OCCUPATIONAL SELF-IMAGES OF TEACHERS: A STUDY OF THE OCCUPATIONAL INVOLVEMENTS AND WORK-ROLE ORIENTATIONS OF MICHIGAN INDUSTRIAL EDUCATION TEACHERS

Thesis for the Degree of Ed. D.

MICHIGAN STATE UNIVERSITY
Hilding E. Nelson

1962

This is to certify that the

thesis entitled

OCCUPATIONAL SELF-IMAGES OF TEACHERS:
A STUDY OF THE OCCUPATIONAL INVOLVEMENTS AND WORK-ROLE ORIENTATIONS OF MICHIGAN INDUSTRIAL EDUCATION TEACHERS

presented by

Hilding E. Nelson

has been accepted towards fulfillment
of the requirements for

Ed.D. degree in Education

Major professor

Date August 14, 1962

O-169

ABSTRACT

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by Hilding E. Nelson

Statement of the Problem. The central concern of this study may be summed-up in its major hypothesis, which states that, the kinds of occupational involvements of Michigan junior high school industrial education teachers, and their major work-role orientations are related to specific factors identifiable in their social, occupational and educational backgrounds. In essence, it seeks to assess the self-images that teachers hold in relation to their work situation.

The importance of this study rests upon an assumption that modification of work behavior attitudes requires an understanding of the individual's latent behavioral characteristics in relation to modifiable aspects in his experiential environment. From this premise, the study sought to identify latent characteristics through analyses of the self-images of industrial education teachers toward their occupation. Further, it tested relationships between the self-images noted and environmental variables.

Methodology. The population included in this study was taken from the total population of junior high school (grades 7-9) teachers in Michigan public schools. From a total population of 379 teachers, 230 were directly represented in this study.

The first stage in the study involved identification of the teacher self-images. For this assessment, two inventories were used: (1) Dr. Robert

Dubin's "central life interest" inventory, and (2) a major work-role inventory developed by the investigator.

Dubin's inventory consisted of 40 questions. The inventory identified four aspects of behavior and total "central life interest" of individuals within the work setting. In all five areas, the respondent was rated as job or non-job committed.

The author's inventory consisted of nine questions aimed at identifying work-role orientations. These orientations were defined in the study as teaching, balanced-teaching-specialism, and specialism.

The second stage in the study sought to relate the noted occupational involvements (Dubin inventory) and role orientations to fifteen environmental factors.

The chi square statistic was used throughout the study to test observed distributions at the .05 level of significance.

Major Findings. The industrial education teachers studied exhibited the following characteristics.

1. The teachers, typically, did not view their occupation as their major "central life interest."

2. They tended to be committed to the methodology and activities prescribed by the organization for accomplishing the work tasks.

3. They tended to be committed to the fulfillment of the minimal rules, regulations, and procedures required by the work organization.

4. They tended to use their own objectives as guides for actually carrying-out the work tasks whenever possible--they are non-job committed in the non-formal work behavior sector.

5. They tended to prefer primary, interpersonal contacts with persons outside the occupation.

6. Their "central life interest" (total job involvement) did not have notable interdependence with any of the study variables.

7. Their commitment to the work rules, regulations and procedures decreased as the number of industrial education teachers per school district increased.

8. Their commitment to the prescribed work methodology and activities decreased with higher educational degree status.

9. The teachers' commitment to the prescribed methodology and activities in the work situation increased with membership and active participation in state educational associations.

10. Their tendency to use their own objectives in actually accomplishing job tasks was even less for Master's degree holders, than for holders of a Bachelor's degree.

11. The typical industrial education teacher placed value upon the functions of teaching and of specialism with relative equality.

12. Teachers, holding a primary self-image in the specialism role, did not expect reinforcement of this orientation through affiliations with state educational organizations.

13. Teachers with balanced teaching-specialism role orientations appeared to expect (or get) role recognition through active participation in state educational organizations.

14. Teachers with primary self-images in the teaching role expected role-reinforcement through membership and officership in state educational associations.

15. Teachers in small schools preferred the specialism role orientation to a greater extent than those in large schools.

16. Teachers in all sizes of schools tended to have comparable

balanced-teaching-specialism role orientations.

17. Teachers in large schools tended to value the teaching role to a greater extent than those in smaller-sized schools.

The following variables did not evidence any apparent relationships with either occupational involvements, or work-role orientations: length of teaching experience, currently taking coursework, purpose for taking coursework, length of manufacturing work experience, type of teaching assignment, affiliations with labor organizations, and affiliations with trade associations.

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Hilding E. Nelson

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF EDUCATION

Department of Education

1962

ACKNOWLEDGMENTS

The author would like to recognize the assistance and encouragement he has received in this research endeavor. To the following people, who have served so well and helped bear the problems of a novice in the field of educational and sociological research, this effort is dedicated.

To Dr. John A. Fuzak, chief evaluator, and the other members of the doctoral committee: Dr. George L. Brandon, Dr. William A. Faunce, and Dr. Clyde M. Campbell;

A special note of thanks is due Dr. Faunce for suggesting the "occupational involvement" approach, and for invaluable assistance in selecting and utilizing the analytical devices;

To Dr. Robert Dubin (University of Oregon) who has regularly assisted in the proper application of his "central life interest" inventory;

To Mr. R. M. Richardson (California State Polytechnic College) who carried out the statistical analysis from the study data, at a great saving of time for the author;

To the California State Polytechnic College, for the use of their Bendix Computer, and to Dr. Walter Schroeder who made its use possible;

To my wife, Doris, who above and beyond the call of duty, has encouraged, cajoled when necessary, corrected and typed the initial manuscripts, and suffered through the three years which have led to this moment;

To our children, Christine, Susan and Peter, who have suffered many,

many hours of banishment while their father put the pieces together; and

To a great multitude of other people without whom the work could not be completed--especially, the junior high school industrial education teachers of Michigan.

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CHAPTER I

THE PROBLEM AND ITS JUSTIFICATION

Introduction. At some point in every person's life there comes a time for decision-making which may alter that person's life, forever; that point was reached by the author three years ago. For ten years, he had taught in a public school in the southwestern part of the country; then suddenly, these benefits and securities were thrown over, and his family uprooted as he sought answers to some of the greater issues connected with his career, teaching.

Of course, not all the motives for this sudden change were altruistic; few men are capable of completely unselfish motives. Nor are such transformations as immediate as they seem, for few persons will act with brazen rashness--ignoring ultimate consequences. It is only after some goal has become an imperative, and the imperative offers some possibility of realization that rational man will break-off old ties and seek the new.

One of these imperatives for the author came as a resultant of years of interaction between other teachers and himself. It came to his consciousness gradually, and at least one aspect of it forms the basis for the ensuing study. This main imperative was a felt-need to aid in the improvement of teaching; to do this, a better understanding was needed of the ways in which teachers view themselves in their occupational world.

It appeared to the author that teachers look at themselves in relation to their work in many ways. He noted many degrees of variation in these

views, ranging from complete dedication to the occupation to an opposite extreme--the acceptance of work simply as a means of earning a livelihood.

Beyond these varying commitments toward the occupation, other orientations seemed to be exhibited. Some teachers seemed to select as their major occupational role the mechanics and techniques related to the processes of teaching, seeking to become expert in the means for transmission and utilization of knowledge. At the other extreme were those teachers dedicated to the subject-matter, per se, above all other things on the job. The remainder of the teachers seemed to fall somewhere between the two extremes.

The concept of occupational involvement, or work commitment, was brought to the author's attention during an industrial sociology course under Dr. William Faunce at Michigan State University. Dr. Faunce's assistance and encouragement have played no small part in the evolution of this research effort.

Statement of the Problem. This study will revolve around the values and attitudes of industrial education teachers which may serve as guides-to-action as they relate themselves to the teaching occupation. Its central concern is the degree to which these teachers are committed to their job.

Further, this study will seek to distinguish between two possible role orientations on the job: the role as a teaching specialist, and the role of subject matter specialist.

Finally, an attempt will be made to relate any notable variations in work commitments and role orientations to a number of variables which are capable of modification within the teacher's experiential environment.

Justification of the Problem. This study is premised upon several assumptions, the proof of which will not be undertaken at this time. These

assumptions are part of the author's philosophy of teaching which presumes that teachers should have a high degree of commitment to the occupation, and a somewhat balanced orientation between teaching and subject matter specialization, if they are to carry-out the functions of teaching in the best possible manner.

The first assumption (commitment to teaching) is supported by educators throughout the country. They spend a considerable amount of time verbalizing about the "professional" teacher: a concept which implies a very definite commitment to the occupational field.

The second assumption (balanced role orientation) is purely conjectural. It would seem logical, however, that some sort of balance between the techniques of teaching and the subject matter emphasis is necessary to preclude the possibility of either becoming an end in itself, rather than a means to the goal, education.

One approach to the assessment of teacher work commitments and role orientations has been made through the medium of external evaluations, or ratings, of teacher performance by administrators or fellow-teachers in the school. These evaluations tend to be premised upon certain "agreed-upon" characteristics for a "professional" teacher. While this system is actively in use in most school systems, the definitions of professionalism tend to be highly nebulous.

Certainly, the above approach has some merit in arriving at decisions about what is "good" or "bad" in teaching and teaching behavior. It suffers, however, from an inherent bias of the evaluators, and cannot tell whether the behavior observed is an external manifestation for the benefit of the evaluator, or the resultant of the perceptions of the teacher in his occupational role.

It is this investigator's belief that observable behavior is only one part of individual behavior--a part that is highly concerned with exhibiting conformity in a particular situation, at a particular moment. A person who exhibits desirable behavior at a particular moment of observation proves only that he knows the "correct" behavior to use in the situation; this is insufficient evidence that the person will perform at a desirable level at other times. In order to have some degree of predictability as to the teacher's subsequent behavior, some system is needed to determine the mental characteristics, or the tendencies toward behavior, of the teacher, in particular, his values and attitudes in relation to his work.

Possession of a tool for assessing the work attitudes and role orientations of teachers could provide teacher educators and administrators with invaluable assistance as they work with teachers and prospective teachers.

The teacher educator needs this knowledge as he seeks to modify the behavioral attitudes and values of persons aspiring to be teachers, or to change work roles in the educational field. At the present time, the educator has no tool which will determine existing behaviors in relation to work, nor those that exist at the culmination of the educational program.

The school administrator might use the work-behavioral device as a means for determining the latent attitudes of his staff members and, knowing this, be able to adapt his supervision and staff "upgrading" to the needs and characteristics of the staff. This type of tool, used over a long period of time, might enable the administrator to recognize and remedy attitude-problems before they become overt behavioral problems.

It is the author's hope that the subsequent inquiry will promote further investigations into teacher behavior and behavior-causative factors which may result in better means for the evaluation of teacher performance, and the improvement of the quality of teacher education.

Delimitation of the Study. This study will concern itself with one facet of professionalism in teaching; it will be limited to an analysis of the occupational commitments and the teacher-subject specialization role orientations of junior high school, industrial education teachers in Michigan.

This limitation is made necessary for a number of reasons, among which are the factors of economic, physical accessibility, and personal-experiential limitations of the researcher.

Significant findings noted in this study may suggest the existence of particular characteristics which relate to all industrial education teachers; however, direct application of results may be made only to the study group.

On the other hand, failure of this study to provide significant results should not be taken as proof that the field of inquiry has been exhausted. The small size of the sample, and its homogeneity of residence, educational level, general subject commonality, and inclusion of only the male species may, individually or collectively, contribute to non-significance of the final results.

Summary. This study is being undertaken in an attempt to develop a better understanding of the latent behaviors of teachers. The need for such a study stems from a realization of the manifest variations in commitments to work and work-role orientations exhibited by teachers with

whom the author has come in contact. The need is further justified on the basis of teacher-educators' commitments to the modification of individual behavior, which premises a necessity for the evaluation of values and attitudes before and after education--an evaluation which cannot be made on manifested behavior alone. Finally, a need exists for a device which may be used by school administrators to verify manifest behaviors of teachers, and to assess any variations in work commitments which may affect teaching role-performance.

Specifically, the study is concerned with: (1) the degree of occupational commitment of the teacher, (2) the degree of commitment to the role orientation of teacher specialist, or the role orientation of subject specialist, (3) the relation of particular role orientations to occupational commitment, and (4) the relationships between particular environmental variables and differences noted in occupational commitment and in role orientations.

The population to be used in the study will be the junior high school industrial education teachers in Michigan.

CHAPTER II

THEORETICAL FRAMEWORK FOR THE PROBLEM

The primary concern of this section is the development of a theoretical framework upon which a research study of industrial education teacher attitudes and central life interests may be based, and against which interpretations of study results may be made. Essentially, the focus will be upon the sociological factors which tend to promote commonalities or patterns of uniformity in attitudes and interests, and those forces which promote variations.

When we seek to understand what conditions lead to attitude and attitudinal-behavioral development, we must be concerned with two primary interacting variables: the actor's tendencies toward particular types of behavior, and the expectations of "alters" with which the actor is faced in particular situations. In the first case, tendency-toward-behavior, we must assess the developmental forces which have led the individual to formulate perceptions of himself in his society, and from this basis, postulate the effects of these social interactions. In the latter case, expectations, we are concerned with the forces, external to the individual, which tend to define individual roles and the rights and obligations associated with those roles.

A. DEVELOPMENTAL PATTERNS FOR TENDENCIES TOWARD BEHAVIOR

Biogenic Determinism. The individual is never a unique, self-contained entity unto himself. Even at birth, he is a product of a genetic

inheritance obtained from parental descendence, and his growth directions are resultants of interactions between the organism and the environmental forces of a human and natural society.

The biological inheritance provides a basic framework of traits and capacities which tend to promote or limit an individual's behavioral tendencies and ultimate achievements. In general, the two distinguishable biological bases that affect an individual's development may be classed as physical and mental in character.

The physical human attributes (q.v. skin pigmentation, other visible peculiarities, sex, growth determinants, etc.) may have important bearings upon an individual's attitudinal and value perceptions and orientations. These physical characteristics are not of major concern to this study, but their existence must be kept in mind as possible affective variables as the results of the proposed study are assessed. As a whole, the sample of industrial education teachers used in the study will tend to be male, white, and not widely varied in physiognometric characteristics.

It is with the mental realm that this study is most interested. The mental attributes, those affecting abilities to learn and to adapt to, and within, the social system are of consequential relevance for behavioral direction. Unfortunately, these biological factors have never been positively and precisely delineated; they tend to be "divided into four admittedly overlapping categories: capacities, reflexes, 'instincts' and urges."[1] Further, their relative importance to human behavior seems to change, or become modified, as the human organism matures and learns to adapt or to adjust to social and cultural conditions.

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[1]Kingsley Davis, Human Society, New York: The Macmillan Company, 1948, p. 201.

There seem to be certain uniformities in the organic development of the human species. Prescott identifies a "life dynamic," a sort of organic drive to complex growth:

> . . . a life dynamic to become more complex operates in the human organism. It drives him to the fulfillment of his organic growth potentials. . . . Equally, it pushes him to maximize the complexity of his functioning at each maturity level and to learn whatever is available through functional interaction with his environment. It makes him eager to learn, to establish and work toward goals, to invent, and to create. And, with each new level of complexity of knowledge and skill achieved and integrated into the organic whole, comes a new quantum of capacity to analyse, to reason, to purpose, and to produce something new.[2]

He further states that: ". . . every child goes through the same patterned sequence of organic differentiation and body growth, and each maturity level reached has its own associated developmental learning tasks."[3]

While these patterns of developmental uniformity exist in individuals, at the same time there are forces which tend to channel organic energies into patterns of deviation.

