He suggested that "all education is vocational." Vocational educators should be in the dedicated vanguard of those who would devote their professional careers to developing the intelligence, initiative, ingenuity, and creative capacity of students who as workers in a modern technological society can become their own masters (Dewey

1944, p. 190; Wirth 1974, pp. 169-204).

Rationale for the Study

The trade and industrial teacher is probably the most atypical of educators in American public schools (Tuttle 1977, p. 38). One main reason for this unique variation from type is the preparation of these teachers for the teaching role. It has become necessary to recruit instructors from sources other than teacher training institutions--often directly from industry or from the military (Welch and Garner 1976, p. 35). Although these teachers are highly skilled in a particular trade area, they may lack formal, pedagogical training, particularly those professional education courses often considered essential to satisfactory teaching effectiveness (Swartz and Vivekanathan 1975, p. 3). The vocational teacher's preparation as well as his/her subject matter is frequently misunderstood by colleagues, administrators and the general public (Swanson 1978, pp. 87-90). Goldhammer (1972, p. 24) points up the goals of various curricula as being not dichotomous but a fusion of academicism and vocationalism. The preparation and certification of vocational educators will mean meeting instructors needs and ultimately (Meade 1971) meeting education's goal which is that of helping student to learn.

> All education is career education or should be. And all our efforts as educators must be bent on preparing students either to become properly, usefully employed immediately upon graduation from high school or to go on to further formal education. Anything else is dangerous nonsense. (Marland 1971)

Statement of the Problem

> There has been a growing concern over the need for measures to accurately evaluate occupational competence. This concern has been expressed by vocational school administrators, leaders in industry and labor, the military, state officials responsible for the certification of vocational teachers, industrial teacher educators, and teachers themselves. Standards have been sought by which to judge teaching/learning effectiveness in terms of skills and related technical competence. (Panitz 1975)

The central problem of this study was to determine the common occupational training and educational needs for the certification of trade and industrial teachers. The respondents for the study represented district superintendents, vocational administrators, and trade and industrial teachers. In all, 15 randomly selected states were used to form the national representative sample. The problem involved the following major premises:

1. Determine the degree of agreement or concurrence on certification procedures as perceived by selected respondents representing administrators and teachers.

2. Statistical analysis of data to determine the common proficiency requirements to certify trade and industrial teachers.

3. The formulation of implications for occupational competency testing, in-service staff development, uniformity of vocational certification procedures leading to inter-state reciprocity.

Purpose of the Study

The major purpose of this study was to compare the perceptions of district superintendents, vocational administrators, and trade and industrial teachers toward vocational teacher certification procedures

and ramifications. Also, to identify those aspects of the qualification requirements that affect administrators, teacher educators, teachers and future teachers in vocational education.

Objectives of the Study

> Most state certification personnel voice concern about current procedures for certifying the occupational competency of new vocational teachers. There is need for a valid and reliable method of competency testing to validate the breadth and depth of work experience of teaching applicants before certification. Only a few states currently specify some form of competency testing as a requirement for certification. (Miller and Roehrich 1978, p. 26)

The objectives of the study were as follows:

1. To review the current related literature on the subject of certification requirements.

2. To employ the Delphi technique to generate an instrument to measure agreement on certification requirements.

3. To determine which certification procedures are most acceptable to the various respondent groups.

4. To determine how the respondents perceptions of the present actual conditions regarding certification issues in states compare with the perceptions of more desirable conditions.

5. To provide state certification commissions, degree granting institutions, vocational and administrative associations, local school districts and vocational teachers with relevant and current opinion on certification procedures with national significance.

6. To make recommendations concerning state trade and industrial certification practices.

Definition of Terms

The following definitions are intended to clarify those terms which are used frequently in the study and may not be understood within the concept.

Analysis of Variance: an inferential statistic designed to measure the difference between two or more groups' means.

Apprenticeship: an instructional program in which the learner works directly under a qualified craft worker to learn a trade.

Craftsmen: persons employed to practice a trade who are capable of working to the best acceptable standards of the industry with a minimum of supervision (works independently).

Certification: a careful review of a candidate's occupational competencies, education and possible trade tests results for comparison with the certifying agency's criteria. Certification often is provisional or probationary initially and proceeds toward a standard with teaching experience and/or education.

Certification Board or Commission (Miller and Roehrich 1978): the American Vocational Association's Board of Directors in 1976 appointed an Ad Hoc Committee of Professional Standards to study and report on the status and practices of the agencies controlling the certification of vocational educational personnel in the 50 states. This study identified three basic types of agencies as follows:

Type A: Full authority, independent, with legal jurisdiction over preparation and certification of teachers in the state.

Type B: This agency is advisory to the State Board of Education but has authority to establish criteria and standards and development of

reciprocal agreements with other states.

Type C: State board controls certification or delegates the authority to a subordinate panel or agency but retains final authority.

The AVA report shows the following breakdown of agency types in the states: Type A, 2; Type B, 16; Type C, 30; Other, 3.

Industrial Arts Education: industrial arts is traditionally a part of general education offerings in grades 6-12 providing opportunity for students to obtain exploratory and avocational experiences with the tools and materials of industry. It is not intended to provide students with job entry skills nor is the teacher required to be vocationally certified with the required years of experience in a trade. Industrial arts teachers usually possess the bachelors degree as a minimum requirement.

National Occupational Competency Exam: a written and a performance exam developed by the National Occupational Competency Testing Institute, sponsored by T & I Education, for the purpose of determining the degree of competency that one has in a specific trade and industrial occupation.

Newman-Keuls Method: a sequential variant method for multiple comparisons. Used to analyze differences in mean scores where F was in the critical region (Snedecor and Cochran 1974, pp. 273-274).

Occupational Competence: includes technical knowledge and skills; manipulative skills; communication skills; human relations skills; work habits; and the ability to reason, to solve problems, to think independently, and to make judgments necessary for satisfactory employment in the occupation. This also signifies the direct on-the-job experiences which an individual has documented in a certain trade or business area. It is usually considered to be at the journeyman level (beyond the

apprentice level). Months or years of experience may be contiguous or accrued for an hourly total, depending upon the certifying agency's criteria and requirements.

Professional: relating to how to teach or manage learning; relating to the educational profession. The art and science of teaching and administering vocational classes and programs. Persons having extensive skill and experience in vocational-technical education.

Related Instruction: courses of instruction in general or special subjects (e.g. English and mathematics related to shop and occupational requirements) designed to strengthen occupational competence.

Secondary Vocational Education: vocational education provided to students who are in grades 7-12.

Shop: work experience provided in a school setting simulating actual occupational conditions. Also the facility where such experience is provided.

Staff: people employed to operate an institution or program. Includes administrative staff, instructional staff (faculty), supportive staff, clerical staff, custodial staff, and other.

Status I: refers to the left side response scale on the questionnaire. Status I was designed to investigate the respondents perception of actual conditions in his/her state with respect to each of the statements. A two-way analysis of variance was conducted to test hypothesis one and hypothesis two for each of the statements.

Status II: refers to the right side response scale on the questionnaire. Status II was designed to investigate the respondents' degree of support for the concept in each statement. A two-way analysis

of variance was also conducted to test hypothesis one and hypothesis two for each of the statements.

Trade: an occupation requiring manual or mechanical skill and including the knowledges and problems solving abilities accompanying the occupation.

II. RELATED LITERATURE

> ... You walk through the ghettos in our cities today, drive through the hills of Appalachia, read your paper, or listen to the messages coming from our people and you know that there are thousands and thousands of youth and adults in this country who do not have educational programs available to them which are geared to meet their needs, in terms of realistic todays and unborn tomorrows rather than dead yesterdays. (Nielson 1968, p. 99)

Vocational education has been quietly and efficiently carrying out its complex training mission in the shops, classrooms and laboratories across the nation with both federal and state funds. However, the federal expenditures are only about one-tenth of the state and local funds (Swanson 1978, p. 87).

Vocational Education Programs in the Secondary Schools

Trade and industrial education as we know it today has its basis in the formation of the National Society for the Promotion of Trade and Industrial Education (NSPIE) in 1906 (Barlow 1967, p. 52). This dedicated group of businessmen and educators laid the groundwork and encouraged the legislative impetus which finally culminated in the vocational education landmark, the Smith-Hughes Act of 1917. This society included two very outstanding individuals whose contributions to vocational education and especially trade and industrial education are noteworthy. James E. Snedden and Charles A. Prosser are actually credited with writing many of the provisions in the bill (Barlow 1967, pp. 72-75; Roberts 1971, p. 106).

> The genius of Charles Prosser lay in his capacity to create well-tooled manpower training programs. Somewhere in a technological society that must be done. (Wirth 1974, p. 175).

There is continuing controversy over industry-based programs versus the traditional institutional instruction coupled with various on-the-job cooperative work experience programs. Many vocational educators and administrators recommend this type of accommodation as being necessary to dispel the inference of a dichotomy between school-based and industry-based instruction (Swanson 1978, p. 88; Goldhammer 1972, pp. 131-132).

The purpose of federal funds for vocational programs from 1917 until the present has generally been to stimulate the states and communities to develop and sustain vocational education based on individual and local needs (Roberts 1971, p. 16). The use of federal funds as incentive for manpower development has continued to take many forms such as the MDTA (Public Law 87-415 in 1966) which followed the landmark legislation of Public Law 85-864, the National Defense Education Act of 1958 which was an amendment to the George Barden Act of 1946. The Vocational Education Acts of 1963, 1968 and 1973 provided many new categories and encouraged the development of area vocational schools and community colleges. The funds from these acts also provided an ongoing impetus for personnel development which included both administration and teachers (Roberts 1971, p. 126).

The School District Superintendent

> With the increasing ferment in education, attention has been focused upon the roles and the functions of the educational administrator, both in the operation of the schools and in the provision of that leadership which is essential for monitoring the viability of public education in a dynamically changing society. (Goldhammer *et al*. 1967, p. 1)

Another critical issue for vocational programs is in the area of dynamic leadership in the school administrators' role, especially at

the local level. The effectiveness and success of both programs and teachers in vocational education is "determined to a large extent by the attitudes, values, education and work experience of the general school administrators" with whom they must work (Krepel 1967, p. 39). His study indicates that the attitudes of administrators toward vocational education were manifested by rating it lower in status than the academic areas. Another Nebraska study (Colgan 1967, p. 40) found the superintendents of larger districts more knowledgeable than their counterparts in the small districts. Sybouts (1968, p. 40) recommends a training program for administrators due to their obvious "inadequate background for effective leadership of vocational-technical programs." Many administrators are confused about the principles and objectives of vocational education and often interchange them with those of industrial arts in general education (Phillips 1967, p. 41).

> ... Most vocational programs do not have vocational directors; the superintendent is usually responsible for administering vocational education. (Hoyle 1977, p. 271)

The secondary school administrator usually comes from an academic background and does not purport to be well prepared for such diverse and complex roles as are found in most district assignments. It is difficult to rely upon research when faced with "practical" problems of management (Lee 1955, p. 648).

> Born of tensions, the role of the superintendent continues to be modified by them. As did his predecessors, today's superintendent becomes the focal point of severe and conflicting demands upon the schools. (American Association of School Administrators 1952, p. 39)

A very real problem for superintendents is in the area of occupational education for the students now in the schools. The technological

revolution has created implications for curriculum planning and staffing for phasing in new programs and objectively evaluating those which might be obsolescent (Goldhammer et al. 1967, p. 148).

> Superintendents need help in administering the vocational education program; it may be the most important program they administer. The busy world of school superintendents makes it difficult for them to learn the very skills that can keep the U. S. among world leaders in vocational and technical advancement. (Hoyle 1977, p. 272).

Gordon F. Law (1966) did a study in New York State on the duties and responsibilities of pbulic school administrators in regard to their role in the initiation and conduct of federally aided occupational programs. He found that many administrators lacked the professional training and experience necessary for accountability in these areas. He recommends that graduate programs be made available for these persons as well as workshops and seminars, and also advises the defining of such responsibilities by the local boards of education. Stanger (1967) conducted a California study on attitude and responsibilities of administrators and found executive functions as well as the instructional program and its staffing to be paramount when rank ordered.

The Vocational Administrator

> The State vocational educational agency must encourage initiative. Its professional staff should not have tenure or civil service status. Instead, performance should be subject to regular review under administrative supervision of the state board of vocational education. (Dees 1971).

The supervisors of vocational education programs are charged with such critical activities as the promotion, development, maintenance and improvement of instruction and facilities. It is mandatory that these functions be undertaken only by persons experienced in teaching these

programs (Roberts 1971, p. 145). The problem of qualified supervision is compounded by the necessity of locating supervisory staff who have wide vocational experience across a cluster of occupations (Lee 1968, p. 51).

The need for vocational program supervision in trade and industrial education was recognized by a survey conducted in 1922. As a result of this sruvey, and the obvious need for qualified personnel, the Federal Board for Vocational Education authorized the use of federal teacher training funds to reimburse the costs of supervisory salaries for local districts in 1925 (Barlow 1967, p. 144). The vocational education administrator has been typically a business or trades person whose teaching role expanded to include supervision of other vocational teachers, the planning of programs and facilities including the budgeting of monies for these efforts (McComas 1970, p. 3).

The use of advisory committees composed of local leaders in business, labor, government and citizen groups has fostered confidence in vocational planning and supervision at all levels from the USOE down to the state and local levels. Both vocational administrators and teachers benefit from these citizen committees. The Vocational Education Act of 1963 also provided for the creation of advisory councils at the state level and ultimately the Act of 1968 established a representative National Advisory Council appointed by the President (Roberts 1971, p. 136).

In this era of severe budget limitations and tax-payer rovolts the vocational administrators may sometimes be viewed as superfluous in smaller school districts and in others the position is sometimes entitled

"career education coordinator," which can tempt local districts to use non-vocational personnel for these duties. The position of vocational supervisor also can be further confused by the increasingly popular practice of combining several offices to be executed by one individual with such titles as "special needs supervisor," "work experience coordinator," "cluster coordinator" or "diversified occupations coordinator" (Oregon State Plan for Career and Vocational Education 1978).

In summary, the vocational administrator position demands a competent individual who is widely experienced in many areas of vocational education. This person must be familiar with the funding procedures at the federal level as well as those at the state and local levels. They are often called upon to write grant proposals, new programs, evaluation of existing programs and personnel, and long-range planning. They must work well with superintendents, education boards, advisory committees and business and industry (Educational and Professional Development Act 1970; Prakken 1978, p. 2; Feirer 1978, p. 3).

The Trade and Industrial Teacher

> The problem of acquiring competent vocational teachers is aggravated by the traditions and standards that have developed in the teaching profession. Rank, prestige, status, salary scales, and certification requirements are geared to years of schooling, degrees obtained, and seniority. (Kanzanas and Kieft 1966, p. 5)

The secondary schools were to become the proving ground for industrial teachers and in 1918 the National Scoeity for the Promotion of Industrial Education advocated that the states should establish certifying agencies for these trades teachers (Fagan 1968, p. 25).

During the 1940s Dr. Charles A. Prosser wrote a list of theorems

which he deemed as vital to the success of programs in vocational education. This basic set of theorems contained several principles which have stood the test of time. It is nearly 40 years since Prosser stated that the trade and industrial teacher must be a master craftsman from industry in order to teach a trade in school. Of course, this concept was not new to American educators, for none other than Benjamin Franklin voiced a similar concern nearly 200 years ago when he said, "a person can no more teach something he does not know, than he can come back from someplace he has not been." James McKinney, Assistant Professor at the University of Illinois in 1919 also made an early statement that "the teacher ... should be a recognized craftsman in the ranks of labor" (p. 13). The concept has continued that the teacher must be master of the subject or occupation in order to teach (Reed 1967, p. 39).

The secondary schools and their industrial teaching staffs met a most dramatic challenge when they were called upon to train a lion's share of the war effort workers in the early 1940s (Barlow 1967, pp. 318-323). The implementation of more stringent certification procedures was temporarily set aside during this emergency era (Baker 1977, p. 40).

The years immediately following World War II saw a great influx of ex-servicemen attending school under the education and training provisions of the G.I. Bill of Rights (Scheiber, Vatter and Fallwer 1976, pp. 94-107). Many of these men and women became vocational teachers but the emphasis was slowly changing from merely requiring evidence of occupational trade competencies for teaching to that of requiring more college courses as preparation for effectiveness in the classroom (Roberts 1971, pp. 218-221). The 1950s witnessed the dramatic expansion

of the community-junior college and post-secondary vocational programs saw sophisticated electronics and computer technology in juxtaposition with the traditional trade and industrial courses such as machine shop, foundry and mechanics (Calhoun and Finch 1976, p. 63). This period also witnessed an increase in the role of teacher training institutions in industrial teacher education and certification. The new emphasis was toward strong encouragement for trades and industries teachers to upgrade their professional competencies to the bachelors degree level (Baker 1977, p. 40).

Industry also is capable of contributing to the development of vocational teachers. The use of summer hire programs can be developed within companies which have production activities which involve the work that is related to the teacher's skill area. Industry, however, should be utilized to improve teacher skills under a definite constructive plan with proper selection, training and follow-up. The use of industry indiscriminately usually ends up only as a means of augmenting the teacher's income (Connors 1972, pp. 226-246).

In addition to the skills and competencies to be acquired in industry, there is the need to develop skills in instruction and communication for classroom effectiveness. Many professional educators would like to see the following requirements standardized among the various degree granting institutions for vocational educators:

Required Common Core Courses in the Undergraduate Program

	Credit
Principles and Educational Foundations of Vocational Education	3
Occupational Analysis	3

Philosophy of Vocational Education	3
Curriculum Development (based on occupational analysis)	3
Instruction Aids and Materials	3
Methods of Teaching Vocational Education	3
Youth Organizations in Vocational Education	3
Performance Evaluation	3
Human Relations	3
Student Teaching	9
Seminar in Student Teaching	3
Total	36

(From a model presented at the National Vocational Technical Teacher Education Seminar, November 1-4, 1970, Chase-Park Plaza Hotel, St. Louis, Missouri.)

In addition to the above requirements the following occupational requirements would also be considered as minimum:

1. Three years full-time job experience, or

2. Two-year post-secondary program with one to two years work experience for a minimum total of three years, and

3. A university sponsored internship program of 36 months of full-time supervised work experience provided on an alternate basis of 6 to 12 months in school and 6 to 12 months on the job, and

4. A combination of any or all of the above routes.

In summary, the trade and industrial teachers of today have more options open to them than their predecessors had, probably due in part to an increased awareness on the national level of the ramifications of teacher preparation and certification. The American Vocational

Association (AVA), as well as state and local associations, are deserving of much credit for this increased awareness of professional standards. The National Education Association (NEA) and the American Federation of Teachers (AFT) and their affiliates are also intensely interested in the certification of vocational teachers (Miller and Roehrich 1978, pp. 24-26).

The Certification of Industrial Educators

The Smith-Hughes legislation launched a new concept in the United States which was already a proven fact in Europe: the use of public financing for facilities and staff to produce skilled craftsmen for industry (Barlow 1967, p. 24). This meant, of course, that the teacher had to be a skilled craftsman first and also an effective teacher. This early teacher recruitment process followed a typical pattern:

> The vocational teacher for the industrial trades was usually selected by the local school using years of work experience and other criteria for standards. Generally, the selected T & I teacher was competent enough, but had little or no idea of what to expect or do in the classroom....
>
> The craftsman found he lacked preparation in how to teach, had no text, often has the less-talented student, and had little or no idea of what or how the vocational program meshed within the total school system. To help overcome this lack of perspective, courses in vocational guidance, philosophy of vocational education, and vocational laws were recommended--but seldom required. (Baker 1977, p. 40)

The obvious source of teachers with high levels of skill as craftsmen was in industry. The problem for administrators became one of establishing policies in an educational system which would make teaching attractive and yet assist the craftsmen to become effective teachers (Hoyle 1977, p. 271).

> Vocational teachers will most likely be found in industry. They will be highly-skilled craftsmen to whom the younger members go for advice and help. They will be from among the best of those working as waiters, cooks, nurses, technicians, policemen, firemen, carpenters, florists, meat cutters or maids. They will probably be older and more mature than most beginning teachers and possess the confidence that mastery of a subject brings. There may be some, too, who will indicate a kind of apology for their lack of formal training and be uneasy in the school environment. (Miller 1967, p. 61)

There have been literally volumes written by authorities on vocational teacher preparation in the decades since 1917. However, the National Association for Trade and Industrial Education has outlined the following typical standards as an example of the essentials for professional competency for instructors in trades and industry:

INSTRUCTORS

--The following standards for instructors are essential for professional competency in Trade and Industrial Education:
  --Each instructor shall have acquired occupational competency through an apprenticeship or equivalent learning period.
  --Each instructor shall have no less than 2 years recent, continuous, full-time occupational experience as a qualified craft worker in the occupation to be taught.
  --The instructor shall demonstrate his/her competency by successful performance on the National Occupational Competency Examination.
  --Each instructor shall have, as a minimum amoung of formal education, a high school diploma or have successfully passed the General Education Development (GED) Examination.
  --Each Trade and Industrial Education Instructor shall, either through a college teacher education preparatory program prior to entering teaching or as soon as possible after entering, develop professional competency through one or more courses in each of the following areas of professional education instruction:
  --Instruction and practice in those youth-adult relationships which influence successful teaching/learning experiences
  --Understanding of the history and philosophy of vocational education
  --Understanding of how to organize the physical environment for teaching

> --Understanding of how to analyze and organize their specific expertise into a teaching sequence and to develop instructional methods and techniques to impart this knowledge to the student
> --Understanding of Labor-Management-Community relations and effective communications with the three.
> (NATIE 1977, p. 7)

The process of certifying trade and industrial teachers has always demanded trade competence first with the corollary of years of occupational experience (Welch and Garner 1976, p. 34). The problem of effective teaching techniques has also accompanied the trades teacher. "The vital key in making the transition from producer to teacher still lies in the ability to plan and present a lesson." (Baker 1977, p. 41). The successful trades teacher usually has, according to Pfahl (1971) and Fagan (1968), a compendium of professional teaching methods classes. However, Croom (1972) found little or no relationship between formal education and teaching effectiveness. Musgrove (1968) actually found a negative relationship when trade experience and education were the variables.

The difficulty of researching the effects of education on trade teaching performance in a state system is, according to Bjorkquist _et al_. (1968), the small numbers of teachers involved. They see the problem as follows:

> At the same time such uniqueness might work to the advantage of research, it also becomes a disadvantage. The reason for this lies in the difficulty of discriminating between the effects of teaching experience and the effects of the teacher training experience. An additional impediment, that of the interaction of the one experiential factor (teaching) by the other (teacher training) further confounds the problem.

More typical of the liberal, comprehensive view is that presented by Courtney and Halfin (1971) who see three basic blocks of content as

essential for teacher preparation. These include professional education training, technical content and liberal arts content.

The major trend continues, according to Ramp and Reeder (1970) to be an emphasis upon occupational competence at the journeyman level for beginning teachers, with teaching skills gradually acquired either through an in-service program or on a college campus. Baker (1977) recommends that the traditional practice of placing newly employed people from industry into classrooms without any teacher training preparation be discontinued. He advises short, intensive pre-service training sessions before the initial classroom experience. Then, the new teacher can have certification contingent upon progress in an ongoing in-service program.

A novel, yet effective, in-service program for off-campus certification courses involves the use of a circuit rider (Downes and Frietag 1974). This off-campus operation is sponsored by Northern Iowa University and involves a person traveling from school to school on a scheduled basis using teacher competency packets (TECPAK). Although traditional on-campus courses are still active, the circuit rider provides an innovative alternative. Lathrup and Farr (1968) see the changing industrial educator of the future as follows (p. 94):

> He will have a good formal collegiate education, a sound background in general education, industrial experience, and will continue to improve his competency by additional in-service education.

One remaining critical issue in vocational teacher certification is the verification of occupational competence. According to Matthews (1974) number of years spent in an occupation as the sole predictor of competency is "neither accurate nor sufficient." Many prominent

vocational educators and administrators recommend the use of occupational testing procedures utilizing both written and performance skills as monitored by competent trades and industry judges. Miller and Roehrich (1978) express the following need:

> Most state certification personnel voice concern about current procedures for certifying the occupational competency of new vocational teachers. There is need for a valid and reliable method of competency testing to validate the breadth and depth of work experience of teaching applicants before certification. Only a few states currently specify some form of competency testing as a requirement for certification.

Kazanas and Kieft (1966), in a Michigan study on certification, express the belief that better teachers will be identified and prepared as a result of competency examinations. They further state:

> If competency examinations are put to maximum use, they will be very effective in: (1) determining the technical knowledge and skills of vocational teacher candidates; (2) increasing the number of vocational teachers; (3) indicating the areas of weakness of those who failed the examination; (4) improving the quality of the teachers.

Finally, Panitz (1975), Director of the National Occupational Testing Institute, believes that "a competent individual from industry can be trained to be a good teacher in much shorter time than a competent teacher can be trained in the skills of the occupation." He further states that "the need for instruments for evaluating the practical skills and related technical knowledge becomes crucial. Without such objective instruments it is not possible to ascertain whether the prospective teacher possesses the broadly based occupational competence needed." The National Occupational Testing Institute (NOCTI) is located at Princeton, New Jersey and is governed by a national consortium of 44 states. The service is under contract agreement with Educational Testing Service (ETS). As a result, "it can be said with confidence

that credit for occupational competence carries with it a powerful motive for vocational teachers to pursue degree studies." (Panitz 1975).

A further inducement to vocational teachers who elect to work toward the degree is explained by Tully (1977) as follows:

> Advancement in rank rarely comes to those teachers with limited post-high school formal education, despite their demonstrated competencies in their specialties.

Summary

It is over 60 years since the nation legislated the principle of basic support for vocational education. During this turbulent period of war and accompanying industrial growth, the nation's investment in vocational training has provided dividends in technological superiority which increased living standards, conquered space, and ultimately cast the United States in a model role, supportive of the free enterprise system.

Programs and funds, however, are only manifestations of bureaucratic mandate. The prime movers in vocational education are the teachers in the classrooms and laboratories across the land. As a nation we owe to these dedicated individuals a debt for service which is compensated for only by the realization that their students have the potential for gainful employment and a better way of life.

The trades teacher is unique to American education in many respects. They sometimes feel demeaned by academic colleagues for a lack of formal educational preparation and for being obvious advocates of the "hands on", or practical approach, to learning. They are envied also for their independent attitude due to their commercial value to employers outside of education.

The majority of trade and industrial teachers have, at some time in their careers, been faced with severe budget limitations threatening restriction on programs due to inadequate facilities and equipment. It is not uncommon for them to spend countless unpaid hours designing, fabricating and repairing equipment long after the traditional "school day" is over! This dedication is usually only repaid by the increased skills and subsequent appreciation of the students themselves.

Yet another concept, which is little understood by their professional colleagues, is that industrial technology is not static! It is, rather, in a state of continuous, dynamic flux, brought on by the American consumers' insatiable desire for the "new model." A direct consequence of this continued research and development in industry is the urgent need for those who practice or teach trades related to the manufacture and service of these goods to be "up to date" on the technology. Many craftsmen and technicians in industry turn to specialization in an attempt to stay abreast of these perennial study assignments. Trade and industrial teachers, however, must resist this temptation because transferable skills and generalization of course content tend to increase student job options. More specific job training is usually best left to industry. Teacher educators in vocational education are also frequently embarrassed by trade and industrial teachers when confronted with obviously successful programs for which they can claim, at best, but minimal contribution.

Finally, new trade and industrial teachers typically agonize through the annual school contract season. Many weigh their decision to become teachers against the option of returning to regular jobs in

industry, minus the hassle of dealing with students. Statistics show that industry attracts increasing numbers of these individuals back each year. It will be to the benefit of vocational education if the majority of the dedicated ones who elect to remain in teaching are, in fact, the best the nation has to offer.

III. THE DESIGN OF THE STUDY

The purposes of the study were to obtain and compare the degree of agreement to statements regarding certification procedures and qualification for teachers in trade and industrial education in selected states.

The desired end product of the investigation was to establish a concensus of opinion on selected critical issues in certification that could prove useful in forming guidelines that should be considered by certifying agencies, teacher training institutions, vocational associations and school districts when forming policy.

The Dependent Variables

The dependent variables in the study were the rating scores on two six-point Likert-type scales. Each of the respondents assigned value judgments to each of the 25 statements denoting the degree of agreement they felt was consistent with their opinions regarding the certification requirements for trade and industrial teachers. One scale measured the respondents' perceptions of existing conditions regarding certification issues in his/her state while the other scale measured the respondents' perceptions of what the desirable or ideal conditions regarding the statement should be.

Development of the Research Instrument

The instrument was generated by a panel of experienced vocational educators using a modified Delphi technique. On the basis of this consensus of expert opinion, the best 25 statements were modified and

incorporated into the questionnaire.

Before its use the completed questionnaire was disseminated to ten prominent vocational educators to be reviewed for content and clarity. Their recommendations were incorporated in the final modifications of the instrument. A list of these educators is found in Appendix F.

The Selection of the Population

The population of this study consisted of 225 respondents randomly selected from 15 states. The subjects represented three occupational groups from each state as follows: five district superintendents, five vocational administrators (full-time), and five trade and industrial teachers (full-time).