> . . . for accompanying each experience is an affective component that causes the individual to take a position toward each person and happening he experiences. And as more and more attitudes build up and the accumulation of experiences is thought about, convictions begin to arise. Some of these convictions relate to right and wrong and build an ethical code. . . . Others relate to good taste or sportsmanship. . . . But others are more fundamental and deal with questions of value. So the individual not only identifies objects, people and the activities as valuable, he comes to identify himself in his own mind as a person who is seeking to realize these values. . . . It is also clear that values initiate

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[2]D. A. Prescott, Factors That Influence Learning, Pittsburgh: University of Pittsburgh Press, 1958, pp. 9, 10.

[3]Ibid., p. 25.

> behavior and mediate the flow of energy into action in the human being.[4]

We recognize the existence and potential importance of the biogenic factors in human growth and development, and in consequent attitude formation. However, with the limited scientific data in this area, we can do little but conjecture as to their place in affecting behavioral tendencies. We must, therefore, turn toward better substantiated sources in the field of sociology if we are to formulate an attitudinal-behavioral theory.

Social Determinism. The human organism is asocial at birth. It does not have social personality, or any of the mental attributes which distinguish between animal and man. The infant is "of" society, but not a functional part in it. How then does the person learn to function? How is he socialized? What guides to action does he develop in this process of becoming a human member of society?

Socialization. The amalgamation of the individual into the society begins at birth.

> The paradox of human society--that it has a unity and continuity of its own and yet exists solely in the minds and actions of its members--can be resolved only by understanding how the newborn individual is molded into a social being. Without this process of molding, which we call "socialization," the society would not perpetuate itself beyond a single generation and culture could not exist. Nor could the individual become a person; for without the ever-repeated renewal of culture within him there could be no human mentality, no human personality.[5]

The cultural characteristics are transmitted to the individual through the social mechanisms". . . of habituation, learning, and symbolic

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[4] Ibid., p. 44.

[5] Davis, op. cit., p. 195.

communication; (which relate) to the general level of reality designated as socio-cultural."[6]

It is important to note that:

> Most of the human behavior we regard as somehow given in the species does not occur apart from training and example by others. Most of the mental traits we think of as constituting the human mind are not present unless put there by communicative contact with others.[7]

The following quotations from Davis' Human Society summarize the forces at work in the socialization processes.

> The heart of socialization is the emergence and gradual development of the self or ego. It is in terms of the self that personality takes shape and the mind comes to function.
>
> . . . an essential characteristic of the self is its reflexive character. By this . . . (it is meant) that the self can be both subject and object to itself . . . by looking at himself (through the eyes of others) . . . He learns to imagine how others judge his appearance, and then to react himself to this judgment as he imagines it.
>
> In acquiring the attitudes of others toward himself, the individual is not merely passive. He explores and finds out because the satisfaction of his wants greatly depends on others' attitudes toward him. . . . He has a powerful incentive to understand their attitudes, because otherwise he could not predict or control what happens to him.
>
> As the individual incorporates into himself the system of mutually related attitudes in the community with reference to the common activities and goals of the group as a whole, he becomes a complete self. . . . The self, then, is a structure of attitudes, not a group of habits. . . . a dynamic system, the parts of which are functionally related but never completely integrated.

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[6] Ibid., p. 197.

[7] Ibid., p. 208.

> As the normal individual becomes mature, a modus vivendi is worked out whereby some satisfaction is given to all parts of the self but no part is allowed to run away with the others and thus divorce the person from his social reality.
>
> . . . once he is socialized (the person) can remain solitary for a long time. . . . Eventually, however, he must have an audience. Otherwise he cannot check the accuracy of his own responses.[8]

The preceding quotations suggest the necessity for closer scrutiny of the significant others who are the models for additudinal development by the individual. Some of the obvious questions that must be probed in regard to the "socializers" include: "Who are they; are they chance or positive forces; how and when are they significant to the individual?"

Again looking to Davis, we note:

> . . . (that) socialization has not been left to mere accident but instead has always taken place within an institutional framework and been controlled through institutional channels. There are two quite distinguishable categories of persons from whom the child acquires the sentiments, beliefs, and knowledge of his culture. The first includes those who have authority over him, the second those who have equality with him.
>
> . . . both authoritarian and equalitarian relationships contribute to the socialization of the child, and both tend to be ascribed (at least initially) in terms of sex, age, and kinship. Things that involve discipline and responsibility are usually handed over to authoritarian relation, other things to equalitarian relations.[9]

Throughout the preceding discussion of socialization, many guides-to-action for the individual were notable. These guides include the nature of the emergent ego, communicative contacts, reflexion and self-perception characteristics, assumption of roles of others, recognition of sanctions related to personal gratifications, social integration, and attitudinal-

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[8] Ibid., passim., pp. 208-215.

[9] Ibid., passim., pp. 215-218.

habit formation. Through implication it becomes evident that guides are established to enable the individual to achieve ego-satisfactions and membership within the social structure.

It has been noted that in the processes of socialization and the development of tendencies toward behavior, the evolution has taken place within the interactional framework of society and the culture. In this development, the individual has received impressions of, and reacted to, the expectations of other human beings in particular situations as he has developed the personality characteristics he will use in his dealings with his social world. From its earliest beginnings, the organism has had to react to expectations. As it matures, the organism's perceptions of expectations are molded and sharpened; the individual finds that distinctions may be made into alternatives, and consequences of his actions predicted with a reasonable amount of success.

The time has come to determine more precisely the expectations found in society. This search will take place in the social structures and their relationships to the established guides for behavior.

B. THE SOCIAL STRUCTURE AND EXPECTATIONS

The society does not adjust to the individual; it exists before the individual arrives on the scene, and presumably, shall continue long after he has departed. In some way, therefore, the individual must develop means for functioning within the social structure. These means must be premised upon certain assumptions as to their values and consequences for the individual and the society. While every person tends to be fitted within the societal structure through the circumstances of his birth, the ultimate adaptations and adjustments he makes are subject to much variability.

> The essence of any social situation lies in the mutual expectations of the participants. These expectations rest to a great extent on the norms applicable in the situation. Every culture evolves folkways and mores to cover typical situations of the interacting parties. In this sense almost every situation is socially defined. Each actor has some conception of the others, and believes he has some notion of what they expect of him and of what they expect that he expects them to expect.[10]

The value of expectations lies in their usefulness for determining consequential actions.

> The nearest approach to total predictability is found in formal occasions when the behavior is minutely regulated according to convention and when deviation from the prescribed pattern is carefully avoided.
>
> Not all expectations are normative in character, however. There is a certain factual element that helps define what will happen. . . . The normative element is only one such factor. But even this hinges on another--namely, the status of the persons involved in the situation.[11]

Status and Role. Our concern with status and the associated stratificational aspects of society is to identify the forces which act as delimitational elements related to behavior of individuals. Davis indicates that

> A person . . . enters a social situation with an identity already established. His identity refers to his position, or status, within the social structure applicable to the given situation, and establishes his rights and obligations with reference to others holding positions within the same structure.
>
> The normative system lays down the formal rights and obligations in connection with a position. . . . All norms, no matter how expressed, are relative to the particular situation. Which norm applies in a given case depends upon the relations between the statuses of the interacting parties.

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[10] Ibid., p. 83.

[11] Ibid., passim., pp. 84-85.

> Each person occupies many different statuses. We sometimes speak of the status of the social position of a given individual, meaning the sum total of his specific statuses and roles. . . . More often, however. . . . We rate the person's behavior according to the norms applying to a specific status.
>
> The term, status, would . . . designate a position in the general institutional system, recognized and supported by the entire society, spontaneously evolved rather than deliberately created, rooted in the folkways and mores. Office, on the other hand, would designate a position in a deliberately created organization, governed by specific and limited rules in a limited group, more generally achieved than ascribed.
>
> . . . holding an office may at the same time give one status. The kind of status it gives depends upon the importance, scope, and function of the organization of which the office is a part, as well as the importance of this particular office within the organization.
>
> Occupational position, for instance, is often a status and office both, the first when viewed from the standpoint of the general public, the second when viewed from the standpoint of the particular business or agency.[12]

In regard to the status of teachers, Brookover indicates that: ". . . typically teachers are the children of farmers, skilled workmen, or owners of small business. This indicates a lower-class or lower-middle-class background. . . ."[13] This general commonality of status levels would seem to indicate that teachers may be expected to exhibit a high degree of similarity in their predispositions and orientations toward the rights and obligations associated with the occupation of teaching--assuming relative uniformity in their socialization processes.

It is quite frequently stated that teachers look to the upper-

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[12] Ibid., passim., pp. 83-93.

[13] Wilbur B. Brookover, A Sociology of Education, New York: American Book Company, 1955, p. 276.

middle-class socio-economic levels as their normative reference group; they are frequently criticized for teaching the middle-class morality. If this is true, there is a "common" aspirational level for teachers in their establishment of guides-to-action. However, this aspirational direction may also contain the seeds for conflicts between aspirations and the socially-provided means to ends achievement. Brookover indicates that

> Entry into the occupation (of teaching) does not necessarily give a high status. . . . The desire to be identified with a higher status of the social structure causes the teacher to use the techniques of highly competitive society and to exploit other teachers in an effort to establish roles in another group.[14]

> . . . (Teacher) organizations are based on the recognition of the fact that teachers do not have the status nor the financial rewards of the upper-middle-class, with which they identify themselves.[15]

These roots for conflict may be further enhanced as a result of the unique position teachers hold in the American community.

> The average citizen may respect the teacher but has little contact with him outside the school. He never sees the teacher in other activities, exhibiting abilities other than those associated with teaching. . . . (He is) rarely permitted to assume another role. It follows that there is no basis upon which to establish another status in the community. The teacher's position is usually unranked in comparison with others in the community.[16]

To whom does the teacher look in the establishment of comparative reference groups and for an audience of evaluation of his role performance?

Brookover notes: ". . . that the definition of the teacher's role grows out of the expectations of both the teacher and other actors in the

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[14]Ibid., p. 253.

[15]Ibid., p. 258.

[16]Ibid., p. 242.

situation."[17] If, as previously noted, society does not assign high status-rank to teaching, thereby allowing the teacher to test self-esteem outside of the educational institution, the teacher must look to his colleagues within the institution for such rewards as he desires. Yet, there are other pressures upon teachers which may tend to make them orient themselves in terms of external (outside the teaching occupation) expectations. ". . . the teacher must continually look to the school administration, community groups, and his colleagues for rewards or the avoidance of sanctions. The expectations of one group are frequently incompatible with those of another. . . ."[18] Beyond this, an industrial education teacher, by virtue of possible previous and continuing ties with industrial organizations, may seek to identify himself with expectations of these outside groups. Generally speaking, "Teachers who desire a clearly defined and high status in the community may find the position (of teaching) frustrating and leading to personality disorganization."[19]

The importance and consequences of the provision of clear definitions of rights and obligations associated with status have been indicated by Merton.

> The distribution of statuses through competition must be so organized that positive incentives for adherence to status obligations are provided for every position within the distributive order. Otherwise . . . aberrant behavior ensues. It is indeed, my central hypothesis that aberrant behavior may be regarded sociologically as a symptom of dissociation between culturally prescribed aspiration and socially structured avenues for realizing these

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[17] Ibid., p. 267.

[18] Ibid., p. 284.

[19] Ibid., p. 282.

aspirations.[20]

> The culture may be such as to lead individuals to center their emotional convictions upon the complex of culturally acclaimed ends. With such differential emphases upon goals and institutional procedures, the latter may be so vitiated by the stress on goals as to have the behavior of many individuals limited only by considerations of technical expediency. . . . The technically most effective procedure, whether culturally legitimate or not, becomes typically preferred to institutionally prescribed conduct. As this process of attenuation continues, the society becomes unstable and there develops what Durkheim called "anomie" (or normlessness).[21]

The individual who is to remain a functional part of society must find some basic hub around which to orient himself.

> There seems to be a major role to which one must commit himself in order to determine his action at choice points, despite contrary expectations attaching to other roles he may simultaneously occupy.[22]

> A major role is the one to which the actor commits himself at the point of decision-making in a role conflict.[23]

Role and Reference Groups. We may imply from preceding discussions that individual's attitudinal-personality-behavioral systems are largely the resultants of learning on the part of the actor in specific situations. Each role he assumes requires a new set of definitions, or at least, modification of the previous set.

The study for which this theoretical framework is being constructed revolves around the occupational roles of teachers. Linton defines role

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[20]Robert K. Merton, Social Theory and Social Structure, Glencoe, Ill.: The Free Press of Glencoe, 1949, p. 134.

[21]Ibid., p. 135.

[22]N. Gross, et al, Explorations in Role Analysis, New York: John Wiley & Sons, Inc., 1958, p. 283.

[23]Ibid., p. 282.

as: ". . . the sum total of culture patterns associated with a particular status."[24]

In bureaucratic organizational forms, which include educational institutions in modern American society, Newcomb has noted that

> . . . each position carries with it definite prescriptions toward behaving toward other persons in related positions. . . . Such ways of behaving toward others, which are defined for different positions, are called roles.[25]

The bureaucratic organization tends to stratify workers, ranking them on some scale of superiority-inferiority. Yet, the educational institution will tend to have less vertical differentiation than many other social institutions. In this respect it resembles the recognized professions.

In establishing guides-to-action, an individual seeks to achieve some sort of a balance between his own personal values and aspirations, and the social values and expectations of the groups he deems important. ". . . men frequently orient themselves to groups other than their own in shaping their behavior and evaluations. . . ."[26] Yet, if the others are to be accepted as reference groups,

> . . . some similarity in status attributes between the individual and the reference group must be perceived or imagined, in order for the comparison to occur at all. Once this minimal similarity obtains, other similarities and differences pertinent to the situation will provide the context for shaping evaluations. Consequently this focuses the attention of the theorist immediately upon the factors which produce a sense of pertinent similarity between statuses, since these will help deter-

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[24] Ibid., p. 12.

[25] Ibid., p. 34.

[26] Merton, op. cit., p. 234.

> mine which groups are called into play as comparative contexts.[27]

> . . . the hypothesis holds that, insofar as subordinate or prospective group members are motivated to affiliate themselves with a group, they will tend to assimilate the sentiments and conform with the values of the authoritative and prestigeful stratum in that group. The function of conformity is acceptance by the group, just as progressive acceptance by the group reinforces the tendency toward conformity. And the values of these "significant others" constitute the mirrors in which individuals see their self image and reach self-appraisals.[28]

However, because an individual tends to orient himself toward one reference group, or another, does not mean that he will conform precisely to the expectations of that group. Parsons indicates that: "The institutionalization of a set of role expectations and of the corresponding sanctions is clearly a matter of degree."[29]

Variables associated with the establishment of consensual goals may be based

> . . . on the degree of conformity to "agreed upon" standards of a group, to the expectations of actors in given situations, to the expectations of position incumbants for themselves, to legally defined expectations, or to perceived or actual expectations of others. When conformity is defined according to a particular set of expectations, the other sets may become relevant as conditions which can affect the degree of conformity.[30]

In the case of industrial education teachers, the selection of reference groups upon which to base their actions (normative), and with whom they might compare their actions (comparative) may be quite variable.

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[27] Ibid., p. 242.

[28] Ibid., p. 254.

[29] N. Gross, et. al., op. cit., p. 40.

[30] Ibid., p. 224.

It is quite possible that clearest distinctions may be made between reference orientations related to the teacher's subject specialization (industrial), and those related to the professional techniques associated with the functions of teaching. Which orientation may be predominant in relation to his major role orientation will depend upon the things the individual deems to be most important to his particular way of life.

C. WORK BEHAVIOR

Work and an occupation are forces which influence and tend to modify human behavior. The work situation may carry-on the socialization processes begun in the family, the school, and the more immediate community associations of the individual's early life. On the other hand, the "world of work" may provide the individual with new statuses, new levels of power and authority, and new perceptions of self within the social order.