This design formed the representative sampling of the relevant occupations concerned and also provided the rationale for establishing national significance to the interpretation of the results of the study.

The following procedures were used in order to obtain the necessary list of subjects and to randomly select the states:

1. A letter was sent to the chief education officer of each of the 50 states requesting permission to conduct the study and for current lists of district superintendents, vocational administrators and trade and industrial teachers.

2. The states that responded with the necessary information formed the population from which the 15 states were randomly selected.

3. From the lists supplied by the state school officers, five subjects were randomly selected from each occupational group for a total of 15 respondents from each state.

The Collection of the Data

The data were collected by mailing questionnaires to subjects who had been randomly selected from the lists provided by the states. The 15 states comprising the sample population were Alaska, Arkansas, Idaho, Kansas, Louisiana, Nebraska, New Hampshire, New Mexico, Oregon, South Carolina, South Dakota, Tennessee, Texas, Wisconsin, and Washington (see Figure 1).

The Statistical Design

The two-factor ANOVA (analysis of variance) models were used for testing the null hypotheses. The ANOVA layout arrangements represented fixed designs and are shown as follows:

ANOVA Layout Scheme for
Status I and Status II

Source of Variation	DF	SS	MS	F
States	14	A	A/14	MS_S/MS_E
Occupational Groups	2	B	B/2	MS_{OG}/MS_E
States X Groups	28		C/28	MS_{IAT}/MS_E
Error	181		D/181	
TOTAL	224			

In addition to the ANOVAs which were used for each of the 25 statements for status I and for status II, paired "t" tests were used for each of the 25 questions to determine differences between status I and status II within each of the three occupational groups for a total of 75 paired "t" tests.

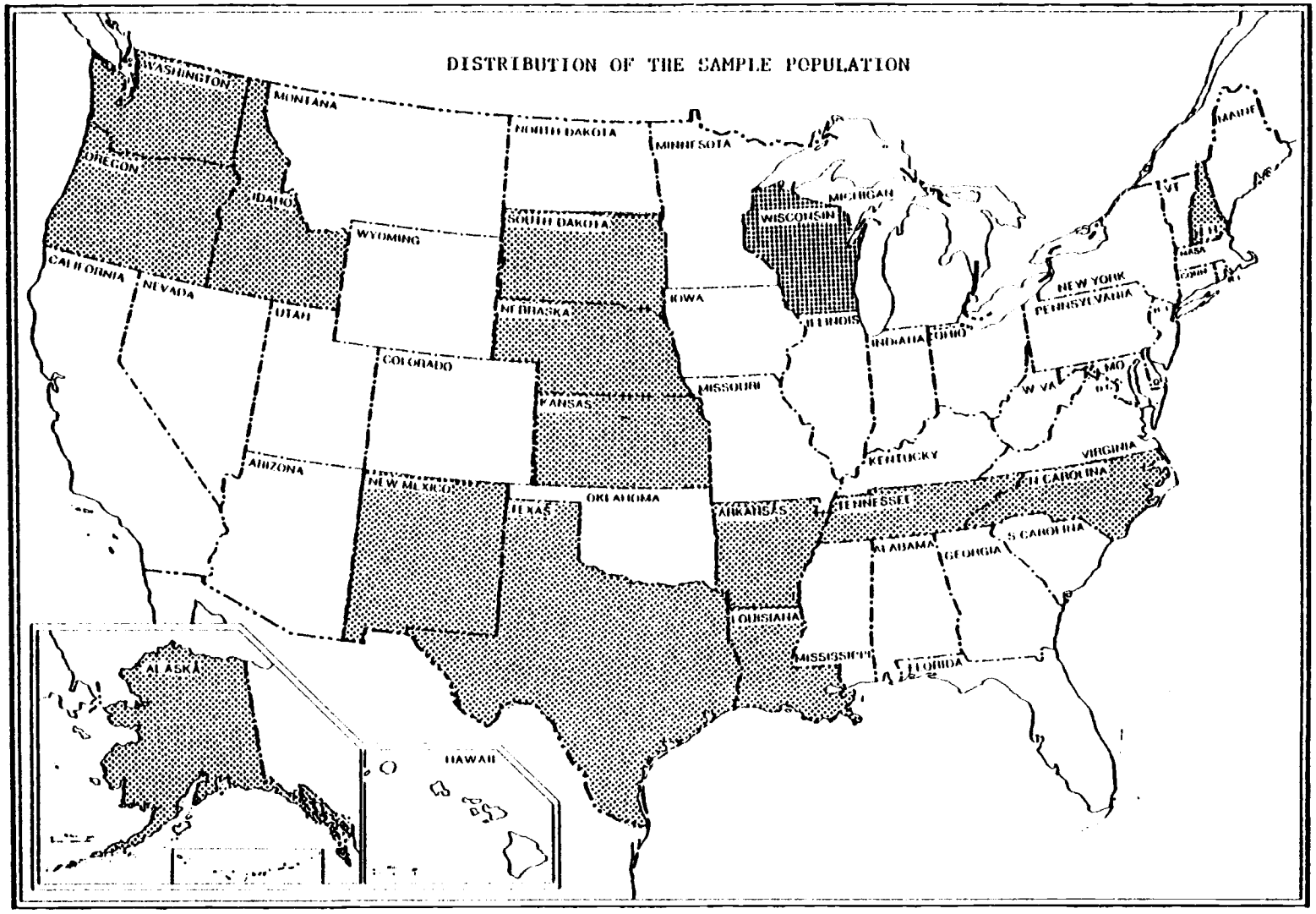
DISTRIBUTION OF THE SAMPLE POPULATION
WASHINGTON
MONTANA
NORTH DAKOTA
MINNESOTA
OREGON
IDAHO
WYOMING
SOUTH DAKOTA
MICHIGAN
WISCONSIN
MAINE
VT
NH
MASS
CONN
NEW YORK
PENNSYLVANIA
CALIFORNIA
NEVADA
UTAH
NEBRASKA
IOWA
ILLINOIS
INDIANA
OHIO
COLORADO
KANSAS
MISSOURI
W VA
MD
DEL
KENTUCKY
VIRGINIA
ARIZONA
NEW MEXICO
OKLAHOMA
TEXAS
ARKANSAS
TENNESSEE
N CAROLINA
S CAROLINA
ALABAMA
GEORGIA
LOUISIANA
MISSISSIPPI
FLORIDA
ALASKA
HAWAII

Figure 1.

The demographic data were useful in determining if there was any effect on the responses due to years of education. The following ANOVA layout was utilized with years of education as the dependent variable:

Source of Variation	DF	SS	MS	F
States	14			
Occupational Groups	2			
States X Groups	28			
Error	181			
Total	224			

These results showed which occupational group had the most education. An additional ANOVA procedure was used to determine if level of education affected responses for status II. Again the dependent variable was years of college. All 25 statements were used for this test as follows:

Source of Variation	DF	SS	MS	F
States (block)	14			
Responses	5			
States X Responses	70			
Error	133			
TOTAL	224			

The following hypotheses were prepared for each of the 25 statements used in the study. In order to examine the degree of agreement concerning certification procedures for trade and industrial teachers and using the null form, it was hypothesized that:

H_1 There is no significant difference between group mean scores for occupational groups with regard to status I.

H_2 There is no significant difference between group mean scores for occupational groups with regard to status II.

H_3 There is no significant difference among group mean scores for states with respect to status I.

H_4 There is no significant difference among group mean scores for states with respect to status II.

H_5 There is no significant difference between mean scores for occupational groups with respect to years of education.

H_6 There is no significant difference between mean scores for respondents with respect to years of education for status II.

H_7 There is no significant interaction effect between the levels of the main effects for status I and status II.

IV. PRESENTATION AND ANALYSIS OF THE DATA

The findings of this study are presented in four sections which include: the demographic data, results of the hypothesis tests, a summary of the means and hypothesis tests, and the results of the Newman-Keuls multiple comparisons tests for differences among groups and states.

Demographic Data

Data for this study were obtained from 225 questionnaires completed by district superintendents, vocational administrators and trade and industrial teachers in 15 randomly selected states. A total of 432 questionnaires was mailed out with the following rate of return:

Superintendents	59%
Administrators	68%
Teachers	71%

A somewhat innovative device with a quarter attached was used to encourage respondents to participate in the study (see Appendix H). This may have contributed to the fine overall return rate of 74%.

The first section was designed to ensure that the occupational groups were correctly identified and categorized. The second section denotes years of experience in the position given under occupational groups. The third section gives the state where the respondent is employed. The fourth section gives the educational data, including information on high school graduation, number of years attended college, the undergraduate major and highest degree attained.

The educational findings were significant in revealing the following:

1. All respondents had high school or GED completion.

2. The number of years attending college shows superintendents with 6.2 mean years of college, vocational administrators with 5.85 mean years followed by trade teachers with 3.62 mean years. This information regarding the education level of T & I teachers appears to support the belief that the bachelors degree is the eventual goal of many trade and industrial teachers (Lathrup and Farr 1968, p. 94).

The final part of the education data shows the types of degrees held by respondent groups as follows:

	Associate	Bachelors	Masters	Doctoral	None
Superintendents	0	1	57	17	0
Administrators	1	17	58	0	0
Teachers	21	33	6	0	15

The Analysis of Variance

The two-way analysis of variance (ANOVA) using the F statistic was used to test the null hypotheses for each of the 25 statements for hypotheses one and two with respect to status I and status II. A total of 50 hypotheses were tested.

Results of Hypotheses Tests

The following tables with accompanying analysis will reveal the results of the hypotheses tests with the sequential variant of the Newman-Keuls Q-method test for mean comparisons for those statements with rejected F's (Snedecor and Cochran 1972, p. 252).

In 26 of the following 50 tests "F" was not in the critical region;

hence, the hypothesis was not rejected. This finding indicated that for those hypotheses not rejected, the differences between the mean statement score persisted across the states and groups being studied. In 24 instances the null hypothesis was rejected and it was concluded that for these components, differences existed between mean component scores for the three occupational groups.

The seven hypotheses are herewith treated in numerical order with complete comparisons analysis beginning with

H_1 There is no significant difference between group mean scores for occupational groups with regard to status I.

Item Number	Statement	$\bar{X}_1$ Supt.	$\bar{X}_2$ Voc. Adm.	$\bar{X}_3$ T&I Teachers	Computed F Value	Prob. Level	Decision α=.05
1.	Non-vocational teachers are permitted to accrue summer work experiences toward the minimum occupational experience requirements for T & I certification	3.86	3.55	3.28	1.97	.141	Retain
2.	One or more degree granting institutions have a common Vocational Bachelor's degree for T & I, Industrial-Technical and Industrial Arts Educators	3.50	3.53	2.94	2.13	.122	Retain
3.	To maintain certification, Trade and Industrial teachers are required to "practice" their trade specialty in industry on a regular basis	2.18	2.73	2.60	2.51	.084	Retain
4.	One or more degree granting institutions give credit toward the Bachelor's degree requirements for proven occupational experience for vocational teachers	3.22	3.56	2.71	1.29	.276	Retain
5.	Trade and Industrial teachers are represented on the State Certification Standards Board, Commission or Agency	2.73	2.69	3.20	2.23	.110	Retain
6.	In selecting a chairperson for a department which consists of both Industrial Arts and T & I teachers, the vocationally certified T & I person is considered more highly qualified (if all else is equal)	3.38	3.36	3.34	.013	.987	Retain

H_1 Continued

Item Number	Statement	$\bar{X}_1$ Supt.	$\bar{X}_2$ Voc. Adm.	$\bar{X}_3$ T&I Teachers	Computed F Value	Prob. Level	Decision α=.05
7.	An individual holding both Industrial Arts and Trade and Industrial (dual) certification, is given more consideration for a Vocational administrator position (if all else is equal)	4.19	3.78	3.47	3.37	.037	Reject
8.	Evidence of satisfactory progress in an in-service staff development program is a basis for determining eligibility for annual pay increments	2.40	2.48	2.36	.086	.981	Retain
9.	The Bachelor's degree in Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers	3.33	2.73	2.73	4.42	.013	Reject
10.	Vocational administrators are selected from the ranks of vocationally certified teachers	4.13	4.28	3.50	5.12	.007	Reject
11.	When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify T & I positions	2.74	2.78	3.28	2.73	.068	Retain
12.	When occupational competency performance tests are given, the judges consist <u>only</u> of qualified persons in that specialty area	3.56	3.51	3.58	.019	.981	Retain

H_1 Continued

Item Number	Statement	$\bar{X}_1$ Supt.	$\bar{X}_2$ Voc. Adm.	$\bar{X}_3$ T&I Teachers	Computed F Value	Prob. Level	Decision α=.05
13.	When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses	3.47	3.13	3.27	.829	.438	Retain
14.	The Trade and Industrial teacher certification requirements in my state are stringent	3.58	3.64	3.75	.307	.736	Retain
15.	Teacher education for Trade and Industrial teachers is usually given on a college campus	4.20	3.98	4.05	.461	.631	Retain
16.	Teacher training for new T & I people is usually carried out on-the-job and given concurrently with the initial teaching experience	3.17	3.42	3.24	.487	.615	Retain
17.	The occupational competency examination is used to prevent non-competent teachers from renewing their certification	1.88	1.88	2.36	.278	.065	Retain
18.	When necessary, Industrial Arts teachers are allowed to teach T & I courses	2.98	2.63	3.26	.315	.045	Reject
19.	Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification	3.75	4.46	4.25	.342	.035	Reject

H_1 Continued

Item Number	Statement	$\bar{X}_1$ Supt.	$\bar{X}_2$ Voc. Adm.	$\bar{X}_3$ T&I Teachers	Computed F Value	Prob. Level	Decision α=.05
20.	Almost every T & I instructor has acquired occupational competency through an apprenticeship or equivalent learning period	3.97	4.10	4.27	5.83	.559	Retain
21.	Proof of several years of journeyman level experience in a trade usually can eliminate the need for a competency examination	3.75	3.80	3.95	.235	.791	Retain
22.	Essentially, there is uniformity in the T & I certification requirements for every school district in the state	4.08	4.78	4.21	4.07	.019	Reject
23.	Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom	4.04	4.90	4.87	8.65	.001	Reject
24.	All Trade and Industrial teachers are required to pass occupational competency examinations for certification	2.23	2.18	3.20	10.25	.001	Reject
25.	Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the (GED) examination	4.08	4.26	5.12	7.19	.001	Reject

Table 1. The Newman-Keuls Q-method tests for comparisons of group differences for status I where F was rejected: H_1

Group 1, superintendents; group 2, vocational administrators; group 3, trade and industrial teachers.

Significant differences within occupational groups indicate that actual knowledge of conditions varied within the respective states.