Work behavior is concerned with the ". . . behavior systems within which each member of a work organization carries out his daily round of tasks."[31] Dubin has distinguished four behavioral systems characteristic of every job: technological, formal, non-formal, and informal.[32]

The chief value in understanding work behavioral systems is that they ". . . tell us what people actually do when they are at work and working."[33]

The Behavioral Systems. The following quotations briefly define Dubin's work behavioral classifications.

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[31]Robert Dubin, The World of Work, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1958, p. 61.

[32]Ibid., p. 61.

[33]Ibid., p. 62.

> (Technological) The technological behavior system comprises the job or task activities. They are always specific to the job, and include what must be performed to get the job done.
>
> The actions are technological in character because they are technical acts related to equipment and its use, or to production processes and operations.
>
> (Formal) The formal behavior system relates each individual to the total work organization. The formal system specifies the minimum conditions of acceptable membership in the work organization.
>
> . . . the formal behavior system is a set of rules, regulations, and procedures governing conduct and behavior while at work.
>
> (Non-formal) Non-formal behavior systems orient the individual with respect to his specific working objectives. . . . (It) provides a means for modifying the technical behavior system within the allowable limits of the formal behavior system.
>
> . . . the non-formal behavior system represents the actual way in which a job gets done.
>
> (Informal) Informal behavior systems cover the area of direct interpersonal relations of a voluntary character. Informal relations occur, therefore, in addition to the relationships required of people to get their work done. We can look at informal relations as filling up the time during which people at work have some freedom to interact with each other above and beyond the requirements of their work assignments.[34]

Speaking in general terms, we might classify Dubin's behavioral systems as the people, place, things, and ideas which interact to stimulate and control human behavior within the work environment. The relationship of the person to his work environment is pictured in Figure 1. Summarizing the implications of this chart, we note that

> *Task activities are developed through the technological behavior system. The relations of a person to his job or organization goals and their effective achievement are developed through the non-formal behavior system. This behavior system is important also in developing*

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[34] *Ibid., passim., pp. 62-70.*

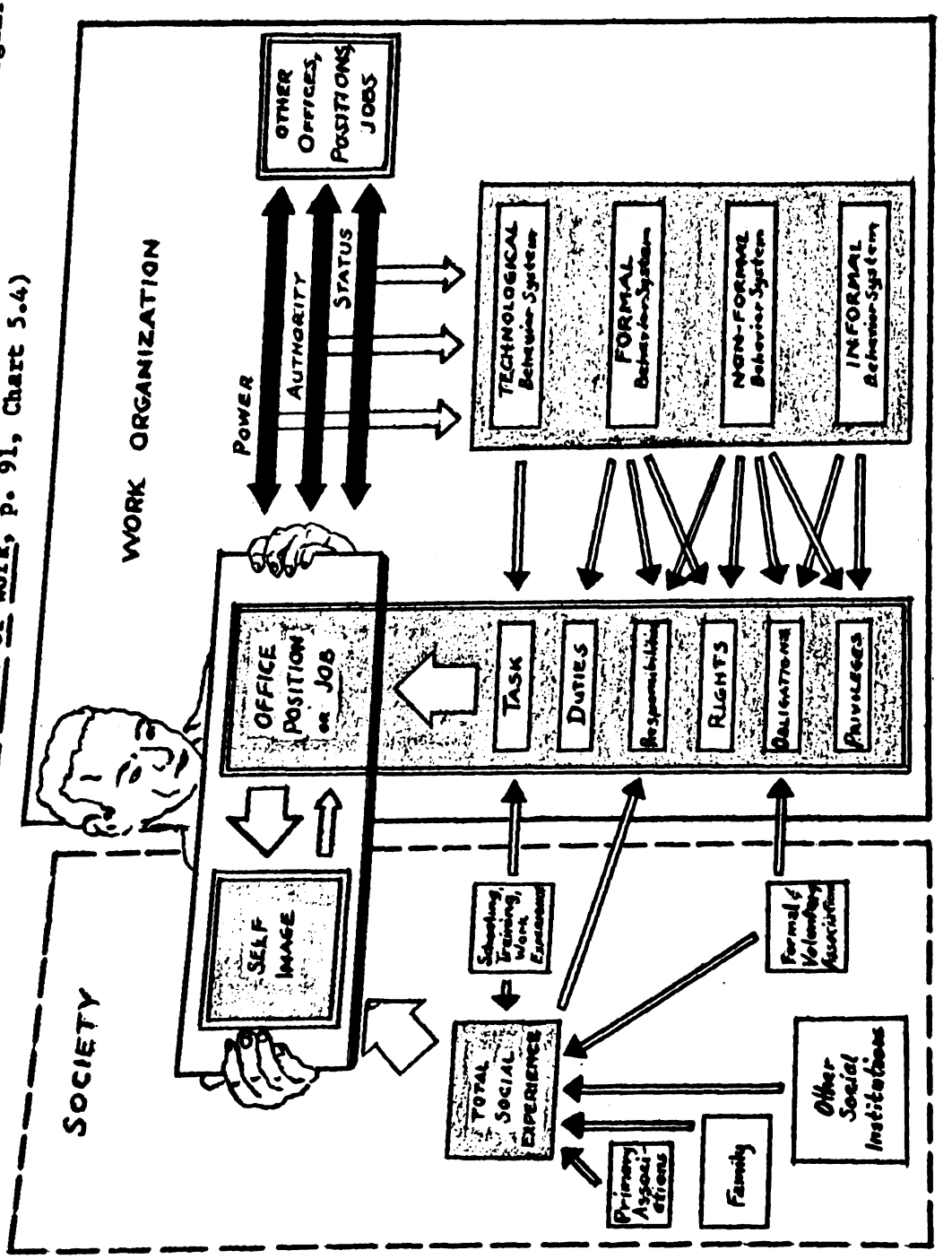

Figure 1. Working Behavior is the Product of Complex Interactions Between Society and Work Organization
(From Robert Dubin, The World of Work, p. 91, Chart 5.4)

> personal skill in unofficial but effective ways of performing his technical tasks.
>
> The formal behavior system relates the person to the organization in which he operates. He learns here the broad rules of standard behavior as well as the general objectives of his participation as a worker. In the informal behavior system we have the means by which the person relates himself to other persons in his working environment.[35]

Central Life Interest. On the whole, the concept of "central life interest" dominates the directions of the proposed study of teacher's self-images at work. This concern derives its direction by paralleling the following principles of Dubin:

> The theory underlying this study involves five basic points: (a) the axiom that social experience is inevitably segmented; (b) the assumption that an individual's social participation may be necessary in one or more sectors of his social experience but may not be important to him; (c) the logical conclusion that adequate social behavior will occur in sectors of social experience which are mandatory for social participation by the individual but not important to him; (d) the second conclusion that in situations of necessary but unimportant social participation the most direct and obvious features of the situation become the bases for individual's attachment to that situation; and (e) the third conclusion that primary social relations take place only in situations where the social experience is valued by the individual.[36]

The categories of social experience which Dubin conceives to make up the individual's "central life interest" include: ". . . informal group participation, general activities which furnish personal satisfactions, involvement in formal organizations, and technological

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[35] Ibid., p. 74.

[36] Robert Dubin, "Industrial Workers' Worlds: A Study of the 'Central Life Interests' of Industrial Workers," Social Problems, Vol. 3, No. 3, Jan. 1956, p. 132.

behavior."[37]

The fact that there exists a considerable amount of variation between the commitments toward work at various status levels, or occupational levels, is evidenced by results noted in the studies of Dubin for industrial workers, and Orzack for professional nurses.

In the first case, Dubin states: "Our research indicates that only about 10 percent of the industrial workers perceive their important primary social relationships as taking place at work. The other 90 percent preferred primary interactions with fellow men, elsewhere than on the job."[38]

In the second case, Orzack's results generally follow the pattern of orientations noted by Dubin, but with a much greater majority of nurses exhibiting high degrees of primary relationships at work. Orzack states,

> It can hardly be assumed that professionals do not value their work. They may in fact consider it an end-in-itself. For the professional, work is a focal center of self-identification and is both important and valued.
>
> Training as a professional may stress technological details as well as the learning of behaviors appropriate to future roles in work settings. Such training also encourages aspirants to professional status to prefer a work setting to other settings for the location of informal social relationships and as sources of personal satisfactions. . . .[39]

In the occupation, industrial education teaching, we might expect that the long formal education period for entry into the occupation would tend to increase the teacher's degree of identification with the occupa-

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[37]Louis H. Orzack, "Work as a 'Central Life Interest' of Professionals," Social Problems, Vol. 7, No. 2, Fall 1959, p. 126.

[38]Dubin, op. cit., p. 132.

[39]Orzack, op. cit., p. 126.

tion. From this standpoint, it should be as high, or higher, than that shown by the nurses in Orzack's study. The teacher's tendency toward occupational involvement would tend to be further increased by the isolation of the educational institution from status-ranking by members of the community, as indicated by Brookover. This condition would increase the necessity for teachers to look to their own colleagues for normative standards of conduct, and for audiences of evaluation to test their self-esteem.

The structure of educational institutions, tending to be bureaucratic in nature, makes possible certain inductive assumptions about teacher orientations from the following observations by Max Weber.

> . . . in formal organizations based upon rational authority with staff units organized in bureaucracies, the staff members are loyal to the legally established impersonal order of the organization. By implicit extension of this idea we can see immediately the possibilities of other sources of organizational attachment for members. In particular, we can examine the possibility that organizational attachment can be a product of the formal organization and its operations, and of the technology which surrounds work.[40]

Based upon the preceding quotation, we may make an assumption that teachers having substantial amounts of industrial experience before entering industrial education teaching will tend to maintain these commitments; but their degree of "outside" commitment will diminish with the length of time they remain in teaching. If outside associations are not kept-up, the rate of change in orientation will be more rapid than if connections are maintained.

In the secondary levels of public schools, we find a high degree of subject matter specialization by teachers. We can expect that this spe-

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[40] Dubin, op. cit., p. 137.

cialization may tend to become the central interest, or major role orientation, for those teachers who have frequent opportunities to interact with other teachers having the same specialization; it is obvious that orientation toward specialization is more likely to occur in the larger schools and the larger school districts.

Summary: Related to Study Proposal

The social structure provides the framework within which an individual functions. Within this structure, the individual must locate the means and ends, and the rights and obligations, concomitant with the statuses, offices, positions and roles he is to fulfill.

An individual is constantly faced with the necessity of reacting on the basis of his own expectations and on the expectations of others. In order to determine the "correct" action in a particular situation, he relies upon the values and attitudes of normative and comparative reference groups. When he desires to test his role performance, or self-esteem, he looks for an audience of evaluation.

A primary requisite for the social being is status recognition in his society. Status may be ascribed or achieved. In many cases, performance in an office or position may give status, although initially it is a product of status ascription.

Teachers are relegated to lower- and lower-middle-class status levels. The office or position of teaching offers little opportunity for a change in status level, or for general social recognition and achievement within the occupation of teaching. A teacher, seeking higher status, may search for this goal outside his occupational organization.

A teacher may identify himself with reference groups, and their

expectations, in the occupation of teaching only to a degree which will avoid strict sanctions on the job. Further, he frequently finds it necessary to accept the expectations for teacher-role performance of groups outside the occupation--again, primarily to preclude sanctions. For actual rewards and recognition, however, the teacher may find it necessary to affiliate himself with groups outside the occupation of teaching, seeking recognition in roles other than that of teacher.

This state of affairs would encourage a teacher to locate reference groups outside his occupational group for the more-important guides-to-action. Similarly, the teacher may seek an audience of evaluation having higher status for his most-important tests of self-esteem.

It is to be expected, then, that all teachers will not have a high degree of self-identification within the teaching occupation; i.e., some have a low degree of occupational involvement. Nor is it likely that all teachers will select reference groups, or an audience of evaluation from within the teacher-occupation group. Their role orientations, therefore, will be as variable as the number of groups they identify themselves with.

We may expect that industrial education teachers will prefer to have their role performances evaluated by members of occupations related to their teaching specializations. If this evaluation is preferred, one may also presume that similar groups have been chosen as the teacher's reference groups. A desire for recognition as a subject-specialist (in the role of specialization) will tend to be greatest for those teachers with extensive trade or industrial experience and/or where teachers maintain class affiliations with trade and industrial associations.

It is possible that a subject specialization role orientation may be promoted in cases where industrial education teachers have very frequent

opportunities for direct contacts with other industrial education teachers; i.e., in the larger schools and larger school districts. However, it is unlikely that these associations within the teaching occupation will produce as marked an orientation toward a specialization orientation as actual industrial associations and experiences.

Finally, we cannot completely rule-out the possibility that teachers, especially in the larger school systems, may find within the educational institution the requisites for status, reference group identification, and an audience of evaluation. If this condition should exist, it should be recognizable as teachers seek status definition through role performances related to the processes of teaching. For these people, subject specialization should be secondary to the actual mechanisms used for transmitting knowledge. However, since the education of teachers requires a high degree of subject specialization, an orientation toward the functions of teaching can be expected less frequently than an orientation toward subject specialization.

In summation, the expectations for this study proposal of industrial education teachers are as follows.

1. Industrial education teachers will show distinct differences in occupational involvement, but the primary characteristic will be one of non-involvement in the occupation, teaching.

2. Industrial education teachers will have varying orientations toward their occupational role; one extreme may be identified as an orientation toward the functions of teaching, and at another extreme an orientation toward the functions of specialization--together encompassing one continuum of role perceptions for teachers.

3. Variations in the identification of self, on the part of in-

dustrial education teachers, with the occupation or in occupational roles may be affected by such factors as opportunities for identification with other teachers and other groups, length of time within the occupation, duration of industrial experiences, formal education, and occupation goals.

CHAPTER III

HYPOTHESES AND OPERATIONAL DEFINITIONS

This study is primarily concerned with the values and attitudes of industrial education teachers in relation to their occupational world. Analysis of these behavior-affecting attributes will be approached through assessments of teachers' images-of-self in the areas, (1) felt-importance of the job, and (2) preferred work-role identifications.

Once image patterns have been defined, the next step will involve a search for possible causative factors which may have helped shape the values and attitudes implicit in the images. Since this study seeks to uncover relationships capable of modification in life-situations, the search will be limited to experiential environmental factors.

Testable Hypothesis. The aim of this study may be summed-up in the following hypothesis.

> The kinds of occupational involvements of Michigan junior high school industrial education teachers, and their major work-role orientations are related to specific factors identifiable in their social, occupational, and educational backgrounds.

Stages for Testing the Hypothesis. Testing the above hypothesis will be undertaken through three stages:

1. assessments of occupational involvements and major work-role orientations,

2. testing inter-relationships between the assessments and envi-

ronmental variables, and

3. analysing relationships between involvements, orientations, and the variables.

Operational Definitions. The following definitions are presented for clarification of the conditions, methodology, and goals of the study:

A. Occupational involvement: the tendency for an individual to evaluate himself and his relationships in terms of his vocation, as indicated through administration of the Dubin "central life interest" inventory;

B. Michigan junior high schools: any separate school facility housing only grades seven through nine, which is part of the Michigan public school system;

C. Industrial education teacher: any person currently teaching shop-industrial type subjects in the public schools (use of the generic term, industrial education, in this study is based upon this author's assumption that two extremes of shopwork emphasis are found in the study population--extreme emphasis upon general education aspects, contrasted with an extreme emphasis upon manipulative skills, or trade objectives);

D. Major work-role orientation: the area or aspect of the job in which an individual prefers to have his performance evaluated by others as analysed through an author-developed teaching-specialism inventory;

E. Specific factors in the social, occupational and educational backgrounds of teachers: these include 15 factors which the investigator feels may have an affective relationship with the values and attitudes of teachers--including, size of schools, number of industrial education teachers in the school, number of industrial education teachers in the district, the number of years the individual has taught, length of manufacturing-industry work experience, formal educational status and purposes for further course work, types of teaching assignments, and participation in the educational, labor and service organizations and trade associations. (See Appendix A, Part III of the study questionnaire for categorizations of each factor);

F. Central life interest inventory: a 40-item device developed by Dr. Robert Dubin for assessing the work-behavior attitudes of industrial workers. It breaks-down work behaviors into four categories: individual relationships with the formal aspects (rules and regulations) required of the person on the job; relationships with the technological aspects (techniques and mechanics) of the work; valued personal objectives for accomplishing work tasks; and informal aspects of social relationships. Each aspect is ultimately rated as "occupationally involved" or "non-occupationally involved." (See Appendix A for the inventory and scoring methods. This inventory is Part I of the questionnaire used in this study.);

G. Teaching-Specialism inventory: a device developed by the investigator to differentiate between two possible major work role orientations of industrial education teachers: a view of the occupational role as concerned primarily with the functions and mechanics of transmitting knowledge (teaching) contrasted with a view that the teacher's chief function is to be a subject matter specialist (specialism). Two scoring systems have been used on this nine-item inventory, both of which arrive at teaching, specialism, or balanced ratings. (See Chapter IV for further explanation, or Appendix A, Part II of the study questionnaire for the inventory items.)

The Hypotheses to be Tested. All the hypotheses to be examined in this study are stated below in null-hypothesis form.

A. Occupation Involvement

1. There is no significant difference between the total occupational involvements of the industrial education teachers in Michigan junior high schools.

2. No significant differences exist between the formal organization involvements of the members of the study population.

3. No significant differences exist between the technological involvements of the population.

4. No significant differences exist between the general relationship involvements of the population.

5. No significant differences exist between the informal involvements of the population.

6. Each variable used in the study is independent of total occupational involvement score results (15 variables).

7. Each variable in the study is independent of the formal organization involvement scores.

8. Each variable in the study is independent of technological involvement scores.

9. Each variable in the study is independent of general social

involvement scores.

10. Each variable in the study is independent of informal involvement scores.

B. Teaching-Specialism

1. There are no significant differences between the work-role orientations of the study population.

2. Each variable in the study is independent of teacher-specialism scores.

C. Occupational Involvement and Teacher-Specialism Relationships

1. Total occupational involvement scores are independent of teacher-specialism scores.

2. Formal organizational involvement scores are independent of teacher-specialism scores.

3. Technological involvement scores are independent of teacher-specialism scores.

4. General (non-formal) involvement scores are independent of teacher-specialism scores.

5. Informal involvement scores are independent of teacher-specialism scores.

CHAPTER IV

THE INVENTORIES USED IN THE STUDY

Two inventories have been used in this study: the Dubin "central life interest" inventory and a teaching-specialism role-orientation inventory developed by the investigator. Most of this chapter shall be devoted to the latter.

A. THE DUBIN INVENTORY

Dubin's inventory of workers' "central life interests" was developed and validated in his study of 491 industrial workers. It has also been used by three other researchers: Dr. Louis H. Orzack in a study of 150 professional nurses, Dr. Ray Ranta in a study of 232 Michigan Cooperative Extension Agents, and Kenji Ima in a study of 400 lumber workers.

Some slight modification of the wording of the original inventory has been made by this investigator to fit the population being studied; besides this, it was necessary to eliminate two items from the test as a result of a printing error.

Scoring on this test was made on the basis of 38, rather than the 40-stated, questions; however, the original scoring system was still used--modified by a .05 correction factor in actual scoring.

A score of "occupationally-involved" or "non-involved" may be obtained for each of the four behavioral sectors of the Dubin inventory (formal, technological, general, and informal). A total score may also be obtained from the summation of the four categories.

The rating system for the "central life interest" inventory, as interpreted for this investigator in a letter from Dr. Dubin (July 11, 1961), is indicated below.

> 1. You start with the clear-cut criterion that a job-oriented response score satisfies the criterion that at least half of all the responses in a category be job-oriented ones. This is clear enough and is a rather stringent criterion since a chance distribution of responses (assuming equal likelihood of each type of response) would give a 33-1/3 percent expectation of a job-oriented response.
>
> 2. A secondary criterion for all cases failing to meet the first is: A job-oriented response will include cases where between 40 and 50 percent of the responses on individual items are job-oriented, and where an additional percentage of responses are "indifferent" so that the sum of the job-oriented and indifferent responses totals at least 70 percent. The logic of this is simple. It is clear that the non-job response category cannot exceed 30 percent and that therefore the job-oriented response category of at least 40 percent of the responses exceeds that. Thus, there is a clear plurality for job-oriented responses by this second criterion.

B. THE TEACHER-SPECIALISM INVENTORY

This inventory was not conceived by the author as a measure of the characteristics which constitute "professionalism" as suggested by Myron Lieberman in Education as a Profession, or in the criteria for a profession which have attained some degree of acceptance by sociologists.

What the inventory did attempt to do was to identify some of the areas in which teachers preferred to have their work-performances evaluated. Through recognition of these preferences it should be possible to obtain indices of the groups that teachers look to as reference groups and audiences of evaluation--those groups which play an enormous part in shaping the actions of an actor.

Through ten years of associations with industrial education teachers,

the truth of the sociological concept (that people assume multiple roles as they function in society) seemed apparent. This apparent truth led the author to the question, "What kinds of roles do teachers assume in relation to their work?"

Contemplation of the education and work requirements for teachers, suggested the two roles contracted in this study: (1) the functional role, teacher--where the individual's major concern will be with concepts and systems related to the transmission of knowledge, and "total growth" of the student; and (2) the functional role, specialism--where the major concern will be with the development of expertness by both teacher and the student within the confines of a particular subject-matter area. While many other role orientations are possible, these two seemed to be most important in view of this study's slant toward teacher-education. It is in teacher-education where we see attempts being made to develop a somewhat balanced system of orientations between "teaching" and the development of "subject specialization."

The two functional role orientations, as used in this study, were defined as follows.

Work-role Orientation Toward Teaching. An industrial education teacher who prefers work-role identifications with the functions of teaching will possess all, or most, of the following characteristics.

1. His course objectives are based, primarily, on student needs, capabilities, and interests in his industrial technological society.

2. His evaluations of students are based upon individual growth in the understandings, knowledges and capabilities evidented in the student's increased ability to recognize important problems, and to solve--or bring new solutions to--the problems of his culture, utilizing projects as a

vehicle for growth.

3. He encourages all students to become a part of industrial education classes--both girls and boys.

4. He utilizes all possible resources--other teachers, students, lay-experts, and all possible media--in the development and execution of the classes he teaches.

5. In his personal growth, the teacher has a primary concern with development of skills and knowledges related to the techniques requisite for the most efficient communication of skills and knowledges to students.

6. He looks upon the career of teaching as his life's work, and is dedicated to the improvement of any methodology and the membership in the entire occupation.

Work-role Orientation Toward Specialism. An industrial education teacher seeking an identification with the functions of specialism will possess all, or most, of the following characteristics.

1. He bases course objectives exclusively on job analysis with emphasis upon manipulative skill development and specific occupational knowledges--attempting to train toward specific occupational positions;

2. He evaluates student achievement on the basis of occupational standards of excellence--the project is conceived as an end-product of course work and is the primary evaluation criterion.

3. The teacher desires, or will accept, only those students in class who may succeed in attaining the occupationally-related goals of the course.

4. He considers himself as the prime resource agent in the industrial education process--identifies, specifies, organizes and presents the

knowledges to students. He has as little contact with other "educators" as possible, and is little concerned with integration of various subjects into a whole pattern of experiences for the student.

5. In his personal growth, his primary concern is maintaining and improving his knowledge and skills in the subject matter taught--keeping up with industrial methodology.

6. He looks upon teaching as a job to be fulfilled within routine hours, and shows definite preoccupation with salary and other benefits; has little regard for the status and improvement of the occupation, as a whole.

Development of the Inventory. A set of fifteen questions was developed by the investigator based upon the preceding definitions. These questions were answered by 20 industrial education teachers whose teaching experiences had included all levels of public-school, industrial education teaching.

In addition to answering the questions, the individuals were informally interviewed as to their reactions to the individual questions. Specifically, the questions were checked for clarity and value. The latter concern (value) served to indicate to the interviewer what functions of teaching each person felt to be most important.

In general, the results of the questionnaire seemed valid in relation to the interviewer's rating of the individual as teaching oriented, specialism oriented, or as neither (or about equally-valued). A Guttman scaling of 15 complete questionnaires indicated that nine questions were workable--the rating of these nine indicated a .91 scalability.

A slight modification of the questionnaire statements was made on

the basis of the interviews and results of the initial test. The new test was administered to 20 sets of persons from select junior high school populations. The purpose of the second test was to discern if the inventory would discriminate between two populations of differences within a total population.

Choice of the "select" sample was made and reviewed by three teacher-educators, whose experiences and associations in the industrial education field would qualify them as experts. Their nomination for each population was made in relation to the role-definitions mentioned previously in this chapter.

The second set of tests was returned by all 40 members of the populations selected.

Each question of the teacher-specialism inventory was answerable by two kinds of answers. In the first set of answers a choice could be made between "teacher," "specialism," or a neutral response which combined both extremes. The second set of answers was a forced-choice between the teaching-specialism alternatives. This system was used to determine the strongest possible answering system, and to check upon the consistency with which answers were made.

Scalegram Analysis.[41] The scalability of the inventory was tested by combining the two assumed populations.

Using the technique suggested by F. B. Waisanen, the following coefficients of reproducibility were found: (1) for the three-answer responses, .86; (2) for the two-answer responses, .76. Since neither of

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[41] F. B. Waisanen, "Research Note: A Notation Technique for Scalogram Analysis," Sociological Quarterly, Vol. 1, No. 4, Oct. 1960, pp. 245-252.

these reached the theoretical .90 requisite for acceptable scalability, further tests were made to determine the feasibility of retaining the existing inventory.

Reliability Coefficient. The second test applied to the inventory was Hoyt's estimate of test reliability from raw score data (r_{tt}), Figure 2.[42] The form for this statistical process is illustrated in Figure 2.

Fig. 2 Hoyt's Test for Reliability of Total Score

Source	d.f.	S.Sq.	M.Sq.
Betw. Indiv.	$n-1$	$\frac{\Sigma x_c^2}{k} - \frac{(\Sigma x_r)^2}{nk}$	A'
Betw. Items	$k-1$	$\frac{\Sigma x_r^2}{n} - \frac{(\Sigma x_r)^2}{nk}$	B'
Residual	$(n-1)(k-1)$	Tot. S.Sq. − (Indiv. + Item S.Sq.)	C'
Total	$nk-1$	$\Sigma\Sigma_i x^2 - \frac{(\Sigma x_r)^2}{nk}$	

Reliability: $r_{tt} = \frac{A'-C'}{A'}$ $\qquad$ $SE_{measurement} = \sqrt{kC'}$

Applying the Hoyt system to the three-answer study inventory resulted in the attainment of an r_{tt} score of .691, with an $SE_{measurement}$ of 1.81.

Application of the test to the two-answer results showed the

[42] C. J. Hoyt and C. L. Stankard, "Estimation of Test Reliability for Unrestricted Item Scoring Methods," Educational and Psychological Measurement, Vol. 12, No. 4, Winter, 1952, pp. 756-8.

slightly higher scores: $r_{tt} = .702$; $SE_{measurement} = 1.27$.

Analysis of Sample Characteristics. Ultimately, the usefulness of the proposed inventory was contingent upon its capability for making distinctions between two role-orientation populations. In an effort to assess the possibility that these differences could be distinguished through use of the proposed inventory, the characteristics of the select-populations were analysed and compared.

The first stage in the result evaluation process involved determination and comparisons of the means, standard deviations, and variations of the two populations. These data are summarized in Table 1.

Table 1. Characteristics of the Selected Sample Groups

Group and Answering System	No. In Group	Mean	Std. Dev.	Var.
Teaching: 3-answer responses	20	11.95	1.32	1.747
Specialism: 3-answer responses	20	7.45	1.98	3.947
Teaching: 2-answer responses	20	6.7	1.79	3.21
Specialism: 2-answer responses	20	4.0	1.52	2.30

The next stage involved application of a "t" test to the data in Table 1. The hypothesis being tested was: $\mu_1 = \mu_2$; the alternative hypothesis being that $\mu_1 \neq \mu_2$. The level of significance chosen was .05, and the hypothesis of equality would be rejected if[43]

[43] W. J. Dixon and F. J. Massey, Introduction to Statistical Analysis, New York: McGraw-Hill Book Co., Inc., 1957, pp. 121-2.

$t < t_{\frac{1}{2}\alpha}(N_1+N_2-2)$ and
$t > t_{1-\frac{1}{2}\alpha}(N_1+N_2-2)$ using the
t-statistic: $\frac{\bar{X}_1 - \bar{X}_2}{S_p\sqrt{1/N_1 + 1/N_2}}$.

The results of application of the "t" test are indicated in Table 2. In both cases, there was a significant rejection of the hypothesis of equality; therefore, it is possible to assume that the two select samples are from populations having different means.

Table 2. "t" Test Applied to Select Sample Groups

Comparisons	d.f.	Sp	Calc."t"	$t_{.975}$	$t_{.025}$	Hyp.Action
2-answer results	38	1.655	5.163	2.025	-2.025	Reject
3-answer results	38	1.65	8.637	2.025	-2.025	Reject

Evaluation of Proposed Inventory. On the bases of the analyses made by the investigator, he decided to use the proposed inventory as part of the study. This decision has been made in-spite-of the facts that the device does not scale, and that it does not meet the .90 reliability score suggested by Heyt.

The author feels that acceptance of the inventory for use in the proposed study may be justified on the following bases:

1. Since the major purpose of the teacher-specialism device is to identify population types, scaling is not of prime importance. It is not likely that a greater fund of information could be obtained from the limited population in the proposed study even if a scale were applied. The .86 co-

efficient of reproducibility does approach the .90 minimum for acceptable scaling, and thereby, we have an indication that the device makes some range of distinctions.

2. While there is a definite difference between Hoyt's recommended .90 reliability and the .702 rating of this device, this may not be a serious defect. Guilford indicates that

> . . . When we seek to make a single test both highly reliable (internally) and also highly valid, we are often working at cross purposes. The two goals are highly incompatible in many respects.
>
> . . . Maximal reliability requires high intercorrelations among items; maximal validity requires low intercorrelations. Maximal reliability requires items of equal difficulty; maximal validity requires items differing in difficulty.[44]

Following this viewpoint, the author submits that the differences between the theoretical and observed reliability ratings are not great enough to discard the device solely upon this basis.

3. Finally, it is this writer's contention that the inventory can do the job it sets out to do: the identification of differences between values and attitudes relative to the defined work orientations, teaching and specialism. This ideal is well substantiated through the rejection at a high level of significance of the hypothesis of sameness as comparisons of the mean scores indicated. The strength of this test of differences is further enhanced and the internal consistency attested to as the results of the three-and two-answer responses are compared: the pooled variations (Sp) are almost identical and the extents of rejection are at high levels of significance.

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[44] J. P. Guilford, Fundamental Statistics in Psychology and Education, New York: McGraw-Hill Book Co., Inc., 1956, p. 471.