7.	An individual holding both Industrial Arts and Trade and Industrial (dual) certification is given more consideration for a Vocational administrator position (if all else is equal).	1	4.19
		2	3.78
		3	3.47
	Superintendents were significantly different from T & I teachers.		
9.	The Bachelor's degree in Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers.	1	3.33
		2	2.73
	Superintendents were significantly different from T & I teachers.	3	2.73
10.	Vocational administrators are selected from the ranks of vocationally certified teachers.	2	4.28
		1	4.13
	T & I teachers were significantly different from Vocational Administrators	3	3.50
18.	When necessary, Industrial Arts teachers are allowed to teach T & I courses.	3	3.26
		1	2.98
	Vocational Administrators were significantly different from T & I teachers.	2	2.63
19.	Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification.	2	4.46
		3	4.25
	Superintendents were significantly different from Vocational Administrators.	1	3.75
22.	Essentially, there is uniformity in the T & I certification requirements for every school district in the state.	2	4.78
		3	4.21
	Vocational Administrators were significantly different from Superintendents.	1	4.08

Table 1. Continued

23.	Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom.	2	4.90
		3	4.87
	Superintendents were significantly different from Vocational Administrators.	1	4.04
24.	All Trade and Industrial teachers are required to pass occupational competency examinations for certification.	3	3.20
		2	2.23
	T & I teachers were significantly different from Superintendents.	1	2.18
25.	Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the GED examination.	3	5.12
		2	4.26
	T & I teachers were significantly different from Superintendents.	1	4.08

H_2 There is no significant difference between group mean scores for occupational groups with regard to status II.

Item Number	Statement	$\bar{X}_1$ Supt.	$\bar{X}_2$ Voc. Adm.	$\bar{X}_3$ T&I Teachers	Pop. $\bar{X}$	Computed F Value	Prob. Level	Decision α=.05
1.	Non-vocational teachers are permitted to accrue summer work experiences toward the minimum occupational experience requirements for T & I certification	4.56	4.22	3.75	4.18	3.67	.027	Reject
2.	One or more degree granting institutions have a common Vocational Bachelor's degree for T & I, Industiral-Technical and Industrial Arts Educators	4.70	4.84	4.67	4.74	.229	.796	Retain
3.	To maintain certification, Trade and Industrial teachers are required to "practice" their trade specialty in industry on a regular basis	4.20	4.81	4.62	4.54	2.81	.063	Retain
4.	One or more degree granting institutions give credit toward the Bachelor's degree requirements for proven occupational experience for vocational teachers	4.33	4.97	5.31	4.87	8.70	.001	Reject
5.	Trade and Industrial teachers are represented on the State Certification Standards Board, Commission or Agency	4.56	5.01	5.46	5.01	9.30	.001	Reject
6.	In selecting a chairperson for a department which consists of both Industrial Arts and T & I teachers, the vocationally certified T & I person is considered more highly qualified (if all else is equal)	3.93	4.26	4.74	4.31	4.09	.018	Reject

H_2 Continued

Item Number	Statement	$\bar{X}_1$ Supt.	$\bar{X}_2$ Voc. Adm.	$\bar{X}_3$ T&I Teachers	Pop. $\bar{X}$	Computed F Value	Prob. Level	Decision α=.05
7.	An individual holding both Industrial Arts and Trade and Industrial (dual) certification, is given more consideration for a Vocational administration position (if all else is equal)	4.81	4.39	4.90	4.70	2.60	.077	Retain
8.	Evidence of satisfactory progress in an in-service staff development program is a basis for determining eligibility for annual pay increments	3.97	4.20	4.12	4.04	.148	.862	Retain
9.	The Bachelor's degree is Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers	4.33	4.18	4.12	4.21	.334	.717	Retain
10.	Vocational administrators are selected from the ranks of vocationally certified teachers	4.96	5.10	5.41	5.16	3.08	.048	Reject
11.	When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify Industrial Arts teachers for T & I positions	3.54	3.88	4.67	4.03	7.96	.001	Reject

H_2 Continued

Item Number	Statement	$\bar{X}_1$ Supt.	$\bar{X}_2$ Voc. Adm.	$\bar{X}_3$ T&I Teachers	Pop. $\bar{X}$	Computed F Value	Prob. Level	Decision α=.05
12.	When occupational competency performance tests are given, the judges consist only of qualified persons in that specialty area	4.32	4.80	5.22	4.78	7.52	.001	Reject
13.	When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses	4.22	3.76	4.32	4.10	2.79	.064	Retain
14.	The Trade and Industrial teacher certification requirements in my state are stringent	4.47	4.80	5.17	4.81	6.04	.003	Reject
15.	Teacher education for Trade and Industrial teachers is usually given on a college campus	4.34	4.12	4.17	4.21	.443	.643	Retain
16.	Teacher training for new T & I people is usually carried out on-the-job and given concurrently with the initial teaching experience	4.26	4.09	4.51	4.29	.126	.286	Retain
17.	The occupational competency examination is used to prevent non-competent teachers from renewing their certification	4.55	3.94	4.54	4.34	3.37	.036	Reject
18.	When necessary, Industrial Arts teachers are allowed to teach T & I courses	3.19	2.57	2.53	2.76	3.37	.027	Reject

H_2 Continued

Item Number	Statement	$\bar{X}_1$ Supt.	$\bar{X}_2$ Voc. Adm.	$\bar{X}_3$ T&I Teachers	Pop. $\bar{X}$	Computed F Value	Prob. Level	Decision α=.05
19.	Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification	4.83	5.18	5.47	5.16	5.49	.005	Reject
20.	Almost every T & I instructor has acquired occupational competency through an apprenticeship or equivalent learning period	4.71	5.06	5.28	5.02	3.76	.025	Reject
21.	Proof of several years of journeyman level experience in a trade usually can eliminate the need for a competency examination	3.90	3.90	4.47	4.09	2.38	.095	Retain
22.	Essentially, there is uniformity in the T & I certification requirements for every school district in the state	5.02	5.39	5.56	5.32	4.45	.013	Reject
23.	Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom	5.20	5.50	5.13	5.28	2.05	.131	Retain
24.	All Trade and Industrial teachers are required to pass occupational competency examinations for certification	4.50	4.35	5.00	4.61	3.74	.025	Reject
25.	Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the (GED) examination	4.72	4.82	5.26	4.93	2.18	.116	Retain

Table 2. The Newman-Keuls Q-method tests for comparisons of group differences for status II where F was rejected: H_2

Group 1, superintendents; group 2, vocational administrators; group 3, trade and industrial teachers.

Significant differences within occupational groups indicate that the group differing had more or less support for the concept than the other groups within their respective states.

1.	Non-vocational teachers are permitted to accrue summer work experiences toward the minimum occupational experience requirements for T & I certification.	1	4.56
		2	4.22
		3	3.75
	T & I teachers were significantly different from Superintendents.		
4.	One or more degree granting institutions give credit toward the Bachelor's degree requirements for proven occupational experience for vocational teachers.	3	5.31
		2	4.93
		1	4.33
	Superintendents were significantly different from T & I teachers.		
5.	Trade and Industrial teachers are represented on the State Certification Standards Board, Commission or Agency.	3	5.46
		2	5.01
	Superintendents were significantly different from T & I teachers.	1	4.56
6.	In selecting a chairperson for a department which consists of both Industrial Arts and T & I teachers, the vocationally certified T & I person is considered more highly qualified (if all else is equal).	3	4.74
		2	4.26
		1	3.93
	T & I teachers were significantly different from Superintendents.		
10.	Vocational administrators are selected from the ranks of vocationally certified teachers.	3	5.41
		2	5.10
	T & I teachers were significantly different from Superintendents.	1	4.96

Table 2. Continued

11.	When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify Industrial Arts teachers for T & I positions.	3	4.67
		2	3.88
		1	3.54
	T & I teachers were significantly different from Superintendents.		
12.	When occupational competency performance tests are given, the judges consist only of qualified persons in that specialty area.	3	5.22
		2	4.80
	Superintendents were significantly different from T & I teachers.	1	4.32
14.	The Trade and Industrial teacher certification requirements in my state are stringent.	3	5.17
		2	4.80
	T & I teachers were significantly different from Superintendents.	1	4.47
17.	The occupational competency examination is used to prevent non-competent teachers from renewing their certification.	1	4.55
		3	4.54
	Vocational Administrators were significantly different from Superintendents.	2	3.94
18.	When necessary, Industrial Arts teachers are allowed to teach T & I courses.	1	3.19
		2	2.57
	Superintendents were significantly different from T & I teachers.	3	2.53
19.	Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification.	3	5.47
		2	5.18
	Superintendents were significantly different from T & I teachers.	1	4.83
20.	Almost every T & I instructor has acquired occupational competency through an apprenticeship or equivalent learning period.	3	5.28
		2	5.06
	Superintendents were significantly different from T & I teachers.	1	4.71

Table 2. Continued

22.	Essentially, there is uniformity in the T & I certification requirements for every school district in the state.	3	5.56
		2	5.39
	Superintendents were significantly different from T & I teachers.	1	5.02
24.	All Trade and Industrial teachers are required to pass occupational competency examinations for certification.	3	5.00
		1	4.50
	T & I teachers were significantly different from Vocational Administrators.	2	4.35

H_3 There is no significant difference among group mean scores for states with respect to status I.

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
1.	Non-vocational teachers are permitted to accure summer work experiences toward the minimum occupational experience requirements for T & I certification	3.26	2.50	2.66	2.80	3.33	4.46	3.07	3.86	3.80	3.00	4.00	3.53	4.13	5.07	4.06	2.29	.006	Reject
2.	One or more degree granting institutions have a <u>common</u> Vocational Bachelor's degree for T & I, Industrial-Technical and Industrial Arts Educators	2.13	0.91	1.55	0.94	1.87	1.99	2.32	1.91	1.87	3.16	2.19	2.14	1.45	1.88	1.58	3.03	.001	Reject
3.	To maintain certification, Trade and Industrial teachers are required to "practice" their trade specialty in industry on a regular basis	2.26	2.53	4.20	2.93	2.26	2.00	2.20	1.53	1.86	2.86	2.00	3.13	2.46	3.40	2.00	2.93	.001	Reject
4.	One or more degree granting institutions give credit toward the Bachelor's degree requirements for proven occupational experience for vocational teachers	3.26	2.00	3.93	4.73	3.06	3.06	3.73	3.60	3.93	3.00	3.86	3.20	3.92	3.80	3.40	1.65	.068	Retain

H_3 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
5.	Trade and Industrial teachers are represented on the State Certification Standards Board, Commission of Agency	3.46	1.91	3.73	2.93	3.26	2.26	4.33	4.40	1.86	3.33	2.53	2.86	2.50	3.00	2.53	2.51	.003	Reject
6.	In selecting a chairperson for a department which consists of both Industrial Arts and T & I teachers, the vocationally certified T & I person is considered more highly qualified (if all else is equal)	3.61	2.92	3.14	3.13	3.40	3.57	3.46	2.26	3.60	3.80	3.60	2.80	3.60	4.26	3.26	1.25	.239	Retain
7.	An individual holding both Industrial Arts and Trade and Industrial (dual) certification, is given more consideration for a Vocational administrator position (if all else is equal)	3.35	3.38	4.30	3.93	3.73	3.73	3.85	3.86	3.53	3.86	3.93	3.64	4.26	4.53	3.53	0.51	.922	Retain
8.	Evidence of satisfactory progress in an in-service staff development program is a basis for determining eligibility for annual pay increments	2.46	2.26	2.80	2.13	2.46	2.20	2.66	2.33	3.00	2.00	1.93	1.50	2.20	3.06	3.00	.981	.474	Retain

H_3 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
9.	The Bachelor's degree in Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers	2.92	2.83	2.26	2.73	3.06	2.60	3.46	2.73	2.53	3.00	4.13	2.85	2.93	3.33	2.53	1.56	.092	Retain
10.	Vocational administrators are selected from the ranks of vocationally certified teachers	4.66	3.40	3.73	3.40	3.53	4.13	3.00	3.60	3.26	3.86	3.93	2.92	4.93	4.93	4.46	2.75	.001	Reject
11.	When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify Industrial Arts teachers for T & I positions	2.92	2.64	3.20	3.42	2.73	2.13	3.00	2.40	3.20	3.26	3.53	3.26	3.60	1.86	2.86	1.69	.061	Retain
12.	When occupational competency performance tests are given, the judges consist only of qualified persons in that specialty area	3.40	3.07	3.86	3.26	3.80	3.26	4.26	3.33	3.20	4.80	3.86	3.46	3.73	2.93	3.00	1.33	.189	Retain

H_3 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
13.	When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses	3.57	4.14	2.00	3.40	2.33	4.60	4.13	2.86	3.46	3.00	3.73	2.50	1.57	4.93	3.06	4.78	.001	Reject
14.	The Trade and Industrial teacher certification requirements in my state are stringent	2.71	2.73	4.40	3.33	3.46	4.00	3.53	3.80	3.73	3.80	3.40	3.13	3.92	4.13	4.80	2.76	.007	Reject
15.	Teacher education for Trade and Industrial teachers is usually given on a college campus	4.14	3.07	4.40	3.33	3.80	4.26	3.78	4.53	4.20	4.26	4.46	3.60	5.00	5.00	3.26	3.26	.005	Reject
16.	Teacher training for new T & I people is usually carried out on-the-job and given concurrently with the initial teaching experience	3.78	2.42	3.00	3.15	3.33	3.20	3.46	3.00	3.33	2.73	4.26	3.80	3.26	2.93	3.33	1.11	.352	Retain
17.	The occupational competency examination is used to prevent non-competent teachers from renewing their certification	2.07	1.92	1.93	2.92	2.57	1.80	1.71	2.33	2.20	2.73	1.80	1.46	1.71	1.66	1.80	1.36	.176	Retain
18.	When necessary, Industrial Arts teachers are allowed to teach T & I courses	3.71	4.30	2.20	2.73	2.42	3.53	2.64	2.60	4.00	3.33	2.86	2.46	1.76	3.46	2.13	3.06	.001	Reject

H_3 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
19.	Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification	4.46	3.28	4.73	4.13	4.73	3.60	5.21	4.07	3.26	3.33	3.46	4.66	3.66	5.00	4.80	2.44	.004	Reject
20.	Almost every T & I instructor has acquired occupational competency through an apprenticeship or equivalent learning period	4.20	3.07	4.73	4.06	4.40	3.26	4.35	4.26	3.73	4.66	3.46	4.46	4.71	3.86	4.40	1.60	.082	Retain
21	Proof of several years of journeyman level experience in a trade usually can eliminate the need for a competency examination	3.86	3.61	5.06	2.64	4.14	3.86	4.46	4.00	4.80	2.13	3.40	4.53	4.14	3.26	4.71	3.07	.001	Reject
22.	Essentially, there is uniformity in the T & I certification requirements for every school district in the state	3.40	3.35	5.13	4.33	5.20	4.40	4.40	3.60	3.86	4.73	4.20	5.20	4.73	4.73	4.13	2.13	.012	Reject
23.	Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom	3.66	3.33	4.60	4.46	4.33	4.93	4.06	4.60	4.40	5.20	4.73	5.06	5.20	5.33	5.20	2.46	.003	Reject

H_3 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
24.	All Trade and Industrial teachers are required to pass occupational competency examinations for certification	2.00	2.46	1.66	5.07	2.93	1.66	2.46	2.40	2.33	2.93	2.80	1.66	2.00	1.93	1.86	7.30	.001	Reject
25.	Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the (GED) examination	4.86	4.46	4.80	4.80	5.06	3.20	4.14	3.60	4.53	5.53	4.46	5.66	5.73	3.06	3.33	3.77	.001	Reject

Table 3. Newman-Keuls Q-method tests for comparisons for status I: H_3

Those states with high group means indicated the conditons in the statements existed in their respective states.