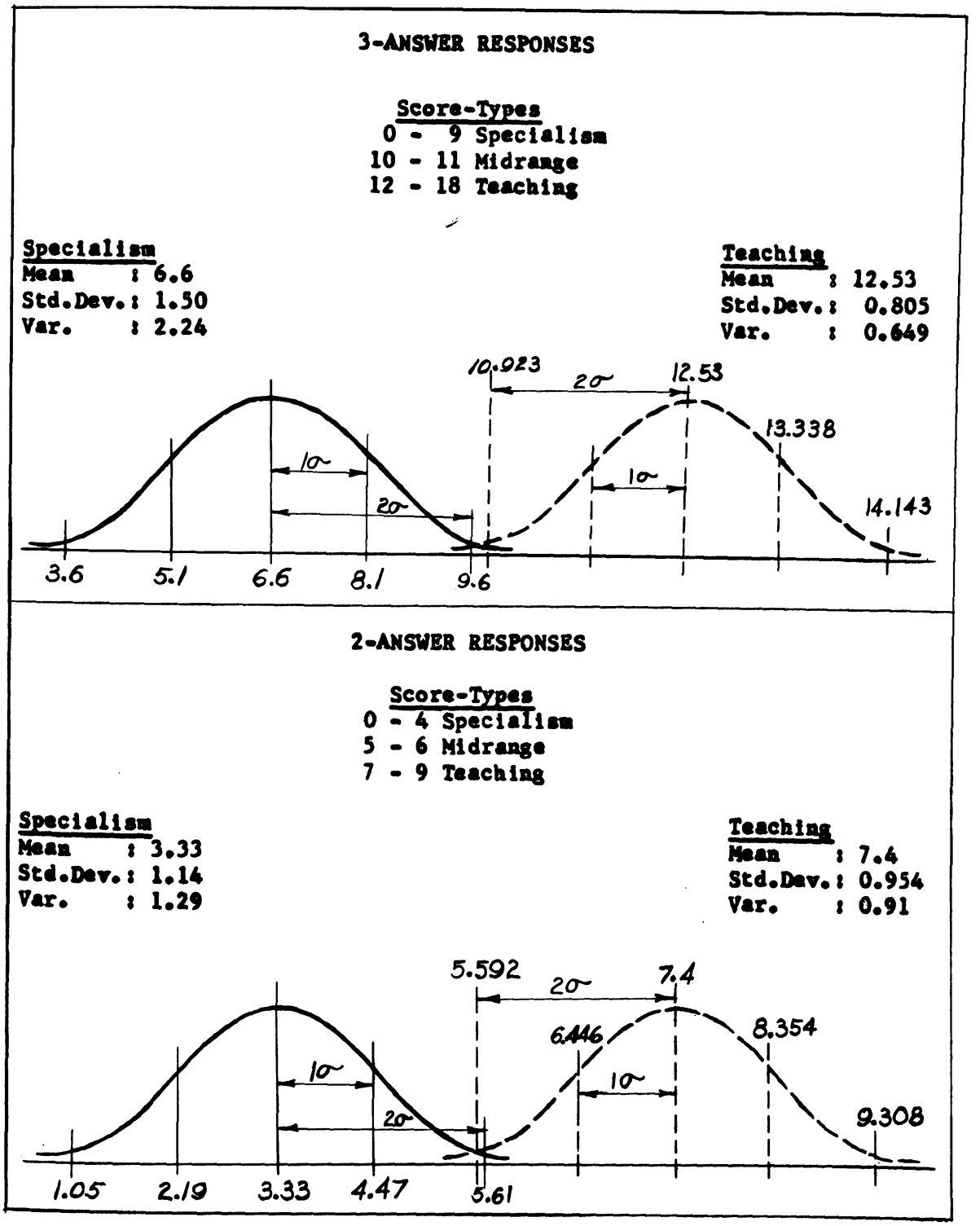
The Ratings of Orientation Types. Having arrived at the decision to utilize the teaching-specialism inventory, the next problem is to assign score-categorization types of orientations. This is accomplished by selecting the 15 most extreme ratings for each orientation; determining the means and standard deviations for each group; and then constructing curves for visually identifying the populations from their score ranges. Figure 3 shows the relationships of the normal curves for the 3- and 2-answer responses.

Comparisons of the curves for the 3-answer responses indicated a break between the second standard deviation above the mean of the specialism curve and the second standard deviation below the teaching curve mean.

This area suggested the need for having three classifications of score types: (1) specialism-oriented, scores 0 through 9, (2) teaching-oriented, scores 12 through 18, and (3) a mid-range or neutral grouping, 10 and 11, for those persons having a more-balanced orientation between the teaching-specialism orientations. (The mid-range classification may also serve as a refuge for those teachers whose real work-orientations have not been assessed through this particular inventory.)

Similarly, Figure 3 illustrates the 2-answer response curves and relationships. In this case there is a very slight overlapping of the specialism upper second standard deviation, and the lower second standard deviation: a numerical overlapping of 0.018 points. While, it is quite possible that this rating system might have more power if only two score types were used, the author decided to retain the 3-score-type system--the mid-range limits being set at points 1½ standard deviations above the specialism mean, and the same distance below the teaching mean. The

Figure 3. Score-Type Assignments from Std. Dev. & Normal Curves



score-types for this set of responses were then: (1) specialism, 0 through 4; (2) mid-range, 5 and 6; and (3) teaching, 7 through 9.

The investigator feels that the use of two sets of answers for each question of the inventory will serve some of the functions of a study replication. Throughout, the development of the inventory, the responses received in each set of answers have paralleled each other very closely; this would seem to indicate a consistency in the ways the questions have been answered, and in the score-results as a whole. It is not presumed that this answer-system can be substituted for true replication. Since replication is not possible at this time, the system is used to help reduce bias in the study.

C. RELATIONSHIPS BETWEEN STUDY INVENTORIES

In hypotheses C1 - C5, a series of tests are made to determine possible relationships which may exist between the five classifications obtainable from the Dubin inventory and the three categories of the teaching-specialism inventory. The major purpose of this investigation is to determine the extent of interaction, if any, between the characteristics assessed by the two study devices.

All tests of the relationships between the two inventories accept the hypothesis of independence at the .05 level of significance. (One test, between total occupational involvement and teacher-specialism orientations, could be rejected at the .10 level of significance.) See Appendix F.

From the results noted, there is very little probability that the two inventories tend to assess the same behavioral traits, attitudes and values. Occupational involvement does not appear to be directly related to the work role preferences of the study population.

CHAPTER V

THE STUDY POPULATION AND ANALYSIS OF RESPONDENTS

The population for this study has been defined to include teachers of shop-industrial subjects in Michigan public schools having separate facilities for grades seven through nine.

Location of the Population. The major source for locating the study population for this investigation was the Michigan Education Directory for 1960-61. From this directory, a list of the schools fitting the population definition was made.

The junior high school list was cross-checked with the 1959-60 directory and discrepancies were cleared-up with the assistance of members from the Department of School Buildings, Michigan State Department of Public Instruction. At this point, 166 schools were located as probably fitting the desired population.

A letter was sent to each school principal requesting the names of current industrial education teachers, and the school student enrollment in his school. Eventually, replies were received from 165 (99.4 percent) of the schools, and the names listed for 401 teachers.

Other sources for population information were contacted, but did not add to the population listing. These sources included: The Michigan Education Association, the 1960-61 Michigan Industrial Education Society Directory, and various offices of the Michigan Department of Public Instruction.

It is the author's belief that the population located for this study can be considered as the total population of Michigan industrial education teachers, junior high school level, at the time of this study (April-June, 1961).

Responses to Study Questionnaire. Questionnaires were mailed to the 401 teachers--the total population--of the study. Ultimately, 254 (63%) were returned.

On the questionnaire, a space was provided to recheck the population for accuracy of population assignments. A perusal of this item indicated the inclusion of persons who did not fit the population designation. Subsequently, they were eliminated from the study.

Review of the respondents also indicated the inclusion of four woman teachers in the population. This group was also eliminated from the study population for the following reasons: (1) their group was too small for consideration separately, (2) some of the variables to be tested in the study were not likely to have pertinence for female teachers, and (3) there was the possibility that a sex-variable may exist which might tend to add bias to final evaluations and conclusions of the study.

Altogether, 22 inappropriate persons were excluded, leaving a study population of 379.

Eight questionnaires were eliminated from the study because they were not complete. In all, 230 usable replies--60 percent of the study population were utilized.

Table 3 summarizes the contacts and responses relative to the population.

Table 3. General Population - Response Information

	No. Contacts	No. Replies	Per-Cent
Requests for information to principals	166	165	99
Schools fitting study population	150	122	81
Questionnaires to teachers	401	254	63
Study population and usable returns	379	230	60

More detailed information as to the schools contacted in the study, their student enrollments, the number of industrial education teachers in each school, and the number of responses from each school are listed in Appendix B.

Analysis of Respondents. Undoubtedly, the best way to assess the representativeness of the sample would be through random sampling of non-respondents. This system could not be used in this study since the data were collected at the end of the 1960-61 school year. Justification of the population must, therefore, be based largely upon characteristics evidenced by the respondents.

Analysis of the respondents was made on the bases of their distributions in three of the study variables, and on the weighted ratings obtained from the "central life interest" inventory.

Distributions of Responses in Selected Variables. Three variables have been selected as possible indicators of adequate population representation in the study. These variables include: the size of schools, the number of industrial education teachers per school, and the length of teaching experience of the teachers.

The question to be answered at this point is, "Are the distributions of respondents in the categories of each selected variable at levels which would tend to indicate that the responses are an adequate sampling of the total population?"

The answer to the preceding question will be partially answered if the distributions of responses within each variable are generally similar to the 60 percent level of total questionnaire responses. If any particular aspect of a variable cannot approach this level, there will be reason to question the representative character of the respondents.

The first analysis will treat school size and teacher per school representation simultaneously. Comparisons will be made between the total number of schools contacted and the number of responding schools; similar comparisons will be made between the industrial education teachers responding and the total possible respondents. These comparisons will be followed by a complete breakdown of teachers into a school-size and distribution per school evaluation.

Five classifications of school sizes were established. The classifications were set-up in such a way as to have approximately equal numbers of teachers from the total population in each class. On this basis, the following classes were established: Class I, 200-739 ADA*; Class II, 740-879 ADA; Class III, 880-1049 ADA; Class IV, 1050-1519 ADA; and Class V, 1520-2230 ADA.

The number of schools and teachers in each of the above classifications, and the responding schools and teachers are shown in Table 4.

Eighty-one percent of the schools are represented in the responses obtained by the investigator. Each class contains a two-thirds or greater representation.

* Average daily attendance

Table 4. Response Representation: Schools and Teachers

	Schools			Teachers		
Class:	Contacted	Resp.	Percent	Tot. Pop.	Resp.	Percent
I	52	36	69	76	47	62
II	34	28	82	76	44	58
III	26	24	92	74	50	68
IV	23	19	83	77	45	58
V	15	15	100	76	44	58
Total	150	122	81	379	230	60

Sixty percent of the total population of industrial education teachers is represented in the responses. The representation of teachers in each school-size classification ranges from 58 percent to 68 percent: generally approximating the 60 percent total response level.

Table 5 indicates the distributions of teachers by school-size classifications and the numbers of teachers per school categories. The total teacher representation for the numbers of teachers per school ranges from 43 percent (7-teacher school) to 67 percent (6-teacher school). Representation in individual cells of the table varies from 43 percent (Class V, 7-teacher cell) to 100 percent (Class III, 1-teacher cell). While there seems to be a wide range of differences in cell percentages, there does not seem to be a systematic variation which would indicate definite bias in types of respondents.

The variable, teachers per school, will be used in this study in the following categorizations: (A) 1-teacher schools; (B) 2- and 3-teacher schools; (C) 4- and 5-teacher schools; and (D) 6- and 7-teacher

Table 5. Distribution of Respondents by School Classification and by Number of Industrial Education Teachers per School

Class	Number of Industrial Education Teachers per School																	
	1			2			3			4			5			6			7		
	N	R	%	N	R	%	N	R	%	N	R	%	N	R	%	N	R	%	N	R	%
I	31	17	55	36	26	72	9	4	44												
II	3	2	67	44	24	55	21	14	67	8	4	50									
III	1	1	100	16	7	44	33	24	73	24	18	75									
IV	2	1	50	8	6	75	18	8	44	28	15	54	15	10	67	6	5	83			
V							3	2	67	12	9	75	30	15	50	24	15	63	7	3	43
Total	37	21	57	104	63	61	84	52	62	72	46	64	45	25	56	30	20	67	7	3	43

N, Number of teachers in total population
R, Number of teachers represented in study

schools. This classification system tends to reduce the extremes of variations noted in Table 5.

This change may be noted in Table 6, where representation ranges from 57 to 62 percent.

Table 6. Teacher Per School Representations: Study Classifications

Class	Tot.Pop.	Repres.	Percent
A (1-Teacher Schools)	37	21	57
B (2- and 3-Teacher Schools)	188	115	61
C (4- and 5-Teacher Schools)	117	71	61
D (6- and 7-Teacher Schools)	37	23	62
Totals	379	230	60

The final variable checked for distribution in this section is variations in length of teaching experience of the respondents. This variable has been separated into four categories for the study: (A) less than 3 years teaching, (B) 3-5 years, (C) 6-10 years, and (D) over 10 years.

Since it was impossible to estimate the distributions of this variable in the total population, the only assessment possible is whether each group seems adequately represented. Table 7 shows that the ranges of percentages of representation is from 18 percent to 29 percent. There exists a possibility that the newer teachers (Class A) are not represented in their true proportion, but the author does not feel that there is any serious bias indicated by the tabulated results.

Table 7. Representation in Length of Teaching Variable

Years of Teaching	No.	Percent
A (less than 3)	42	18
B (3-5 years)	63	28
C (6-10 years)	58	25
D (over 10 years)	67	29
Total	230	100

From the preceding analyses, it appears that the distributions of respondents to the study questionnaire are not systematically biased. There does not seem to be any consistent pattern of exclusions from any categorization as related to school size, industrial-education teachers per school, or length of teaching experience.

A Look at Non-Respondents. Interpolating from Table 4, we note that 28 (19 percent) of the total number of schools are not represented in obtained responses, and that 149 (40 percent) of the total teacher population did not return usable questionnaires. The question arises, however, as to how many teachers have possibly no representation in this study. This suggests the necessity for determining the distribution of teachers in non-respondent schools.

Table 8 gives a better picture of "non-represented" teachers by school size classifications. Altogether, there are 43 teachers (11 percent) in schools not represented through questionnaire responses. The poorest representation is for small (Class I) schools in which 25 percent are not directly represented. The best representation is noted in the largest (Class V) schools where all schools are represented. The three

intervening classes show non-representations ranging from five to fourteen percent.

Table 8. Teachers in Schools Not Represented in Responses

Class	Tea. in Pop.	No. in Non-Rep. Sch.	Percent
I	76	19	25
II	76	11	14
III	74	4	5
IV	77	9	12
V	76	0	0
Total	379	43	11

Normal-Distribution Character of Responses. In the preceding section there was one class of schools in which 25 percent of the teachers had no direct representation in this study. This situation suggests the necessity for checking the normal-distribution characteristics of the respondents.

The analyses made earlier, of selected variable distributions, gave reasonably good indications that the responses showed no systematic bias. It did not, however, either prove or disprove that the responses are normally distributed throughout the study population. Such a test will be made using the "chi-square test of the hypothesis of normal distribution."[45]

Numerical scores for this test of normal distribution were obtained from weighted ratings of the total occupational involvements of the respondents. It is the author's opinion that the Dubin "central life

[45] Ibid., p. 240.

interest" inventory has sufficient integrity to permit its use in testing the population characteristic of distribution normality.

Guilford's testing system for normal distribution involves three stages of calculation: (1) determination of the mean and standard deviation of the observed scores, (2) determination of the theoretical scores, and (3) application of the chi square test.[46] These steps are summarized in Tables 9a, b and c.

The hypothesis to be tested is that the frequency distribution of the responses probably has come from a normally distributed population.

The alternative hypothesis, that the distribution of responses is not normally distributed, will hold force if the x^2 statistic (calculated x^2) is greater than $x^2_{.95}/d.f.$

The range of scores for the weighted occupational ratings of responses is from 24 through 67. The mean of the scores is 41.473; the standard deviation is 6.21 (Table 9a).