Status I as used on the questionnaire:

Your Degree of
Agreement as to
Actual Conditions
In Your State

Low 1 2 3 4 5 6 High

1. Non-vocational teachers are permitted to accrue summer work experiences toward the minimum occupation experience requirements for T & I certification. 14 differed significantly from 2, 3, 4 and 10	Tennessee	14	5.07
	Nebraska	6	4.46
	Wisconsin	13	4.13
	Washington	15	4.06
	South Dakota	11	4.00
	New Mexico	8	3.86
	Oregon	9	3.80
	Louisiana	5	3.33
	Texas	12	3.53
	Arkansas	1	3.26
	New Hampshire	7	3.07
	South Carolina	10	3.00
	Kansas	4	2.80
	Idaho	3	2.66
	Alaska	2	2.50
2. One or more degree granting institutions have a <u>common</u> Vocational Bachelor's degree for T & I, Industrial-Technical and Industrial Arts Educators. 2 differed significantly from 10 and 7	South Carolina	10	3.16
	New Hampshire	7	2.32
	South Dakota	11	2.19
	Texas	12	2.14
	Arkansas	1	2.13
	Nebraska	6	1.99
	Kansas	4	1.94
	New Mexico	8	1.91
	Tennessee	14	1.88
	Oregon	9	1.87
	Louisiana	5	1.87
	Washington	15	1.58
	Idaho	3	1.55
	Wisconsin	13	1.45
	Alaska	2	0.91

Table 3. Continued

3. To maintain certification, Trade and Industrial teachers are required to "practice" their trade specialty in industry on a regular basis.	Idaho	3	4.20
	Tennessee	14	3.40
	Texas	12	3.13
	Kansas	4	2.93
	South Carolina	10	2.86
3 differed significantly from 8, 9, 11, 6, 15 and 7	Akaska	2	2.53
	Wisconsin	13	2.46
	Louisiana	5	2.26
	Arkansas	1	2.26
	New Hampshire	7	2.20
	Washington	15	2.00
	Nebraska	6	2.00
	South Dakota	11	2.00
	Oregon	9	1.86
	New Mexico	8	1.53
5. Trade and Industrial teachers are represented on the State Certification Standards Board, Commission or agency.	New Mexico	8	4.40
	New Hampshire	7	4.33
	Idaho	3	3.73
	Arkansas	1	3.46
	South Carolina	10	3.26
6 differed significantly from 8, 7 and 3	Louisiana	5	3.26
	Tennessee	14	3.00
	Kansas	4	2.93
	Texas	12	2.86
	Alaska	2	1.91
	Oregon	9	1.86
	South Dakota	11	2.53
	Washington	15	2.53
	Wisconsin	13	2.50
	Nebraska	6	2.26
10. Vocational administrators are selected from the ranks of vocationally certified teachers.	Tennessee	14	4.93
	Wisconsin	13	4.93
	Arkansas	1	4.66
	Washington	15	4.46
12 differed significantly from 14, 13, 1 and 15	Nebraska	6	4.13
	South Dakota	11	3.93
	South Carolina	10	3.86
	Idaho	3	3.73
	New Mexico	8	3.60
	Louisiana	5	3.53
	Alaska	2	3.40
	Kansas	4	3.40
	Oregon	9	3.26
	New Hampshire	7	3.00
	Texas	12	2.92

Table 3. Continued

13. When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses.	Tennessee	14	4.93
	Nebraska	6	4.60
	Alaska	2	4.14
	New Hampshire	7	4.13
13 differed significantly from 14 and 6	South Dakota	11	3.73
	Arkansas	1	3.57
	Oregon	9	3.46
	Kansas	4	3.40
	Washington	15	3.06
	South Carolina	10	3.00
	New Mexico	8	2.86
	Texas	12	2.50
	Louisiana	5	2.33
	Idaho	3	2.00
	Wisconsin	13	1.57
14. The Trade and Industrial teacher certification requirements in my state are stringent.	Washington	15	4.80
	Idaho	3	4.40
	Tennessee	14	4.13
	Nebraska	6	4.00
15 differed significantly from 1, 2 and 12	Wisconsin	13	3.92
	South Carolina	10	3.80
	New Mexico	8	3.80
	Oregon	9	3.73
	Louisiana	5	3.46
	New Hampshire	7	3.53
	South Dakota	11	3.40
	Kansas	4	3.33
	Texas	12	3.13
	Alaska	2	2.73
	Arkansas	1	2.71
15. Teacher education for Trade and Industrial teachers is usually given on a college campus.	Wisconsin	13	5.00
	Tennessee	14	5.00
	New Mexico	8	4.53
	Idaho	3	4.40
2 differed significantly from 13, 14 and 8	South Dakota	11	4.46
	South Carolina	10	4.26
	Nebraska	6	4.26
	Oregon	9	4.20
	Arkansas	1	4.14
	Louisiana	5	3.80
	New Hampshire	7	3.78
	Texas	12	3.60
	Kansas	4	3.33
	Washington	15	3.26
	Alaska	2	3.07

Table 3. Continued

18. When necessary, Industrial Arts teachers are allowed to teach T & I courses.	Alaska	2	4.30
	Oregon	9	4.00
	Arkansas	1	3.71
	Nebraska	6	3.53
13 differed significantly from 2, 9 and 1	Tennessee	14	3.46
	South Carolina	10	3.33
	South Dakota	11	2.86
	Kansas	4	2.73
	New Hampshire	7	2.64
	New Mexico	8	2.60
	Texas	12	2.46
	Louisiana	5	2.42
	Idaho	3	2.20
	Washington	15	2.13
	Wisconsin	13	1.76
19. Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification.	New Hampshire	7	5.21
	Tennessee	14	5.00
	Washington	15	4.80
	Idaho	3	4.73
	Louisiana	5	4.73
7 differed significantly from 9, 2 10, 11 and 13	Texas	12	4.66
	Arkansas	1	4.46
	Kansas	4	4.13
	New Mexico	8	4.07
	Nebraska	6	3.60
	Wisconsin	13	3.66
	South Dakota	11	3.46
	South Carolina	10	3.33
	Alaska	2	3.28
	Oregon	9	3.26
21. Proof of several years of journeyman level experience in a trade usually can eliminate the need for a competency examination.	Idaho	3	5.06
	Oregon	9	4.80
	Washington	15	4.71
	Texas	12	4.53
	New Hampshire	7	4.46
10 differed significantly from 3, 9 and 15	Wisconsin	13	4.14
	Louisiana	5	4.14
	New Mexico	8	4.00
	Arkansas	1	3.86
	Nebraska	6	3.86
	Alaska	2	3.61
	South Dakota	11	3.40
	Tennessee	14	3.26
	Kansas	4	2.64
	South Carolina	10	2.13

Table 3. Continued

22. Essentially, there is uniformity in the T & I certification requirements for every school district in the state.	Louisiana	5	5.20
	Wisconsin	13	5.20
	Idaho	3	5.13
	Tennessee	14	4.73
	Wisconsin	13	4.73
2 differed significantly from 5, 13 and 3	South Carolina	10	4.73
	New Hampshire	7	4.40
	Nebraska	6	4.40
	Kansas	4	4.33
	South Dakota	11	4.20
	Washington	15	4.13
	Oregon	9	3.86
	New Mexico	8	3.60
	Arkansas	1	3.40
	Alaska	2	3.35
23. Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom.	Tennessee	14	5.33
	South Carolina	10	5.20
	Washington	15	5.20
	Wisconsin	13	5.20
	Texas	12	5.06
2 differed significantly from 14, 10, 15, 13 and 12	Nebraska	6	4.93
	South Dakota	11	4.73
	Idaho	3	4.60
	New Mexico	8	4.60
	Kansas	4	4.46
	Oregon	9	4.40
	Louisiana	5	4.33
	New Hampshire	7	4.06
	Arkansas	1	3.66
	Alaska	2	3.33
24. All Trade and Industrial teachers are required to pass occupational competency examinations for certification.	Kansas	4	5.07
	South Carolina	10	2.93
	Louisiana	5	2.93
	South Dakota	11	2.80
	Alaska	2	2.46
4 differed significantly from 3, 6, 12, 15, 14, 13, 11 and 9	New Hampshire	7	2.46
	New Mexico	8	2.40
	Oregon	9	2.33
	Arkansas	1	2.00
	Wisconsin	13	2.00
	Tennessee	14	1.93
	Washington	15	1.80
	Texas	12	1.66
	Nebraska	6	1.66
	Idaho	3	1.66

Table 3. Continued

25.	Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the GED examination.	Wisconsin	13	5.73
		Texas	12	5.66
		South Carolina	10	5.53
		Louisiana	5	5.06
		Arkansas	1	4.86
	14 differed significantly from 13, 12, 10 and 5	Kansas	4	4.80
		Idaho	3	4.80
		Oregon	9	4.53
		Alaska	2	4.46
		South Dakota	11	4.46
		New Hampshire	7	4.14
		New Mexico	8	3.60
		Washington	15	3.33
		Nebraska	6	3.20
		Tennessee	14	3.06

H_4 There is no significant difference among group mean scores for states with respect to status II.

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
1.	Non-vocational teachers are permitted to accrue summer work experiences toward the minimum occupational experience requirements for T & I certification	4.00	3.06	3.53	4.86	3.73	4.80	3.53	5.06	4.26	4.40	3.93	3.93	4.33	5.26	5.00	1.88	.030	Reject
2.	One or more degree granting institutions have a common Vocational Bachelor's degree for T & I, Industrial-Technical and Industrial Arts Educators	5.26	5.13	4.26	5.20	4.46	4.86	3.86	4.53	4.73	5.53	4.26	4.13	5.53	4.86	4.46	1.58	.086	Retain
3.	To maintain certification, Trade and Industrial teachers are required to "practice" their trade specialty in industry on a regular basis	5.06	4.26	4.85	4.73	4.13	4.86	4.60	4.26	4.00	4.33	4.66	5.20	4.60	4.66	4.00	.800	.669	Retain
4.	One or more degree granting institutions give credit toward the Bachelor's degree requirements for proven occupational experience for vocational teachers	4.86	4.80	5.00	5.33	4.33	5.40	5.00	4.46	5.20	4.13	4.53	5.13	5.57	4.66	4.73	1.20	.274	Retain

H_4 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision $\alpha=.05$
5.	Trade and Industrial teachers are represented on the State Certification Standards Board, Comission or Agency	5.26	5.33	5.00	5.26	4.80	5.40	5.33	4.73	5.20	4.60	4.86	5.40	5.07	4.73	4.26	1.06	.390	Retain
6.	In selecting a chairperson for a department which consists of both Industrial Arts and T & I teachers, the vocationally certified T & I person is considered more highly qualified (if all else is equal)	4.76	4.06	3.78	4.26	4.85	5.14	4.33	3.40	3.80	4.33	3.80	4.26	4.80	5.00	4.20	1.27	.230	Retain
7.	An individual holding both Industrial Arts and Trade and Industrial (dual) certification, is given more consideration for a Vocational administrator position (if all else is equal)	4.53	5.14	4.13	4.80	4.66	5.26	4.60	5.33	4.20	4.20	5.00	4.46	5.00	5.13	4.06	1.03	.423	Retain
8.	Evidence of satisfactory progress in an in-service staff development program is a basis for determining eligibility for annual pay increments	4.26	4.40	3.71	3.60	4.33	4.73	3.86	3.33	4.13	3.93	4.00	4.93	3.93	3.86	3.73	.972	.484	Retain

H_4 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
9.	The Bachelor's degree in Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers	4.53	4.66	2.80	4.93	4.93	4.07	4.03	4.13	3.20	4.13	5.13	4.13	5.13	4.00	3.26	2.68	.001	Reject
10.	Vocational administrators are selected from the ranks of vocationally certified teachers	5.60	5.53	4.86	4.66	5.33	5.26	4.26	4.26	4.93	5.93	5.26	5.60	5.73	5.40	5.33	2.11	.013	Reject
11.	When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify Industrial Arts teachers for T & I positions	3.40	3.73	4.86	4.21	4.60	3.86	4.53	3.60	3.73	4.46	3.86	4.53	3.93	3.06	4.06	1.19	.281	Retain
12.	When occupational competency performance tests are given, the judges consist only of qualified persons in that specialty area	4.66	4.80	4.46	4.93	5.26	4.53	5.13	4.26	4.40	5.26	4.80	5.26	5.13	4.20	4.60	1.00	.446	Retain

H_4 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
13.	When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses	3.86	5.20	3.26	4.46	2.86	5.13	4.73	3.80	4.13	3.86	3.86	3.46	3.21	5.40	4.20	3.29	.001	Reject
14.	The Trade and Industrial teacher certification requirements in my state are stringent	4.60	5.11	4.73	4.86	4.46	4.53	5.13	4.53	4.93	5.21	5.06	5.66	5.15	4.53	4.80	.693	.779	Retain
15.	Teacher education for Trade and Industrial teachers is usually given on a college campus	4.64	4.00	3.40	4.06	4.20	4.33	4.35	4.40	3.73	4.53	4.33	3.71	5.26	5.86	3.40	1.74	.050	Reject
16.	Teacher training for new T & I people is usually carried out on-the-job and given concurrently with the initial teaching experience	5.00	4.00	3.60	4.42	4.66	4.45	4.40	3.60	4.06	4.33	4.66	4.93	4.26	3.60	4.33	1.25	.243	Retain
17.	The occupational competency examination is used to prevent non-competent teachers from renewing their certification	4.66	4.61	3.06	4.92	4.92	4.26	3.92	4.13	4.86	4.26	4.66	4.46	4.57	4.20	3.66	1.43	.139	Retain
18.	When necessary, Industrial Arts teachers are allowed to teach T & I courses	3.26	2.86	2.53	2.53	2.42	2.26	2.13	2.80	3.00	3.78	2.26	2.33	2.53	3.53	2.00			

H_4 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
19.	Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification	5.57	4.93	5.20	5.13	5.50	4.93	5.73	4.71	5.00	5.40	4.60	5.40	5.00	5.46	4.86	1.23	.254	Retain
20.	Almost every T & I instructor has acquired occupational competency through an apprenticeship or equivalent learning period	5.60	5.00	5.13	5.06	4.80	4.60	5.33	4.86	4.81	5.33	4.86	5.73	5.00	4.46	4.73	1.18	.289	Retain
21.	Proof of several years of journeyman level experience in a trade usually can eliminate the need for a competency examination	4.80	4.60	4.66	3.50	4.06	4.14	4.20	4.26	4.13	3.20	2.86	4.53	4.44	3.86	4.20	1.31	.201	Retain
22.	Essentially, there is uniformity in the T & I certification requirements for every school district in the state	5.06	5.26	5.66	5.26	5.60	5.40	5.46	5.06	5.13	5.40	4.93	5.73	5.33	5.46	5.13	.652	.819	Retain
23.	Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom	5.60	4.73	5.26	5.26	5.02	5.46	4.60	5.66	5.57	5.66	4.86	4.86	5.40	5.73	5.53	1.66	.067	Retain

H_4 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	$\bar{X}_7$	$\bar{X}_8$	$\bar{X}_9$	$\bar{X}_{10}$	$\bar{X}_{11}$	$\bar{X}_{12}$	$\bar{X}_{13}$	$\bar{X}_{14}$	$\bar{X}_{15}$	Computed F Value	Prob Level	Decision α=.05
24.	All Trade and Industrial teachers are required to pass occupational competency examinations for certification	5.42	4.53	3.07	5.14	4.66	4.13	4.66	4.66	4.60	5.60	5.00	4.40	4.93	4.20	4.20	2.38	.005	Reject
25.	Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the (GED) examination	5.46	5.20	5.00	5.42	5.40	3.93	4.85	4.40	5.26	5.60	4.93	5.53	5.66	3.33	4.06	3.12	.001	Reject

Table 4. Newman-Keuls Q-method tests for comparisons for states, status II: H_4

The Newman-Keuls multiple comparison test was utilized to compare the means for those statements which had no interaction and indicated significant differences with respect to states.

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1. Non-vocational teachers are permitted to accrue summer work experiences toward the minimum occupational experience requirements for T & I certification.
MSE = 2.314 df = 177
calculate $Q(df,P)\cdot\sqrt{MSE/15}$

Analysis of the comparison table indicates that 14, 8 and 9 strongly supported the concept with 2 differing significantly

Tennessee	14	5.26
New Mexico	8	5.06
Washington	15	5.00
Kansas	4	4.86
Nebraska	6	4.80
South Carolina	10	4.40
Wisconsin	13	4.33
Oregon	9	4.26
Arkansas	1	4.00
South Dakota	11	3.93
Texas	12	3.93
Louisiana	5	3.73
New Hampshire	7	3.53
Idaho	3	3.53
Alaska	2	3.06

9. The Bachelor's degree in Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers.
MSE = 2.683 df = 179
calculate $Q(df,P)\cdot\sqrt{MSE/15}$

Analysis indicates that 13, 11 and 4 strongly supported the concept with 3 differing significantly

Wisconsin	13	5.13
South Dakota	11	5.13
Kansas	4	4.93
Alaska	2	4.66
Arkansas	1	4.53
Louisiana	5	4.53
New Hampshire	7	4.53
Texas	12	4.13
South Carolina	10	4.13
New Mexico	8	4.13
Nebraska	6	4.07
Tennessee	14	4.00
Washington	15	3.26
Oregon	9	3.20
Idaho	3	2.80

Table 4. Continued

10.	Vocational administrators are selected from the ranks of vocationally certified teachers. MSE = 2.327 df = 178 calculate $Q(df,P)\cdot\sqrt{MSE/15}$	South Carolina	10	5.93
		Wisconsin	13	5.73
		Texas	12	5.60
		Arkansas	1	5.60
		Alaska	2	5.53
		Tennessee	14	5.40
	Analysis indicates that 4, 7 and 8 had significantly less support for the concept than 10 with a strong support mean	Washington	15	5.33
		Louisiana	5	5.33
		Nebraska	6	5.26
		South Dakota	11	5.26
		Oregon	9	4.93
		Idaho	3	4.86
		Kansas	4	4.66
		New Hampshire	7	4.26
		New Mexico	8	4.26
13.	When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses. MSE = 2.319 df = 177 calculate $Q(df,P)\cdot\sqrt{MSE/15}$	Tennessee	14	5.40
		Alaska	2	5.20
		Nebraska	6	5.13
		New Hampshire	7	4.73
		Kansas	4	4.46
		Washington	15	4.20
	Analysis indicates that 14, 2 and 6 strongly supported the concept, whereas 5 differed significantly	Oregon	9	4.13
		Arkansas	1	3.86
		South Dakota	11	3.86
		South Carolina	10	3.86
		New Mexico	8	3.80
		Texas	12	3.46
		Idaho	3	3.26
		Wisconsin	13	3.21
		Louisiana	5	2.86
15.	Teacher education for Trade and Industrial teachers is usually given on a college campus. MSE = 2.295 df = 177 calculate $Q(df,P)\cdot\sqrt{MSE/15}$	Wisconsin	13	5.27
		Tennessee	14	4.87
		Arkansas	1	4.64
		South Carolina	10	4.53
		New Mexico	8	4.40
		New Hampshire	7	4.36
	Analysis indicates that 9, 15 and 3 do not strongly support the concept, whereas 13 differed significantly	South Dakota	11	4.33
		Nebraska	6	4.33
		Louisiana	5	4.20
		Kansas	4	4.07
		Alaska	2	4.00
		Texas	12	3.73
		Oregon	9	3.73
		Washington	15	3.40
		Idaho	3	3.40

Table 4. Continued

24.	All Trade and Industrial teachers are required to pass occupational competency examinations for certification. MSE = 2.218 df = 177 calculate $Q(df,P)\cdot\sqrt{MSE/15}$	South Carolina	10	5.60
		Arkansas	1	5.43
		Kansas	4	5.14
		South Dakota	11	5.00
		Wisconsin	13	4.93
		New Mexico	8	4.67
		New Hampshire	7	4.67
	Analysis indicates that 10, 1, 4, 11 and 13 strongly support the concept, whereas 3 differed significantly	Louisiana	5	4.67
		Oregon	9	4.60
		Alaska	2	4.53
		Texas	12	4.40
		Washington	15	4.20
		Tennessee	14	4.20
		Nebraska	6	4.13
		Idaho	3	3.07
25.	Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the GED examination. MSE = 2.316 df = 177 calculate $Q(df,P)\cdot\sqrt{MSE/15}$	Wisconsin	13	5.67
		South Carolina	10	5.60
		Texas	12	5.53
		Arkansas	1	5.47
		Kansas	4	5.42
		Louisiana	5	5.40
		Oregon	9	5.29
	Analysis indicates that 13, 10, 12, 1, 4, 5, 9, 2 and 3 strongly support the concept, whereas 14 differs significantly	Alaska	2	5.20
		Idaho	3	5.00
		South Dakota	11	4.93
		New Hampshire	7	4.86
		New Mexico	8	4.40
		Washington	15	4.07
		Nebraska	6	3.93
		Tennessee	14	3.33

H_5 There is no significant difference between mean scores for occupational groups with respect to years of education.

Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	Computed F Value	Prob. Level	Decision α=.05
Years of college	6.2	5.8	3.6	59.2	.001	Reject

H_6 There is no significant difference between mean scores for respondents with respect to years of education for status II.

Each cell represents the mean years of education for those individuals who selected that response (1-6 on response scale). Note: The number in parentheses indicates the actual number of respondents.

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	Computed F Value	Prob. Level	Decision α=.05
1.	Non-vocational teachers are permitted to accure summer work experiences toward the minimum occupational experience requirements for T & I certification	4.15 (44)	4.41 (12)	6.14 (14)	5.30 (26)	5.74 (47)	5.46 (82)	4.24	.001	Reject
2.	One or more degree granting institutions have a common Vocational Bachelor's degree for T & I, Industrial-Technical and Industrial Arts Education	4.64 (28)	5.80 (5)	6.57 (7)	5.25 (28)	5.17 (46)	5.29 (111)	1.31	.262	Retain
3.	To maintain certification, Trade and Industrial teachers are required to "practice" their trade specialty in industry on a regular basis	4.25 (16)	5.28 (14)	5.08 (24)	6.05 (37)	5.20 (43)	5.12 (90)	2.05	.075	Retain
4.	One or more degree granting institutions give credit toward the Bachelor's degree requirements for proven occupational experience for vocational teachers	5.58 (17)	6.66 (16)	5.14 (14)	5.50 (26)	5.44 (49)	4.95 (112)	1.05	.385	Retain

H_6 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	Computed F Value	Prob. Level	Decision α=.05
5.	Trade and Industrial teachers are represented on the State Certification Standards Board, Commission or Agency	5.16 (6)	5.71 (7)	5.57 (14)	5.57 (35)	5.70 (48)	4.83 (111)	1.52	.185	Retain
6.	In selecting a chairperson for a department which consists of both Industrial Arts and T & I teachers, the vocationally certified T & I person is considered more highly qualified (if all else is equal)	5.77 (31)	5.46 (13)	5.71 (21)	5.81 (32)	4.81 (38)	4.82 (86)	1.77	.121	Retain
7.	An individual holding both Industrial Arts and Trade and Industrial (dual) certification, is given more consideration for a Vocational administrator position (if all else is equal)	5.31 (16)	4.50 (8)	5.40 (22)	5.44 (29)	5.41 (55)	5.06 (94)	.405	.845	Retain
8.	Evidence of satisfactory progress in an in-service staff development program is a basis for determining eligibility for annual pay increments	5.61 (31)	4.80 (15)	5.57 (28)	5.34 (47)	5.65 (46)	4.56 (57)	1.70	.137	Retain
9.	The Bachelor's degree in Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers	4.57 (26)	5.60 (15)	5.61 (31)	5.69 (39)	5.25 (39)	4.98 (74)	.972	.437	Retain

H_6 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	Computed F Value	Prob. Level	Decision α=.05
10.	Vocational administrators are selected from the ranks of vocationally certified teachers	5.44 (9)	5.80 (5)	5.14 (7)	6.16 (25)	5.47 (53)	4.92 (126)	1.57	.171	Retain
11.	When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify Industrial Arts teachers for T & I positions	5.85 (34)	5.65 (23)	5.73 (19)	5.67 (43)	5.91 (36)	4.01 (69)	4.99	.999	Retain
12.	When occupational competency performance tests are given, the judges consist only of qualified persons in that specialty area	5.07 (14)	6.30 (10)	5.55 (20)	6.11 (26)	5.50 (52)	4.73 (103)	2.50	.033	Reject
13.	When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses	5.00 (39)	5.91 (12)	5.43 (23)	6.02 (35)	5.09 (43)	4.87 (72)	2.25	.052	Reject
14.	The Trade and Industiral teacher certification requirements in my state are stringent	4.75 (4)	4.66 (3)	5.26 (23)	5.54 (50)	5.93 (61)	4.55 (81)	3.01	.013	Reject
15.	Teacher education for Trade and Industrial teachers is uaually given on a college campus	4.15 (19)	5.75 (12)	5.63 (36)	5.24 (50)	5.48 (45)	5.05 (60)	1.79	.118	Retain

H_6 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	Computed F Value	Prob. Level	Decision α=.05
16.	Teacher training for new T & I people is usually carried out on-the-job and given concurrently with the initial teaching experience	5.40 (15)	5.30 (20)	5.50 (32)	5.47 (40)	5.55 (52)	4.63 (65)	1.43	.214	Retain
17.	The occupational competency examination is used to prevent non-competent teachers from renewing their certification	4.88 (27)	5.12 (8)	5.85 (20)	5.63 (47)	5.73 (42)	4.64 (75)	2.05	.075	Retain
18.	When necessary, Industrial Arts teachers are allowed to teach T & I courses	4.89 (84)	5.48 (29)	5.555 (27)	5.63 (36)	5.46 (26)	4.89 (19)	1.05	.386	Retain
19.	Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification	6.14 (71)	5.50 (2)	5.10 (10)	5.84 (32)	5.73 (49)	4.81 (122)	2.02	.077	Retain
20.	Almost every T & I instructor has acquired occupational competency through an apprenticeship or equivalent learning period	5.27 (7)	5.94 (7)	5.77 (11)	5.31 (35)	5.30 (53)	4.72 (111)	1.81	.114	Retain
21.	Proof of several years of journeyman level experience in a trade usually can eliminate the need for a competency examination	5.27 (33)	5.94 (18)	5.77 (31)	5.31 (29)	5.30 (33)	4.72 (77)	1.81	.114	Retain

H_6 Continued

Item Number	Statement	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$	$\bar{X}_5$	$\bar{X}_6$	Computed F Value	Prob. Level	Decision α=.05
22.	Essentially, there is uniformity in the T & I certification requirements for every school district in the state	6.00 (7)	6.50 (2)	6.40 (7)	5.11 (18)	5.90 (51)	4.89 (140)	2.45	.035	Reject
23.	Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom	3.33 (6)	5.33 (3)	3.75 (4)	4.80 (35)	5.83 (37)	5.30 (139)	2.60	.027	Reject
24.	All Trade and Industrial teachers are required to pass occupational competency examinations for certification	4.50 (14)	5.64 (14)	5.43 (23)	5.85 (34)	5.29 (44)	4.97 (93)	1.06	.383	Retain
25.	Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the (GED) examination	5.81 (22)	5.71 (7)	5.87 (8)	5.47 (21)	5.37 (32)	4.96 (132)	.509	.769	Retain

Table 5. Newman-Keuls Q-method tests for comparisons for H_6

Statement #1		Statement #12		Statement #13	
3	6.14	2	6.30	4	6.02
5	5.74	4	6.11	2	5.91
6	5.46	3	5.55	3	5.43
4	5.30	5	5.50	5	5.09
2	4.41	1	5.07	1	5.00
1	4.15	6	4.73	6	4.87

Statement #14		Statement #22		Statement #23	
5	5.93	2	6.50	5	5.83
4	5.54	3	6.42	2	5.33
3	5.26	1	6.00	6	5.30
1	4.75	5	5.90	4	4.80
2	4.66	4	5.11	3	3.75
6	4.55	6	4.89	1	3.33

Response scale as used in the questionnaire

Your Degree of
Support for
the Statement
or Concept

Low High
1 2 3 4 5 6

Analysis of the comparisons table indicates that for those items where F was in the critical region the following differences existed for all respondents with respect to years of education for status II.

Statement #1: Those respondents who indicated for response position 1 differed significantly from those who indicated positions 5 and 3.

Statement #12: Those respondents who indicated for response position 6 differed significantly from those who indicated positions 2 and 4.