The theoretical or expected frequencies obtained in Table 9b are 0.39 less than the observed frequencies. This number is of such small consequence in the total number of cases (230) that no correction factor has been utilized in computations of x^2.

In Table 9c, the x^2 statistic is found to be 4.5648, while $x^2_{.95}/7d.f.$ equals 14.07. On this basis, the hypothesis of normal distribution of the observed responses may be accepted at the .05 level. There is very little reason to believe that the responses are not normally-distributed in relation to the dependent variable, occupational involvement.

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[46] Ibid., pp. 91, 121-3, 240-2.

Table 9a. Mean and Standard Deviations of Weighted Ratings

Score	f	x	Σfx	Σfx^2
66-68	1	9	9	81
63-65	0	8	0	0
60-62	0	7	0	0
57-59	1	6	6	36
54-56	4	5	20	100
51-53	11	4	44	176
48-50	16	3	48	144
45-47	37	2	74	148
42-44	45	1	45	45
39-41	40	0	--	0
36-38	40	-1	-40	40
33-35	18	-2	-36	72
30-32	13	-3	-39	117
27-29	2	-4	- 8	32
24-36	2	-5	-10	50
	230		113	1041

$$\sigma = i\sqrt{\frac{fx^2}{N} - \frac{fx}{N}}$$

(Guilford, p. 91)

$\sigma = 6.21$

M = 41.473

Table 9b. Determination of Expected Normal Ratings

Mid-Point	x	z	y	f_e
70	28.527	4.59	.000009	.00
67	25.527	4.11	.000085	.01
64	22.527	3.63	.000562	.06
61	19.527	3.14	.002940	.33
58	16.527	2.66	.011600	1.29
55	13.527	2.18	.037140	4.12
52	10.527	1.70	.094000	10.43
49	7.527	1.21	.191880	21.30
46	4.527	0.73	.305580	33.92
43	1.527	0.25	.386700	42.92
40	- 1.473	-0.24	.387560	43.02
37	- 4.473	-0.72	.307820	34.17
34	- 7.473	-1.20	.194200	21.56
31	-10.473	-1.69	.095660	10.62
28	-13.473	-2.17	.037960	4.21
25	-16.473	-2.65	.011900	1.32
22	-19.473	-3.14	.002940	.33
				229.61

x = X-M = X - 41.473

z = x/std. Dev. = x/6.21

y = Table B, Guilford, pp. 533-4

y = conversion factor = iN/std. dev. = 1230/6.21 = 111

f_e = 111y

(Form for table from Guilford, Table 7.1, page 121)

Table 9c. Chi Square Test for Normal Distribution
(Form from Guilford, p. 241)

	Original Grouping		Regrouped Frequencies		Cell Discr.	Cell D. Sq.	Discr.^{2} ÷ f_e
Score	f_o	f_e	f_o	f_e	$f_o - f_e$	$(f_o - f_e)^2$	$(f_o - f_e)^2 / f_e$
69-71	0	.00					
66-68	1	.01					
63-65	0	.06	6	5.81	0.19	0.036	0.0062
60-63	0	.33					
57-59	1	1.29					
54-56	4	4.12					
51-53	11	10.43	11	10.43	0.57	0.325	0.0312
48-50	16	21.30	16	21.30	-5.30	28.090	1.3188
45-47	37	33.92	37	33.92	3.08	9.486	0.2797
42-44	45	42.92	45	42.92	2.08	4.326	0.1008
39-41	40	43.02	40	43.02	-3.02	9.120	0.2120
36-38	40	34.17	40	34.17	5.83	33.990	0.9947
33-35	18	21.56	18	21.56	-3.56	12.670	0.5877
30-32	13	10.62	13	10.62	2.38	5.664	0.5333
27-29	2	4.21					
24-26	2	1.32	4	5.86	-1.86	3.460	0.5904
21-23	0	.33					
	230	229.61	230	229.61	0.39		x^2 = 4.5648

$x^2_{.95}$/ 7 d.f. = 14.067 (Guilford, Table E, p. 540)

CHAPTER VI

TESTS OF HYPOTHESES FROM STUDY DATA

The hypotheses to be examined in this study have been stated in Chapter III. Briefly, the hypotheses fall within three broad categories: (1) examination of the occupational involvements of Michigan junior high school industrial education teachers as determined by the Dubin "central life interest" inventory; (2) analysis of teaching-specialism work-role orientations of these teachers; and (3) assessment of possible relationships between occupational involvements and work-role orientations.

Occupational involvements will be examined on the bases of the frequencies with which the study population fits within the inventory classifications, occupationally involved and non-occupationally involved. This characteristic will be investigated for each of the four parts of the Dubin inventory and on the basis of a total involvement rating. Occupational involvement ratings will then be examined for relationships with the fifteen variables used in this study.

Work-role orientations will be analysed, initially, for the significance of the frequencies with which they were noted in the study population. The classifications of different orientations used, herein, are: (1) orientations primarily concerned with the functions of teaching, (2) primary orientations toward functions of specialization (specialism), and (3) a balanced work-role orientation which is a composite of teaching-specialism orientations or, possibly, a refuge from these orientations.

These three areas of orientations will then be analysed for possible relationships with the study variables.

The fifteen variables used in this study have been selected on the basis of two major criteria: (1) the variable must be modifiable within a person's environment, and (2) the variable must involve the individual with groups of differing sizes or interests which provide opportunities for variations in the selection of reference groups and audiences of evaluation. Specifically, the variables in this study include:

1. the size of school (student enrollment),
2. the number of teachers of industrial education subjects within the school,
3. the number of industrial education teachers in the district,
4. the length of teaching experience of the respondent in public education,
5. the amount of work experience in manufacturing industries,
6. the level of formal education (college status),
7. current involvement in formal educational coursework,
8. purposes for which current educational coursework is being undertaken,
9. the regularity with which teachers are gainfully employed on outside jobs while carrying-out full-time teaching duties,
10. the types of teaching assignments of the teachers,
11. teacher affiliations with national professional education associations,
12. affiliations with state professional education associations,
13. affiliations with labor organizations,
14. relationships with trade associations, and
15. service-organization affiliations.

The Form for Data Analysis. The chi square enumeration statistic has been selected by the author as the means for assessing the significance of the data gathered in this study.

I. B. M. card-sorting techniques will be used for tabulating the data of this study. A Bendix programmed-computer will be utilized for chi square analyses.

Hypothesis testing will be based upon the following objectives: (1) to test for the homogeneity of observed differences in the case of single-classification problems, or (2) to test for independence of observed differences where inter-relationships are being analysed. All hypothesis evaluations will be made at the .05 level of significance.

Tests for homogeneity will be made for the following hypotheses: (1) A1 - A5, occupational involvements, and (2) B1, work role orientations. Since hypotheses A1 - A5 are rated on two responses (job or non-job involved), a 50 percent theoretical frequency will be used in calculations of chi squares--numerically, this amounts to 115. For hypothesis B1, there are three types of responses possible (specialism, balanced, or teaching orientation). The theoretical frequency in this case will be 33-1/3 percent of 230 cases (76.67).

Tests for independence will be made for the following hypotheses: (1) A6 - A10, occupational involvements versus the study variables, (2) B2, work role orientations versus the study variables, and (3) C1 - C5, occupational involvement versus work role orientations. In these cases, the theoretical frequencies used in chi square calculations will be based upon proportions determined for individual cells in the particular problem.

Study results will be reported in the following manner:

A. significant differences between occupational involvements,

B. significant differences between work role orientations,

C. significant relationships between the study variables and occupational involvements,

D. significant relationships between the study variables and work role orientations.

A. OCCUPATIONAL INVOLVEMENT HYPOTHESES

The purpose of the occupational involvement hypotheses is to determine how industrial education teachers perceive themselves in terms of work behavior expectations. More precisely, we are concerned with the aspects of work behavior which are the least, or the most, valued in relation to the occupation of teaching.

The occupational involvement hypotheses, as subsequently discussed, will be organized in the following way: (1) hypothesis A1, total occupational involvement, (2) hypothesis A2, formal behavior involvement, (3) hypothesis A3, technological behavior involvement, (4) hypothesis A4, non-formal (or general) behavior involvement, and (5) hypothesis A5, informal behavior involvement.

Only significant findings will be noted in this section. Findings for these hypotheses will be termed significant at the .05 level if the calculated chi square values for observed differences exceeds the rejection value for 1 d.f. of 3.84.

Hypothesis A1. There is no difference between the total occupational involvements of Michigan junior high school industrial education teachers.

Observation of the total occupational involvement characteristics of the study group shows that 56 teachers (24 percent) may be classed as job involved, while 174 (76 percent) exhibit non-job involvements (see Table 10.1).

The calculated chi square for the observed differences is 60.52. This indicates that the differences are significant at the .05 level, and calls for rejection of the hypothesis of homogeneity.

Based upon the observed distributions and the statistical analysis, it would seem that the teachers studied, typically, do not commit themselves to the totality of work behaviors associated with the occupation of teaching. Only about one-fourth of the teachers view their job as their "central life interest."

Hypothesis A2. No significant differences exist between the formal organization involvements of the study population. Their commitments to the rules and procedures of their work organization tend to be homogeneous.

In Table 10.2 it may be noted that 153 teachers (67 percent) are classed as job involved, and 77 (33 percent) as non-job involved in their commitments toward the formal organization behavior system.

A calculation of chi square for the observed differences amounts to 25.10, therefore, we must reject the hypothesis of homogeneity at the .05 level of significance.

Since the observed differences are obviously not due to chance, we may conclude that the teachers studied, tend to be committed to the rules and procedures of their formal work organization. Approximately two-thirds of the teachers value the formal behavior system of their occupation.

Hypothesis A3. No significant differences exist between the technological involvements of the study population. Their valuations of work procedures and standards are generally homogeneous.

Observations from the study responses indicate that 159 teachers (69 percent) are job involved, while 71 (31 percent) may be classed as non-job involved in their commitments toward the technological behavior system (see Table 10.3).

The calculated chi square for the differences between technological involvements is 33.66, clearly mandating rejection of the hypothesis of homogeneity at the .05 level of significance.

Data analysis for this hypothesis suggests that the teachers in the study tend to value the work procedures and standards of their occupation's technological behavior system. Almost seven out of ten teachers exhibit this valuation characteristic.

Hypothesis A4. No significant differences are notable between the general involvements of the study population. They exhibit general homogeneity in utilization of their own objectives--modifying the technological system--to achieve the goals of the formal behavior system. (General involvements is another designation used by Dubin to identify "non-formal" behavior.)

In Table 10.4 we may note from observed responses that 54 teachers (23 percent) exhibit job involvement, while 176 (77 percent) are classed as non-job involved in the general behavioral sector.

The calculated chi square for the differences in commitments in the general sector amounts to 64.72. The hypothesis of homogeneity is, therefore, rejected at the .05 level of significance.

Based upon the preceding analysis, it would appear that industrial education teachers tend to value their own objectives as a means for modifying the technological sector of work while carrying out the broader goals of the formal sector. Less than one-fourth of the teachers prefer to follow the job-prescribed methodology in carrying out their job tasks.

Hypothesis A5. No significant differences exist between the informal involvements of the study population, as many industrial education teachers will seek interpersonal relationships with people associated with their occupation as with persons outside the job.

Observation of the study group reveals that 28 teachers (12 percent) are rated as job involved, while 202 (88 percent) are classed as non-job involved in the informal sector of work.

The calculation of chi square for the observed differences in commitments indicates a value of 131.64. We, therefore, reject the hypothesis of homogeneity at the .05 level of significance.

From the above observations, it would seem that the teachers studied show a very marked tendency to value interpersonal relationships outside their occupational area. Almost nine out of ten teachers, prefer that their valued social relationships take place in other-than-work situations.

Table 10. Significant Differences Between Occupational Involvements of Industrial Education Teachers

Table 10.1 Total Occupational Involvement

Involvement	Number	Percent
Job involved	56	24
Non-job involved	174	76
(Totals)	230	100

$x^2 = 60.52$ 1 d.f. $P > .0005$

Table 10.2 Formal Involvement in the Occupation

Involvement	Number	Percent
Job involved	153	67
Non-job involved	77	33
(Totals)	230	100

$x^2 = 25.10$ 1 d.f. $P > .0005$

Table 10.3 Technological Involvement in the Occupation

Involvement	Number	Percent
Job involved	159	69
Non-job involved	71	31
(Totals)	230	100

$x^2 = 33.66$ 1 d.f. $P > .0005$

Table 10.4 General Involvement in the Occupation

Involvement	Number	Percent
Job involved	54	23
Non-job involved	176	77
(Totals)	230	100

$x^2 = 64.72$ 1 d.f. $P > .0005$

Table 10.5 Informal Involvement in the Occupation

Involvement	Number	Percent
Job involved	28	12
Non-job involved	202	88
(Totals)	230	100

$x^2 = 131.64$ 1 d.f. $P > .0005$

Comparisons of Teacher Commitments with Previous "Central Life Interest" Applications. Previous investigators have used the Dubin inventory in assessing work behavior commitments of industrial workers, professional nurses, cooperative extension agents, and lumber workers. In Table 11, the results from these four applications are noted along with the results of the current study.

In looking at the results of the various studies, we may note that the job commitments of industrial education teachers tend to be very similar to those of industrial workers. Though teachers range from three to eight percent higher in each behavioral sector, their total CLI commitment

Table 11. Comparisons of Five Applications of the "Central Life Interest" Inventory

Commitment	Ind. Workers DUBIN* N=491	Prof. Nurses ORZACK* N=150	Coop.Ext. Agents RANTA* N=232	Lumber Workers IMA** N=400	Ind. Ed. Teachers NELSON N=230
Total CLI					
Job	24%	79%	85%	14%	24%
Non-job	76	21	15	86	76
Technological Sector					
Job	63%	87%	87%	54%	69%
Non-job	37	13	13	46	31
Formal Sector					
Job	61%	91%	94%	62%	67%
Non-job	39	9	6	38	33
General Sector					
Job	15%	67%	77%	11%	23%
Non-job	85	33	23	89	77
Informal Sector					
Job	9%	45%	52%	5%	12%
Non-job	91	55	48	95	88

*Raymond R. Ranta, "The Professional Status of the Michigan Co-operative Extension Service," Unpublished Ph.D. dissertation, University of Wisconsin, 1960, table of comparisons, p. 84.

**Information provided for this column through correspondence with Dr. Robert Dubin, September 28, 1961.

is precisely the same as the commitment observed by Dubin for semi-skilled industrial workers.

Comparing the industrial education teachers to nurses and extension agents, we note that industrial education teachers have proportionately less job commitment in all areas of commitment than the other two groups. These differences range from 19 percent in the technological sector to 61 percent in total CLI. In the general sector and in total CLI, a complete reversal of the type of commitment toward work behavior systems is evidenced; the nurses and extension agents appear, typically, to be job committed, while the teachers, typically, are non-job committed.

Industrial education teachers' commitments to the work behavior systems tend to range from five to fifteen percent higher than those exhibited by lumber workers in all the areas investigated.

The highest degree of job involvement for the teachers and industrial workers, appears in the technological behavior system.

The highest degree of job involvement for the nurses, extension agents and lumber workers appears in the formal behavior system.

In all cases, the lowest degree of job involvement is located in the informal behavior sector.

B. WORK ROLE ORIENTATION HYPOTHESES

Testing of the work role orientations of industrial education teachers is being undertaken to determine which functions of the teaching occupation are most valued by the teachers as they perform their jobs.

Two extremes in role orientations are to be assessed: (1) specialism, an orientation toward the functions of subject matter specialization, and (2) teaching, an orientation toward the techniques and method-

ology involved in the transmission of knowledge. While these two types are not completely separable in the work situation, this investigation presumes that one role, or the other, may be preferred by industrial education teachers.