Statement #13: Those respondents who indicated for response position 6 differed significantly from those who indicated positions 4 and 2.

Statement #14: Those respondents who indicated for response position 5 differed significantly from those who indicated positions 6 and 2.

Statement #22: Those respondents who indicated for response position 6 differed significantly from those who indicated positions 2 and 3.

Statement #23: Those respondents who indicated for response position 5 differed significantly from those who indicated positions 1 and 3.

H_7 There is no significant interaction effect between the levels of the main effects for status I and status II.

The following statements were found to have statistical interaction at the .05 significance level in the ananlysis of variance:

For H_1: Statements 1, 10 and 12

For H_3: Statements 1, 10 and 13

Conclusion: For the above statements the apparently significant main effects are difficult to interpret. This indicates confusion on behalf of the respondents as to actual conditions in their respective states.

The following table of mean scores for the entire population illustrates the relative degree of support for each of the 25 statements regarding vocational teacher certification issues.

Table 6.

Statement	For status II on the scale of 1-6 Mean for entire population
1. Non-vocational teachers are permitted to accrue summer work experiences toward the minimum occupational experience requirements for T & I certification	4.182
2. One or more degree granting institutions have a common Vocational Bachelor's degree for T & I, Industrial-Technical and Industrial Arts Educators	4.742
3. To maintain certification, Trade and Industrial teachers are required to "practice" their trade specialty in industry on a regular basis	4.549
4. One or more degree granting institutions give credit toward the Bachelor's degree requirements for proven occupational experience for vocational teachers	4.875
5. Trade and Industrial teachers are represented on the State Certification Standards Board, Commission or Agency	5.013
6. In selecting a chairperson for a department which consists of both Industrial Arts and T & I teachers, the vocationally certified T & I person is considered more highly qualified (if all else is equal)	4.316
7. An individual holding both Industrial Arts and Trade and Industrial (dual) certification, is given more consideration for a Vocational administrator position (if all else is equal)	4.700
8. Evidence of satisfactory progress in an in-service staff development program is a basis for determining eligibility for annual pay increments	4.040
9. The Bachelor's degree in Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers	4.214

Table 6. Continued

Statement	Mean
10. Vocational administrators are selected from the ranks of vocationally certified teachers	5.160
11. When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify Industrial Arts teachers for T & I positions	4.031
12. When occupational competency performance tests are given, the judges consist only of qualified persons in that specialty area	4.782
13. When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses	4.102
14. The Trade and Industrial teacher certification requirements in my state are stringent	4.819
15. Teacher education for Trade and Industrial teachers is usually given on a college campus	4.216
16. Teacher training for new T & I people is usually carried out on-the-job and given concurrently with the initial teaching experience.	4.290
17. The occupational competency examination is used to prevent non-competent teachers from renewing their certification	4.342
18. When necessary, Industrial Arts teachers are allowed to teach T & I courses	2.764
19. Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification	5.162
20. Almost every T & I instructor has acquired occupational competency through an apprenticeship or equivalent learning period	5.022
21. Proof of several years of journeyman level experience in a trade usually can eliminate the need for a competency examination	4.095
22. Essentially, there is uniformity in the T & I certification requirements for every school district in the state	5.328

Table 6. Continued

Statement	Mean
23. Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom	5.281
24. All Trade and Industrial teachers are required to pass occupational competency examinations for certification	4.617
25. Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the (GED" examination	4.936

Using a mean of 5.00 or better as an indicator of strong support we find six items deserving of further discussion. The respondents feel strongly that (item 5) trade and industrial teachers should be represented on the state certification board or agency. The respondents also believe that (item 10) vocational administrators should be selected from the ranks of vocationally certified teachers. The sample population recommends (item 19) that occupational experience be recent and that (item 20) trade and industrial teachers have acquired occupational competency through apprenticeship or equivalent learning period. They further feel that (item 22) there should be uniformity in certification requirements throughout the districts in a given state. Finally, the respondents indicate strong support for the concept of requiring trade and industrial teachers to take professional teaching and methods classes for effectiveness in the classroom.

The only item to significantly register little or no support was item 18, which indicates that under no circumstances should industrial arts teachers be permitted to teach trade and industrial courses.

The mean response patterns for the following items (11, 12, 13, 14) indicate a stronger reaction (higher degree of support or non-support) for those respondents with less years of college. Those with less years of college tended to respond in the extremes on these statements:

11. When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify Industrial Arts teachers for T & I positions	Respondents with less years of college indicated responses with a 5 or 6 response level (high support for the concept)
12. When occupational competency performance tests are given, the judges consist <u>only</u> of qualified persons in that specialty area	
13. When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses	
14. The Trade and Industrial teacher certification requirements in my state are stringent	For this statement the responses were 1 or 2 (low or little or no support for the concept)

These findings may suggest that respondents with more years of college were less adamant or more "middle of the road," not given to an extreme opinion.

There appears to be no other distinguishable trends in the responses with respect to years of college.

V. SUMMARY, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER STUDY

Summary

The major purpose of the study was to compare the perceptions of district superintendents, vocational administrators and trade and industrial teachers toward vocational teacher certification procedures and ramifications. Also, to identify those aspects of the qualification requirements that affect administrators, teacher educators, teachers and future teachers in vocational education.

The purpose of the study was accomplished by establishing the following six objectives:

Objective 1: To review the current related literature on the subject of certification requirements.

A review of the literature on the subject of vocational teacher preparation and certification procedures revealed that many prominent educators and leaders in business and industry are deeply concerned with the requirements and qualifications of trade and industrial teachers.

Objective 2: To employ the delphi technique to generate an instrument to measure agreement on certification requirements.

The selection of a jury panel for the purpose of generating a questionnaire was accomplished by empanelling selected administrators, teacher educators and trade and industrial teachers during the 1978 summer session at Oregon State University. The jury panel was given a list of vocational certification issues identified by reviewing current literature. The jury members reviewed the initial list of issues and

contributed additional ideas and concerns to the concept. Round two involved assessment of the inputs of the entire panel with modifications and suggestions appended. The final round was essentially the process of establishing priorities and the compilation and synthesis of the best statements.

The questionnaire at this stage of its evolution was then mailed out to ten prominent vocational educators for their assessment. The recommendations of this review panel culminated in producing the final questionnaire form which was subsequently mailed out to the sample population.

Objective 3: To determine which certification procedures are most acceptable to the various respondent groups.

A review of the responses by the sample population indicates strong support for the following concepts.

(1) Trade and industrial teachers should be represented on the state certification standards board, commission or agency.

(2) Vocational administrators should be selected from the ranks of vocationally certified teacher.

(3) Occupational experience for certification should be recent.

(4) Trade and industrial teachers should have acquired occupational competency through an apprenticeship or equivalent learning period.

(5) There should be uniformity in T & I teacher certification requirements for every school district in a state.

(6) Trade and industrial teachers should be required to take professional teaching and methods classes for effectiveness in the classroom.

Objective 4: To determine how the respondents' perceptions of the present actual conditions regarding certification issues in states compare with the perceptions of more desirable conditions.

The two-way analysis of variance (ANOVA) F statistic was utilized to statistically analyze the population's responses with respect to status I and status II. The ANOVA indicated that significant differences existed among groups. The null hypothesis was rejected in 24 of the 50 tests.

To determine if there was statistical significance in the respondents perceptions regarding present actual conditions, 75 paired "t" tests were utilized to compare the responses. It was determined that the tests revealed no significant comparisons supportive of the hypotheses. It was found, however, that differences did exist in the respondents basic knowledge of actual conditions in their respective states.

Objective 5: To provide state certification commissions, degree granting institutions, vocational and administrative associations, local school districts and vocational teachers with relevant and current opinion on certification procedures with national significance.

The study indicates that despite the undergraduate preparation of district superintendents (only one had an industrial education major) they perceived certification issues in vocational education in 11 of the cases in much the same manner as did the vocational administrators and trade and industrial teachers, all of whom had vocational education majors or industrial training backgrounds. An analysis of the responses to the 25 statements indicates that certain issues were of significant importance to the respondents as was indicated by the mean response table on pages 80 to 82.

Objective 6: To make recommendations concerning state trade and industrial certification practices.

The response patterns indicate that trade and industrial teachers should be occupationally qualified or have successfully participated in an occupational competency examination. They also should have completed certain core courses in teaching methods, philosophy, occupational analysis, curriculum and instructional materials. The vocational teacher should also:

1. Practice his/her trade specialty in industry on a regular basis.
2. Have occupational experience that is current and relevant.
3. Be represented on the certifying agency, board or commission.

Conclusions

The findings presented in this study suggest the following conclusions which are based upon a synthesis of several years experience in industry, vocational teaching, administration, study and research at Oregon State University, and interviews with many professionals from both education and industry. The conclusions are:

1. Superintendents had the highest educational level followed by vocational administrators and trade and industrial teachers, respectively.

2. The trade teachers had a mean level of post-secondary education of 3.6 years, indicating that for many of them the bachelors degree is a viable goal.

3. The higher the level of education the respondents had, the more they tended to avoid responding in the extreme response positions.

4. For hypothesis 1 it was found that in the nine cases where F

was rejected the differences within occupational groups indicated that actual knowledge of conditions varied within the respective states.

5. For hypothesis 2 it was found that F was in the critical region in 14 cases. In 12 of those cases the significant differences in support were between superintendents and T & I teachers.

The mean support levels indicate the following:

Item No.

1. T & I teachers were less supportive of the concept that non-vocational teachers should be permitted to accrue summer work experiences toward occupational experience requirements. Superintendents were significantly supportive.
4. T & I teachers were supportive of the concept that degree granting institutions should give credit toward the bachelors degree for proven occupational experience. Superintendents were significantly less supportive.
5. T & I teachers were supportive of the concept that they should be represented on the certifying board, agency or commission. Superintendents were significantly less supportive.
6. T & I teachers were supportive of the concept that department chairmen should be selected from the ranks of T & I certified persons in preference to industrial arts certified persons. Superintendents were significantly less supportive.
10. T & I teachers were supportive of the concept that vocational administrators should be selected from the ranks of vocationally certified teachers. Superintendents were significantly less supportive.
11. T & I teachers were significantly supportive of the concept that

district hiring policies should be adjusted to offer sufficient salary inducement to attract teachers from industry. Superintendents were significantly less supportive.

12. T & I teachers were supportive of the concept that when occupational competency tests are given the judges must consist only of qualified persons in that specialty area. Superintendents were significantly less supportive.

14. T & I teachers were supportive of the concept that certification requirements for T & I teachers should be stringent. Superintendents were significantly less supportive.

17. Vocational administrators were supportive of the concept that the occupational competency examination could be utilized to prevent incompetent teachers from being certified. Superintendents were significantly less supportive.

18. Superintendents were supportive of the concept that when necessary industrial arts teachers should be permitted to teach T & I courses. T & I teachers were significantly less supportive.

19. Superintendents were more supportive of the concept that occupational experiences to qualify persons for T & I certification need not be recent. T & I teachers were significantly less supportive.

20. Superintendents were more supportive of the concept that T & I teachers did not absolutely have to go through an apprenticeship or equivalent learning period to teach. T & I teachers were significantly less supportive.

22. Superintendents were less supportive of the concept of uniformity in T & I certification requirements for all districts in a state.

T & I teachers were significantly supportive.

24. T & I teachers were supportive of the concept that all trade and industrial teachers pass occupational competency examinations for certification. Vocational administrators were significantly less supportive.

Implications

The field of vocational education continues to be a major thrust in the secondary schools of the nation. It is difficult in many districts to define and delineate the role of vocational education from that of industrial arts. Most secondary schools have one department which is often referred to as Industrial Education. This typical department will have some persons teaching in industrial arts and some with vocational certification. The tendency is for many administrators and school boards to consider these departments as units, incorporating technical subject matter teachers. This lack of understanding lends to departmental homogeniety and away from uniqueness of teacher preparation. The results of this study indicate basic philosophic differences especially between the T & I teachers and superintendents. The researcher concludes, however, that vocational teachers are increasingly acquiring college degrees and that many industrial arts teachers are obtaining valuable industrial experience outside the school.

It remains for all of education to accept the "vocademic concept" with genuine concern for the student and his/her preparation for life in the computerized, automated technology. One of the complaints often voiced against vocational teachers is that they are, in many cases,

encrusted and outdated in their course offerings. The lack of supervision by qualified, knowledgeable administrators, has permitted them to avoid the professional mandate to stay abreast of advancements in technology. These are also the individuals who typically do not join inspiring professional organizations. The old "hard hat" T & I teachers of the post-WWII era are gradually being replaced by better educated, more technically sophisticated teachers. Many of these new vocationally certified people are pursuing college degrees and receiving advanced placement through occupational competency examinations. These new vocational teachers will continue to have the respect of business and industry as well as that of educators. As vocational teachers become better educationally qualified, they will also become more involved in vocational administration and eventually in general education. Some are pursuing dual certification, which gives added flexibility to school districts in teacher assignments and staff utilization.

Suggestions for Further Study

It is recommended that similar studies concerning certification requirements be conducted solely with state certification agencies responsible for vocational certification to determine if occupational competency qualifications are becoming less stringent. Also, to determine if formal educational levels of trade and industrial educators are increasing either voluntarily or by increased certification requirements.

The findings of this study indicate statistical differences in the responses from the various occupational groups with regard to status I and status II. A further study should be conducted on a similar

population to verify these results.

One obvious obstacle to interstate reciprocity for vocationally certified teachers is the lack of uniformity among certifying agency types. The continuation of federal support for vocational programs in the states could be made contingent upon compliance with some representative model agency.

Studies should also be conducted to determine which states produce a surplus of vocationally certified teaching personnel as opposed to those states which traditionally rely upon "importing" persons so qualified.

A comparison study of salary conditions for vocationally certified teachers with respect to non-vocational teachers would also be beneficial in establishing realistic guidelines for administrators and school district hiring committees.

Finally, a study of vocational administrators and general school administrators should be conducted to ascertain the likelihood of those with trade and industrial backgrounds aspiring to leadership roles in education.

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APPENDICES

APPENDIX A

THE DELPHI PANEL

Jury Members

Dr. Pat Attebury - Corvallis, Oregon

Mr. Ray Clevenger - Prineville, Oregon

Mr. Ace Koch - Oak Ridge, Oregon

Dr. Pete Martinez - Corvallis, Oregon

Mr. Barney McGrady - North Bend, Oregon

Ms. Carolyn Rose - Corvallis, Oregon

APPENDIX B

DELPHI PANEL INSTRUCTIONS

ROUND #1: Because of your work in the field of Vocational Education, we are asking if you would be willing to serve on a Delphi panel for the following project. The Delphi Technique, which is built on the strength of informed, intuitive judgement, is intended to get expert opinion without bringing the experts together in a face-to-face confrontation.