Since specialism and teaching roles are treated as extreme orientations in this study, a third area for role identification is provided for those teachers who may not be categorized within the extremes. This middle group is termed, herein, as having balanced teaching-specialism orientations; however, this group may also contain teachers whose major work role orientation relates to functional performances not included in this study.

The teacher-specialism inventory used in this study provides for two answering systems for the same set of questions. The first, termed 3-answer responses, specifically provides for each of the three categories of orientations: specialism, balanced, and teaching. The second, termed 2-answer responses, forces a choice between teaching and specialism--an area of "balanced" orientations is provided through scoring techniques.

All hypotheses related to work role orientations are tested in relation to the results noted for both scoring systems.

Hypothesis B1. There are no significant differences between the work role orientations of the study population.

Table 12.1, for 3-answer responses, shows that 74 teachers (32 percent) are classed as specialism oriented, 104 (45 percent) as balanced oriented, and 52 (23 percent) as teaching oriented.

The calculated chi square for the differences in orientations is 17.773. This value is greater than the hypothesis rejection value of x^2,

2 d.f., at the .05 level of significance, which amounts to 5.99. The hypothesis of homogeneity is, therefore, rejected at the .05 level.

Table 12. Significant Differences Between Work Role Orientations of Industrial Education Teachers

Table 12.1 Work Role Orientations (3-answer responses)

Orientation	Number	Percent
Specialism	74	32
Balanced	104	45
Teaching	52	23
(Totals)	230	100

$x^2 = 17.773$ 2 d.f. $P > .0005$

Table 12.2 Work Role Orientations (2-answer responses)

Orientation	Number	Percent
Specialism	80	35
Balanced	90	39
Teaching	60	26
(Totals)	230	100

$x^2 = 6.086$ 2 d.f. $P > .05$

In Table 12.2 (2-answer responses) the following distributions of role orientations are noted: specialism, 80 teachers (35 percent); balanced, 90 teachers (39 percent); and teaching, 60 teachers (26 percent).

The calculated chi square for the differences is found to be 6.086--somewhat greater than the 5.99 value required for rejection of the hypothesis at the .05 level of significance. On this basis, we reject the hypothesis of homogeneity at the .05 level.

Both of the preceding tests, and the distributions of responses provide evidence that the most typical work orientation of the industrial education teachers studied is a balanced orientation between the specialism and teaching roles. The least valued orientation seems to be the role of teaching.

There is a notable difference between the chi square values for the two rating systems (17.773 for 3-answer responses, and 6.086 for 2-answer responses). However, a comparison of the distributions of responses for the two answering systems shows that the numerical and percentage variations are not of great magnitude. The balanced-orientation on the 2-answer test contains 14 less cases (6 percent less) than the 3-answer responses. At the same time, the specialism orientation exhibits an increase of 6 cases (2.6 percent) and teaching increases by 8 cases (3.4 percent).

Summarizing the findings in this section, we note the following characteristics for the study population.

The largest segment of the population assessed in this study tends to have relatively balanced teacher-specialism role orientations to their work role. It would appear that the largest number of teachers tend to value the expectations attached to the role alternatives with relative equality. They do not show particular preferences for having their work performance evaluated in either the teaching, or the specialism role.

The distribution of individuals observed in the specialism role orientation very closely approximates the 33-1/3 percent chance assumption

of the number of persons who, theoretically should be found in this category. Approximately one out of three teachers prefers that evaluations of his work performance be made in terms of his particular specialized skills and knowledges in subject matter.

The respondents classified under the work role orientation, teaching, occurred less frequently than could be expected by chance--under both answering systems, the frequency amounted to approximately 25 percent of the total responses. Only one in four of the teachers tends to concern himself, primarily in the teaching work role.

C. STUDY VARIABLE-OCCUPATIONAL INVOLVEMENT RELATIONSHIP HYPOTHESES

The major objective for testing the hypotheses of relationships between the study variables and occupational involvements is to discover which, if any of the experiential stimuli appear to be related to particular types of job commitment in the various work behavior systems.

Fifteen experiential stimuli, or environmental relationships are to be tested for each of the hypotheses, A6-A10. The results for all observations under these hypotheses, and the calculated chi square values for each, are recorded in Appendix D. Only those hypotheses exhibiting significant relationships are included in this section.

All discussions of significant findings in this section will be reported in respect to the dependent variable, job involved; the inverse relationship to these statements will prevail for the non-job variable.

Hypothesis A7 (Variable 13). No significant differences exist in the relationships between the number of industrial education teachers in a Michigan school district and the formal organizational involvements of Michigan junior high school, industrial education teachers.

Observed distributions of responses indicate that 81 percent of the teachers from districts having less than five industrial education teachers exhibit job commitment to the formal sector of work behavior. From districts having five to twenty industrial education teachers, 72 percent of the group studied are classed as job committed. The teachers from districts having more than twenty industrial education teachers exhibit a 59 percent job commitment (see Table 13.1).

The calculated chi square for the differences observed is 6.3940. Rejection of the hypothesis of independence at the .05 level of significance, 2 d.f., requires that the calculated value exceed 5.99. Under these conditions, the hypothesis of no-difference is rejected at the .05 level.

From the data analysis, we may presume that a dependency probably exists between the number of industrial education teachers within a school district and the characteristic of the study group to be job committed to the rules and goals of the work organization. The nature of this relationship is observed to exist, as follows: (1) approximately 8 out of 10 teachers in districts having less than five industrial education teachers show job involvement in the formal sector, (2) over 7 out of 10 from districts having between five and twenty industrial education teachers rate as job involved, and (3) almost 6 out of 10 from districts having more than twenty industrial education teachers exhibit job involvement. In general, it appears that the commitment of these teachers to the formal organization system of work is reduced as the number of industrial education teachers in the district increases.

Hypothesis A8 (Variable 16). No significant differences exist in the relationships between the amount of formal education (degree status) and the technological involvements of the study population.

The observed differences in the teacher's job involvement in the technological sector, as noted in Table 13.2, indicate that 76 percent of those having Bachelor's degrees exhibit job commitment, while 60 percent of those with Master's degrees show job commitment.

The chi square for the observed differences, as calculated for this hypothesis of independence is 6.6180. The value required for rejection of the hypothesis at the .05 level of significance, 1 d.f., is 3.84. The hypothesis is, therefore, rejected at the .05 level.

The data analysis suggests that a dependency exists between the degree statuses of the study group and their extent of commitment to the work procedures and standards prescribed by the work organization. The apparent relationships noted are (1) that over three-fourths of the Bachelor's degree holders tend to be job committed, and (2) three-fifths of those with Master's degrees are job committed in the technological sector of work. The extent of job commitment to the technological sector of work appears to decrease as the degree status increases.

Hypothesis A8 (Variable 22). No significant differences exist in the relationships between the type of affiliations with state educational associations and the technological involvements of the study population.

The observed distributions of the study group (Table 13.3) provide the following information: (1) 57 percent of the group who do not belong to state organizations are job involved in the technological sector of work, (2) 67 percent of those classed as members, only, are job involved, (3) 89 percent of the teachers functioning at the committee level show job involvement, and (4) 81 percent of those who have held offices in state organizations during the past three years appear job committed.

The calculated chi square for the observed differences in distributions for this hypothesis is 8.9222. The hypothesis rejection value for the .05 level of significance, 3 d.f., is 7.81. Since the calculated chi square exceeds the rejection value, the hypothesis of independence is rejected at the .05 level.

Based upon the data analysis, it may be stated that a dependency probably exists between the type of affiliation which the study group has with state educational associations, and their commitment to the procedures and standards of the work organization. The apparent relationships are, as follows: (1) almost 6 out of 10 of the teachers not affiliated with state associations exhibit job involvement in the technological sector of work, (2) approximately 7 out of 10 who are affiliated as members, only, are classed as job involved, (3) almost 9 out of 10 committee workers are rated as job committed, and (4) over 8 out of 10 recent officers in state associations exhibit job commitment. The operation of the inter-relationships seems to be that job commitment to the technological sector increases with membership and committee-level participation in state educational associations--remaining high, but decreasing by eight percent, with recent officership status.

Hypothesis A9 (Variable 16). No significant differences exist in the relationships between the amount of formal education (degree status) and the general involvements of the study population.

Observed characteristics of the study group indicate that 29 percent of the holders of Bachelor's degrees, and 16 percent of the teachers with Master's degrees exhibit job commitment in the general sector of the work behavior system (see Table 13.4).

Table 13. Significant Relationships Between Variables and the Occupational Involvements of Industrial Education Teachers.

Table 13.1. Relationships Between the Number of Industrial Education Teachers in a District and the Formal Involvements of Teachers.

I. E. Tea./Dist.	Job Inv.	Non-job	Totals	
			%	N
Less than 5	81%	19%	100	26
5 - 20	72	28	100	92
Over 20	59	41	100	112
				(230)

$x^2 = 6.3940$ 2 d.f. $P > .05$

Table 13.2. Relationships Between the Level of College Education and the Technological Involvements of Industrial Education Teachers.

Degree Status	Job.Inv.	Non-job	Totals	
			%	N
Bachelor's	76%	24%	100	133
Master's	60	40	100	95
				(228)*

$x^2 = 6.6180$ 1 d.f. $P > .025$

* Two non-degree holders eliminated

Table 13.3. Relationships Between Affiliations in State Educational Associations and the Technological Involvements of Industrial Education Teachers.

Affiliation	Job Inv.	Non-job	Totals	
			%	N
Non-member	57%	43%	100	37
Member, only	67	33	100	150
Committee Member	89	11	100	27
Recent Officer	81	19	100	16
				(230)

$x^2 = 8.9222$ 3 d.f. $P > .05$

Table 13.4. Relationships Between the Level of College Education and General Involvements of Industrial Education Teachers.

Degree Status	Job Inv.	Non-job	Totals	
			%	N
Bachelor's	29%	71%	100	133
Master's	16	84	100	95
				(228)*

$x^2 = 5.6158$ 1 d.f. $P > .025$

* Two non-degree holders eliminated

The calculated chi square for the observed differences in distributions is 5.6158. Rejection of the hypothesis requires a value, 3.84, for 1 d.f. at the .05 level of significance. The hypothesis of independence is rejected at the .05 level.

The data analysis provides evidence that a dependency probably exists between the degree statuses of the subject group and the extent to which they value their own objectives as means for carrying-out their job tasks. The types of dependencies noted are characterized as follows: (1) almost 3 out of 10 teachers with Bachelor's degrees, and (2) less than 2 out of 10 with Master's degrees exhibit job commitment in the general (non-formal) sector of work. The general relationship noted appears to indicate that job commitment to the general sector of the work situation decreases as the degree status increases.

D. STUDY VARIABLE-WORK ROLE ORIENTATION HYPOTHESES RELATIONSHIPS

The major aim for the tests of the hypotheses of relationships between the study variables and work role orientations is to determine whether inter-relationships exist between the independent study variables and the areas in which role performance evaluations seem preferred by the study group.

The fifteen independent variables are to be tested in relationship to Hypothesis B2. The distributions of responses and chi square calculations for each variable are recorded in Appendix E; only significant findings are noted in this section.

Hypothesis B2 (3-answer, Variable 22). No significant differences exist in the relationships between the type of affiliations with state

educational associations and the work role orientations of Michigan junior high school, industrial education teachers.

From the distributions noted in Table 14.1, a chi square for the observed differences is found to be 14.4140. The hypothesis rejection value for x^2, 6 d.f., at the .05 level of significance is 12.59. The hypothesis of independence is rejected at the .05 level--a dependency appears to exist between the dependent and independent variables studied.

The following characteristics of the study group are evidenced in relation to the independent variable classifications: (1) the greatest proportion of non-members (over 2/5) exhibit balanced orientations, while the specialism orientation frequency (less than 2/5) approaches the balanced, and occurs twice as often as the teaching orientation; (2) the largest proportion of members, only, (almost 2/5) show balanced orientations, while the specialism orientation is noted for one-third of the group, and exceeds the teaching orientation by one and one-third times; (3) the largest proportion of committee members (almost 3/4) show balanced orientations, while specialism is observed for 3/20 of the group--the specialism orientation frequency is about one and one-third times that of teaching; and (4) the highest proportion of recent officers (over 3/5) exhibit a balanced orientation, while specialism and teaching evidence equal frequencies (about 1/5 each).

The balanced orientation is noted with the greatest frequency in the total study group. Members, only, (39 percent) and non-members (43 percent) are almost equally represented. This orientation is noted most frequently for the participating members of state education associations--committee members (74 percent) and recent officers (62 percent)--but is noticeably lower (12 percent) for the officers.

Table 14. Significant Relationships Between Variables and Work Role Orientations of Industrial Education Teachers.

Table 14.1. Relationships Between Affiliations in State Educational Associations and the Work Role Orientations of Industrial Education Teachers.

Affiliation	Orientation			Totals	
	Spec.	Bal.	Tea.	%	N
Non-member	38%	43%	19%	100	37
Member, only	35	39	26	100	150
Committee Member	15	74	11	100	27
Recent Officer	19	62	19	100	16
					(230)

$x^2 = 14.4140$ 6 d.f. $P > .05$

Table 14.2. Relationships Between School Size and Work Role Orientations of Industrial Education Teachers.

No. Students	Orientation			Totals	
	Spec.	Bal.	Tea.	%	N
200 - 739	47%	32%	21%	100	47
740 - 879	25	55	20	100	44
880 - 1049	40	36	24	100	50
1050 - 1519	38	40	22	100	45
1520 - 2230	23	34	43	100	44
					(230)

$x^2 = 15.4500$ 8 d.f. $P = .05$

In relation to the specialism orientation, members (38 percent) and non-members (35 percent) have approximately equal representations, and exhibit the highest proportions of specialism orientations. The committee members (15 percent) and recent officers (19 percent) evidence almost one-half the frequencies in specialism noted for members and non-members--officers are four percent higher than committee members.

In relation to teaching orientations, members (26 percent) show a slightly greater (7 percent) frequency in this area than non-members (19 percent). Committee members (11 percent) are represented to a much smaller degree (15 percent less) than members, only. Recent officers (19 percent) exhibit a greater proportional representation than committee members, but have the same representation as non-members.

The patterns of apparent orientations indicate that (1) the specialism work role seems to be valued least by participating members in state educational associations, (2) the balanced work role is valued most by the participating members, though somewhat less by recent officers, and (3) the teaching role is valued least by committee members, most by members, and equally by recent officers and non-members.

Hypothesis B2 (2-answer, Variable 11). No significant differences exist in the relationships between the work role orientations of the study population, and the size of school in which they teach. The size of school is categorized on the basis of average daily attendance (ADA).

Table 14.2 summarizes the distributions of responses for this hypothesis. From the distributions, a calculated chi square of 15.4500 is obtained. The value of x^2, 8 d.f., necessary for rejection of the hypothesis of independence is 15.51. Since the calculated chi square is within

.06 points, or .38 of one percent of the rejection value, the investigator will reject the hypothesis--on the assumption that the results are too close to the rejection value to justify acceptance of the null hypothesis.

The size classifications for the schools in this study are as follows: (1) Class I, 200-739 ADA, (2) Class II, 740-879, (3) Class III, 880-1049, (4) Class IV, 1050-1519, and (5) Class V, 1520-2230.

The following orientation characteristics are noted for the study group: (1) of the teachers in Class I schools, almost one-half are rated as specialism oriented, about one-third as balanced, and over one-fifth as teaching oriented; (2) of those in Class II, one-fourth are specialism, over one-half balanced, and one-fifth teaching oriented; (3) of those in Class II schools, two-fifths are specialism more than one-third balanced, and almost one-fourth teaching oriented; (4) of those in Class IV schools, almost two-fifths are specialism, two-fifths balanced, and over one-fifth teaching oriented; and (5) in Class V schools, about one-fourth are specialism, over one-third balanced, and over two-fifths teaching oriented.