You are being asked to help generate and validate a set of statements to be sent in questionnaire form to 30 randomly selected individuals in 10 states.

The respondents from each state will consist of:

5 District Superintendents
5 Vocational Administrators
5 Trade and Industrial teachers (for a total of 225 respondents)

We are attempting to generate the best 25 statements possible to deal directly with comparing the attitudes of District Superintendents, Vocational Administrators and Trade and Industrial teachers toward Trade and Industrial Certification procedures.

The results of the study will have national significance. Please read the statements carefully to determine if they best "get at" the problem. Space is provided and you are encouraged to modify any of the statements or write new and different ones.

ROUND #2: This will consist of a copy of each statement plus the modifications. You will then be asked to prioritize the statements indicating on a scale of 1 to 6, with 6 being high, which items you feel should become part of the final questionnaire. Please write your opinions concerning the items with which you disagree.

ROUND #3: At this time you will get the list, the ratings and the consensus. If you do not concur, you are asked to state a minority opinion. This is a last opportunity for revision of items or opinions.

School of Education
Vocational-Technical
Education Division

Oregon State University

Corvallis, Oregon 97331

APPENDIX C: SAMPLE OF LETTER SENT TO NATIONAL AUTHORITIES

August 11, 1978

Dr. Aaron J. Miller
Professor and Chairman
Faculty for Voc. Tech. Education
College of Education
The Ohio State University
160 Ramseyer Hall
Columbus, OH 43210

Dear Dr. Miller:

We are attempting to identify critical national concerns in the requirements, procedures and ramifications of Trade and Industrial (T & I) certification. Before we actually send the questionnaire out to the states, we would like you to take a couple of minutes and give us your opinion on the quality of the instrument.

1. Do the statements adequately reflect the current issues in T & I certification? [✓] yes [ ] no

2. Please indicate briefly your concern or recommendations which might improve the instrument.

no recommendations!

Thank you for your time and assistance.

Sincerely,

Redacted for Privacy

Larry Denny

Redacted for Privacy

Dr. Henry Ten Pas

School of Education
Vocational-Technical
Education Division

Oregon State University

Corvallis, Oregon 97331

APPENDIX D: SAMPLE OF LETTER SENT TO STATE DEPARTMENTS OF EDUCATION

July 6, 1978

Mr. Verne Duncan, Supt. of Pub. Instr.
Department of Education
942 Lancaster
Salem, OR 97310

Dear Mr. Duncan:

I am gathering data to complete a study on current certification procedures for Trade and Industrial teachers in randomly selected states. I am requesting your permission to conduct the study in your state which will involve some of the superintendents, vocational administrators and vocational teachers.

In addition to having your permission to conduct the study, I also need your assistance in obtaining the following information:

1. A current listing of your District Superintendents, full-time Vocational Administrators such as Directors, Coordinators and Supervisors and full-time Trade and Industrial teachers (not Industrial Arts). The addresses of the above Personnel are also a must !

2. A copy of the rules and regulations governing your State Vocational certification procedures.

Thank you for any consideration. The results of the study will be sent to you as soon as available. Should there be any costs involved in meeting these informational requests, please advise. Your cooperation is greatly appreciated.

Sincerely,

Redacted for Privacy

Larry Denny
Vocational-Industrial Dept.
Batcheller Hall No. 301
Oregon State University
Corvallis, OR 97331

LD/sls

APPENDIX E

LIST OF CHIEF STATE EDUCATION OFFICERS

ALASKA
Marshall L. Lind, Commissioner
Dept. of Education
Pouch F
Juneau, AK 99811
(907) 465-2800

ARKANSAS
Arch W. Ford, Director
Dept. of Education
Education Bldg., Capitol Mall
Little Rock, AR 72201
(501) 371-1464

IDAHO
Roy E. Truby, Supt. of Pub. Instr.
Dept. of Education
227 Len B. Jordan Bldg.
Boise, ID 83702
(208) 384-3300

KANSAS
Merle R. Bolton, Commissioner
Dept. of Education
10th & Quincy
Topeka, KS 66612
(913) 296-3201

LOUISIANA
J. Kelly Nix, Superintendent
Dept. of Education
419 North St.
Baton Rouge, LA 70804
(504) 389-2553

NEBRASKA
M. Anne Campbell, Commissioner
Dept. of Education
301 Centennial Mall, S
Lincoln, NE 68509
(402) 471-2995

NEW MEXICO
Leonard Delayo, Supt. of Pub. Instr.
Dept. of Education
Education Bldg.
Santa Fe, NM 87503
(505) 827-2282

OREGON
Verne A. Duncan, Supt. of Pub. Instr.
Dept. of Education
942 Lancaster Dr., NE
Salem, OR 97310
(503) 378-3573

SOUTH CAROLINA
Cyril B. Busbee, Superintendent
Dept. of Education
1429 Senate St.
Columbia, SC 29201
(803) 758-3291

SOUTH DAKOTA
Thomas Todd, Superintendent
Div. of Elementary & Secondary Educ.
Dept. of Education &
Cultural Affairs
State Office Bldg.
Pierre, SD 57501
(605) 224-3243

TENNESSEE
Sam Ingram, Commissioner
Dept. of Education
Cordell Hull Bldg.
Nashville, TN 37219
(615) 741-2731

TEXAS
M. L. Brockette, Commissioner
Education Agency
201 E. 11th St.
Austin, TX 78701
(512) 475-3271

NEW HAMPSHIRE
Robert L. Brunell, Commissioner
Dept. of Education
410 State House Annex
Concord, NH 03301
(603) 271-3144

WASHINGTON
Frank Brouillet, Supt. of Pub. Instr.
Old Capitol Bldg.
Olympia, WA 98504
(206) 753-6717

WISCONSIN
Barbara Thompson, Superintendent
Dept. of Public Instruction
126 Langdon St.
Madison, WI 53702
(608) 266-1771

APPENDIX F

QUESTIONNAIRE REVIEW PANEL

Dr. Robert Andreyka
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and Vocational Studies
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Dr. Gus E. Baker
Department of Industrial Education
College of Education
Texas A & M University
College Station, TX 77843

Dr. Calvin Cotrell
Chairman, Division of
Vocational Education
College of Education
Temple University
Philadelphia, PA 19122

Dr. Rupert Evans, Acting Chairman
of Vocational & Technical Ed.
College of Education
University of Illinois
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Urbana, IL 61801

Dr. Harold H. Halfin, Director
School of Industry and Technology
University of Wisconsin-Stout
Menomonie, WI 54751

Dr. Donald Maley
Professor and Chairman
Dept. of Industrial Education
College of Education
University of Maryland
College Park, MD 20742

Dr. Aaron J. Miller
Professor and Chairman
Faculty for Voc. Tech. Education
College of Education
The Ohio State University
160 Ramseyer Hall
Columbus, OH 43210

Dr. Merrill Oaks
Department of Education
Cleveland Hall - Room 364
Washington State University
Pullman, WA 99164

Dr. Merle Strong, Professor
Department of Educational
Administration
University of Wisconsin, Madison
Educational Sciences Bldg.
1025 West Johnson Street
Madison, WI 53706

Dr. Leon S. Tunkel
Executive Director
National Occupational Competency
Testing Institute
45 Colvin Avenue
Albany, NY 12206

APPENDIX G

September 11, 1978

TRADE AND INDUSTRIAL TEACHER CERTIFICATION PROCEDURES IN SELECTED STATES

QUESTIONNAIRE AND CHECKLIST

PART I DEMOGRAPHIC DATA

Position: District Superintendent _____

Vocational Administrator _____

Trade and Industrial Teacher _____

PLEASE CHECK ONE ONLY!

Years of experience in above position _____

State where employed _____

Educational background

1. High School Completed Yes _____ No _____
2. Number of years attended college _____
3. Undergraduate major _____
4. Highest degree attained _____

PART II STATEMENTS

DIRECTIONS: In the left side column, circle the number which best indicates your perception of how closely the statement fits the actual conditions found in your state.

In the right side column, circle the number which best indicates the degree which you would support the concept expressed in the statement.

	Your Degree of Agreement as to Actual Conditions In Your State (Low – High)	Your Degree of Support for the Statement or Concept (Low – High)
1. Non-vocational teachers are permitted to accrue summer work experiences toward the minimum occupational experience requirements for T & I certification.	1 2 3 4 5 6	1 2 3 4 5 6
2. One or more degree granting institutions have a common Vocational Bachelor's degree for T & I, Industrial-Technical and Industrial Arts Educators.	1 2 3 4 5 6	1 2 3 4 5 6

	Your Degree of Agreement as to Actual Conditions In Your State (Low – High)	Your Degree of Support for the Statement or Concept (Low – High)
3. To maintain certification, Trade and Industrial teachers are required to "practice" their trade specialty in industry on a regular basis.	1 2 3 4 5 6	1 2 3 4 5 6
4. One or more degree granting institutions give credit toward the Bachelor's degree requirements for proven occupational experience for vocational teachers.	1 2 3 4 5 6	1 2 3 4 5 6
5. Trade and Industrial teachers are represented on the State Certification Standards Board, Commission or Agency.	1 2 3 4 5 6	1 2 3 4 5 6
6. In selecting a chairperson for a department which consists of both Industrial Arts and T & I teachers, the vocationally certified T & I person is considered more highly qualified (if all else is equal).	1 2 3 4 5 6	1 2 3 4 5 6
7. An individual holding both Industrial Arts and Trade and Industrial (dual) certification, is given more consideration for a Vocational administrator position (if all else is equal).	1 2 3 4 5 6	1 2 3 4 5 6
8. Evidence of satisfactory progress in an in-service staff development program is a basis for determining eligibility for annual pay increments.	1 2 3 4 5 6	1 2 3 4 5 6
9. The Bachelor's degree in Vocational-Industrial education is the eventual goal of most Trade and Industrial teachers.	1 2 3 4 5 6	1 2 3 4 5 6
10. Vocational administrators are selected from the ranks of vocationally certified teachers.	1 2 3 4 5 6	1 2 3 4 5 6
11. When necessary, school districts adjust their hiring policies and offer sufficient financial incentive to attract people from industry, rather than attempting to upgrade and certify Industrial Arts teachers for T & I positions.	1 2 3 4 5 6	1 2 3 4 5 6
12. When occupational competency performance tests are given, the judges consist <u>only</u> of qualified persons in that specialty area.	1 2 3 4 5 6	1 2 3 4 5 6

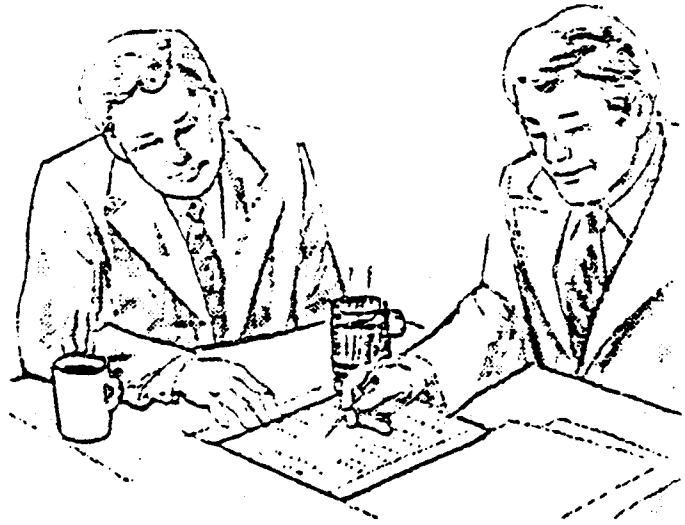
	Your Degree of Agreement as to Actual Conditions In Your State (Low – High)	Your Degree of Support for the Statement or Concept (Low – High)
13. When necessary, Trade and Industrial teachers are allowed to teach Industrial Arts courses.	1 2 3 4 5 6	1 2 3 4 5 6
14. The Trade and Industrial teacher certification requirements in my state are stringent.	1 2 3 4 5 6	1 2 3 4 5 6
15. Teacher education for Trade and Industrial teachers is usually given on a college campus.	1 2 3 4 5 6	1 2 3 4 5 6
16. Teacher training for new T & I people is usually carried out on-the-job and given concurrently with the initial teaching experience.	1 2 3 4 5 6	1 2 3 4 5 6
17. The occupational competency examination is used to prevent non-competent teachers from renewing their certification.	1 2 3 4 5 6	1 2 3 4 5 6
18. When necessary, Industrial Arts teachers are allowed to teach T & I courses.	1 2 3 4 5 6	1 2 3 4 5 6
19. Occupational experience must be recent (within the last 10 years) to qualify a person for T & I certification.	1 2 3 4 5 6	1 2 3 4 5 6
20. Almost every T & I instructor has acquired occupational competency through an apprenticeship or equivalent learning period.	1 2 3 4 5 6	1 2 3 4 5 6
21. Proof of several years of journeyman level experience in a trade usually can eliminate the need for a competency examination.	1 2 3 4 5 6	1 2 3 4 5 6
22. Essentially, there is uniformity in the T & I certification requirements for every school district in the state.	1 2 3 4 5 6	1 2 3 4 5 6
23. Trade and Industrial teachers are required to take professional teaching and methods classes to be effective in the classroom.	1 2 3 4 5 6	1 2 3 4 5 6
24. All Trade and Industrial teachers are required to pass occupational competency examinations for certification.	1 2 3 4 5 6	1 2 3 4 5 6
25. Trade and Industrial teachers have, as a minimum of formal education, a high school diploma or have passed the (GED) examination.	1 2 3 4 5 6	1 2 3 4 5 6

APPENDIX H

DEVICE WHICH ACCOMPANIED QUESTIONNAIRE TO ENCOURAGE PARTICIPATION

Hi - It's Coffee Time! And, it's my turn to buy!

While you're on your break, would you please use a few minutes to complete this questionnaire. Thanks for your input.



Larry Denny
Vocational Educator
Corvallis, Oregon

APPENDIX I

CODING OF IBM CARDS

Data for each of the 225 questionnaires was recorded as follows:

Column	Code
1	Identifies occupational group: 1, Supt.; 2, Voc. Adm. 3, Ind. Tchr.
2-3	Years of experience in position
4-5	State where employed: 01, Arkansas; 02, Alaska; 03, Idaho; 04, Kansas; 05, Louisiana; 06, Nebraska; 07, New Hampshire; 08, New Mexico; 09, Oregon; 10, S. Carolina; 11, S. Dakota; 12, Tennessee; 13, Texas; 14, Wisconsin; 15, Washington
6	High school graduation: 1, Yes; 2, No
7-8	Years attended college
9	Highest degree attained as follows: 1, Associate; 2, Bachelors; 3, Masters; 4, Doctoral; 5, None
10-35	Status one responses (left side scale)
35-60	Status two responses (right side scale)