In the case of specialism, the frequencies decrease from 47 percent in Class I schools to 23 percent for Class V--this progression tends to be consistent except in the case of Class II schools which exhibit nearly as low a percentage (25) as teachers in Class V.

In the balanced orientation area, Class I, III, and V schools exhibit almost equal frequencies--32, 36 and 34 percent, respectively. Class II has the highest frequency, 55 percent, Class IV (40 percent) shows a somewhat higher proportion of teaching orientations than I, III, and V, but much less than Class II (15 percent less).

The patterns noted in the frequency distributions of the study group tend to be as follows: (1) the frequency of specialism orientations

tends to decrease as the size of the school in which the industrial education teacher works increases, (2) frequencies of balanced orientations tend to be somewhat higher in the middle-sized schools, and (3) frequencies of teaching orientations tend to remain the same except for teachers in the largest schools, where the frequency tends to be approximately twice as high.

E. SUMMARY OF SIGNIFICANT HYPOTHESES

The following null hypotheses have been rejected at the .05 level of significance using the chi square statistic for distributions of the data observed in this study:

Hypothesis A1:	homogeneity of total involvements,
Hypothesis A2:	homogeneity of formal organization involvements,
Hypothesis A3:	homogeneity of technological involvements,
Hypothesis A4:	homogeneity of general (non-formal) involvements,
Hypothesis A5:	homogeneity of informal involvements,
Hypothesis A7: (Var. 13)	independence of formal organization involvements and the numbers of industrial education teachers per district,
Hypothesis A8: (Var. 16)	independence of technological involvements and the formal education statuses of industrial education teachers,
Hypothesis A8: (Var. 22)	independence of technological involvements and teachers' affiliations with state educational associations,
Hypothesis A9: (Var. 16)	independence of general involvements and the formal education statuses of industrial education teachers,
Hypothesis B1:	homogeneity of the teacher-specialism work role orientations,
Hypothesis B2:	(3-answer, Var. 22): independence of the teacher-specialism orientations and teachers' affiliations with state educational associations, and

Hypothesis B2: (2-answer, Var. 11): independence of teacher-specialism orientations and the size of school in which they teach.

CHAPTER VII

INTERPRETATION OF STUDY FINDINGS

This chapter is devoted to interpreting the significant findings of this study in terms of the implications they may have for educators. It will attempt to resolve the question, "What importance does a knowledge of teachers' job commitments and work role orientations have for the persons involved in the education of teachers, or for those who function with them in educational institutions?"

The terms, teacher, wherever used in this section, will refer directly to the Michigan junior high school, industrial education teachers investigated in this study.

A. OCCUPATIONAL INVOLVEMENT

One prime requisite for the professional is dedication to the occupational setting. Dedication presumes that the work situation provides the focal-point around which an individual's important life-directions are made. If this is true, most of the industrial education teachers in this study are not professionals. Less than one-fourth of these teachers consider their occupation as their "central life interest."

The preceding revelation becomes even more startling for the educator when we compare teacher commitments to those of nurses and cooperative extension agents. Over nine-tenths of the nurses and extension agents, studied by Orzack and Ranta, selected their work situations as their "central life interest." Here we have three groups with quite

similar socio-economic origins and degrees of formal education, but only the teachers fail to place a high value on the occupational setting. This lack of occupational dedication comes to full realization when we note that the work commitments of industrial education teachers are no greater than those exhibited by the semi-skilled industrial workers studied by Dubin.

This state of affairs demands that educators at all levels examine the processes used in the education of teachers, and the characteristics of the school systems in which the teachers function. The reasons for this low work commitment must be found. Ways for increasing occupational involvement must be inaugurated.

The remainder of this chapter is devoted to implications of the study findings in relation to the four behavioral sectors of work. The implications are followed by suggestions for increasing the work commitments of teachers.

Formal Behavior Characteristics. Two-thirds of the teachers in this study are classed as committed to the broad goals and regulations of their work organization. They exhibit slightly greater commitments than industrial workers, but almost one-fourth less commitment than nurses and extension agents.

There appears to be an important variation, however, in the extent to which teachers value the formal system--the proportion of teachers classed as job-involved seems to decrease as the number of industrial education teachers in the district increases. This condition suggests that, given increased opportunity to do so, the teacher will use his own colleagues as a normative reference group. From this premise, we may deduce

that some degree of conflict may exist between the normative systems of the educational institution and industrial education teachers which encourages the acceptance of an alternative normative system. These premises would seem to impel further inquiry into the nature of teachers, and the character of large school systems.

In the first place, it is necessary to remember that at least two conditions must be fulfilled if alternative normative systems are to be found in an institutional system: (1) the alternative system must be known by the individuals in a particular situation--this implies that it must have been learned, and (2) the alternative system must either be sanctioned, or free enough from strict sanctions to be tolerated within the institution.

Beginning with the latter condition, a look at larger school districts suggests that the acceptance of an industrial education normative system within the educational institution may be both tolerated and sanctioned. As the school district becomes larger, relationships between the authority figures and the teachers will tend to become less personal and less frequent. This reduces the probability that direct sanctions will be applied to non-conformists. As long as non-conformity does not threaten to disrupt the functioning of the institution, a school administrator may be more than happy to concentrate on the problems related to operating a school or a school system, and leave the functioning of the educational processes to the teachers. In this sense, the alternative system may become tolerated.

Sanctioning of an alternative system may receive a direct impetus through the institution of departments, department heads, and special subject supervisors--all characteristic of larger educational districts.

These constitute a recognition that differences are important, and are expected to exist in the educational institution.

The concept, alternative, suggests that a difference exists. Somewhere and somehow, industrial education teachers seem to have normative expectations which vary to some degree from those of their school institutions. If this were not so, they would have less inducement to value the expectations of their subject matter colleagues--in preference to those of the institution--even though increased opportunity to do so presents itself. It is quite possible that work experiences and formal educational processes have helped provide the industrial education teachers with educational goals which are at some degree of variance with broad educational institution goals. These goals, and the modes of operating in relation to them, would seem important enough for the teacher to want them reinforced, in preference to those of the institutions, by orienting himself to the other industrial education teachers. Through this orientation of himself to other industrial education teachers, the teacher may achieve status recognition which he might otherwise not achieve in the larger educational district.

Technological Behavior Characteristics. Almost seven-tenths of the teachers in this study are committed to the prescribed tasks and procedures of their work organization. Teachers show a slightly higher commitment than industrial workers, but are about one-fifth lower than nurses and extension agents.

Taken together, the work behavior systems, formal and technological, constitute the most prescribed areas of work. Further, they establish the minimum requisites for fulfillment of the ultimate purposes of the institution.

In this study, two important relationships are noticeable between the degree to which teachers are occupationally-involved in the technological sector, and experiences in their environment. These relationships suggest that (1) job involvement decreases with higher degree status, and (2) it increases with membership, increasing further with committee work, but decreases with office-holding in state educational associations.

In the first case, degree status, it has been noted that teachers with Master's degrees are less job-oriented to the prescribed methodology for carrying out work tasks than holders of Bachelor's degrees. Increased formal education appears to increase an individual's awareness of alternative ways of attaining work goals. Add to this, the factor that higher education is frequently a means for moving out of the current job situation, and we may postulate that prescribed means may well become less valued by the more highly educated teacher. A third factor may also be in operation here--through higher education, the teacher's present specialization may be reduced, or changed. This change in status may result in the development of a new set of expectations in relation to the job processes. If these new expectations conflict with the prescribed work behaviors, a lessened commitment to the technological sector may be expected.

In the case of affiliations with state educational associations, the general tendency for job involvement to increase with membership and active participation suggests that affiliations tend to increase awareness of the value of prescribed means for accomplishing the goals of educational institutions. State educational associations have at least three important functions: (1) to help resolve problems of teachers in relation to their work organization, (2) to increase teacher's recognition and knowledge of the purposes and problems of the work organization, and (3) to provide

some degree of status recognition for teachers. The first two functions tend to resolve conflicts which may exist between the teacher and his work organization, subsequently encouraging him to value the work situation more highly. The latter tends to make it possible for the teacher to receive recognition as a member of his own work organization, and therefore, he may become more inclined to subscribe to the prescribed systems of his work.

It appears quite likely that the prestige, or status, afforded recent officers in state associations may encourage some teachers to value the means-systems of the association above those of the work organization. This characteristic is suggested as we note that job commitment, while remaining predominantly job oriented, is less for recent officers than for committee members in state associations.

Non-formal Behavior Characteristics. The non-formal, or general, sector of work affords an individual more freedom of action than the formal and technological sectors. In the process of actually carrying out work activities, it is possible for the individual to use his own objectives to modify prescribed means and still fulfill the broad goals and expectations of the work organization. This freedom to act may be beneficial, or detrimental, for the work organization.

It will be beneficial if it expedites the goals of the work organization, making it possible for greater accomplishment with less expenditure of energy.

It may be detrimental if it induces conflicts within the organization by forcing modification of the existing expectations associated with prescribed means and standards in the organization.

The extent to which job involvement in the non-formal sector of work is desirable is not currently known. It is reasonable to assume, however, that a valuation somewhat in favor of job systems is more likely to be beneficial to the work organization than a strong personal-objective orientation.

In teaching, some degree of innovation and non-conformity may be both desirable and necessary in carrying out the work tasks. There is, however, a strong indication that industrial education teachers prefer their own means for accomplishing the work tasks over those of the work organization. Less than one-fourth of the teachers exhibit job commitment to the non-formal sector of work. (Over two-thirds of the nurses and extension agents exhibit job commitment to the non-formal sector.)

A factor which seems to influence the extent of job involvement to the non-formal sector is the degree status of an individual. As the individual attains a higher level of formal education, he would seem to value his own objectives as means for carrying out work tasks. This condition seems to support a similar situation noted in relation to the technological sector, where job involvement also seemed to decrease with higher degree status. It would appear, therefore, that the substitution of an individual's own means of accomplishing work tasks for the prescribed means of the work organization may be a consequence of formal education.

In the case of the technological sector, it has been suggested that a new awareness of alternatives to prescribed systems, encouraged through a formal educational process, may be a contributing factor toward reduced commitment in this sector. This may, very likely, be the case in relation to the non-formal sector; however, not only may formal education foster recognition of alternative systems, but it may also tend to promote

recognition of conflicts and inconsistencies in prescribed means which encourage the teacher to use his own methods for achieving the educational goals of the institution.

Finally, the non-formal sector provides an area of freedom in which it is possible for the teacher to put his alternative systems into practice.

Informal Behavior Characteristics. Acts performed in the informal sector of work are not required for, nor necessarily aimed at, accomplishing the tasks and goals of the work organization; rather, they are concerned with the achievement of personal recognition in the social aspects of the work situation. In all probability, the minimal requirements of the work situation could be accomplished whether or not a teacher values the work situation for his informal, interpersonal social relationships.

From the preceding comments it may appear that the informal sector of work is not of particular consequence in the work situation. Yet, nothing could be farther from the truth. It has consistently been proven (by Elton Mayo and others) that informal social relationships at work greatly affect the accomplishments of organizational goals. Job involvement in the informal sector may well be a factor in determining whether the achievement of organizational goals is on a minimal, or a maximal basis. Further, since this sector is relatively free from work prescription and sanctions, it may serve as an important indicator of the extent to which the work situation is valued by an individual; for it is in the informal sector where the most valued tests of self-esteem are made by an individual. If he values the informal social relationships on the job most highly, the individual has an inducement to value the work situation itself. If he

values primary social relationships outside the work situation most highly, the individual is not likely to be very highly dedicated to his work situation--using it as a basis for making his really important personal decisions in life.

In the informal behavior sector of work, almost 90 percent of the industrial education teachers chose situations outside the work situation as the places most valued for their primary social interactions. From this evidence, we may hypothesize the possible existence of the following conditions: (1) the occupation may not offer opportunities conducive to the establishment of informal social relationships on the job, (2) membership in the occupation of teaching may not provide recognized status for the teacher in his society, (3) the primary social relationship expectations of teachers may conflict with those of other teachers, or (4) competition for status recognition in the educational institution may exist among teachers.

In the first case, the occupation may not have provision for suitable rewards for the development and maintenance of close personal relationships on the job. It also may not provide the time, and encourage the situations which help to promote primary relationships.

In the second case, the public may tend (as Brookover has suggested) to leave the educational institution unranked in the social structure--in which case, the position of teacher must also tend to be unranked in the public image. If the individual cannot be assigned status in his position of teaching, he cannot be expected to seek other teachers as evaluators of his personal worth in society. His audience of evaluation must be ranked in the social structure, if he is to achieve social recognition as a member in that society.

In the third case, through socialization processes, work experiences, and formal education, the value systems of individual teachers may vary to a degree which could produce conflicting value systems between teachers. Close relationships require a high degree of similarity between the interests of the participants; the members must "talk the same language" and be competent to evaluate the personal worth of each other. It is not difficult to envision that subject specialist teachers might have difficulty in communicating with, and evaluating the personal characteristics of, one another--this will tend to be especially true between the so-called academic and practical fields of education.

In the final case, there may be competition between teachers for status recognition, or rewards, within the institutional setting which will discourage primary relationships on the job. Two people in competition for the job, head of the department, are not likely to become so "close" with each other that knowledge of the other's personal qualities could be used as a weapon for gaining advantage in the job appointment. A teacher, recognized in his institution as an outstanding teacher or a specialist in some educational facet, may do everything in his power to maintain this position--including foregoing any close relationships which may reveal his secrets. Whether rewards are tangible or intangible, competition for them will not encourage close personal relationships between individuals in the work situation.

Implications of Occupational Involvement. Occupational involvement should be of particular concern to school administrators and teacher-educators if they are interested in providing real leadership in the educational situation. Knowledge of the kinds and extent of occupational in-

volvement which staff members hold may provide keys to procedures for dealing with individuals in authority relationships. Knowledge of factors which relate to the extent of occupational involvement may provide clues for bringing-about changes in the degrees and kinds of involvements of teachers in relation to their work situation.

There tend to be three relatively distinct types of work orientations which individuals exhibit: (1) job oriented, (2) indifferent, and (3) community oriented.[47] These may be evidenced to some degree in almost all work situations. Knowing the type of individual that he is dealing with, the administrator has some index as to the type of direction needed to promote the type of organization he desires. No one type of personnel administration can be expected to work for all staff members. Each type of work orientation has its peculiar characteristics.

Those teachers who tend to be job oriented will not need the extent of direction and supervision required for indifferent and community oriented persons. They will tend to use organizational means for achieving organizational goals since they will tend to be aware of, and value, accomplishment of these goals. Incentives and rewards for these people will tend to be most effective when presented in terms of the work situation. itself. Necessary changes in work procedures and goals will tend to be encouraged by job oriented persons; however, they will probably expect to be involved in the decision-making processes which initiate the changes.

Teachers with indifferent orientations will tend to follow-along with the directions of the work authority figures. They will have to be

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[47] Discussion of the characteristics of job orientation types has been summarized from Robert Dubin, The World of Work, New Jersey: Prentice-Hall, Inc., 1958, pp. 255-58.

told what is expected in the situation, but probably, the why of the action is inconsequential for them. Direct supervision will be required, for the most part, to insure continuity of direction for achievement of the work goals. Incentives and rewards in relation to the work situation will not have particular consequence for achieving higher quality, more effective work. The indifferent person has not found any real life interest which may act as a focal point for his life.

Those teachers with community orientations will tend to be indifferent to forceful supervision and direction. Work provides these people with a type of social recognition--fulfilling the expectation associated with the "protestant ethic" that work is good, or expected, of any able-bodied man. The main purpose of work, however, is to provide him a financial basis which will enable him to pursue his real life interest; work incentive devices will be most successful if they center around financial rewards.

The industrial education teachers in this study tend to fall within the last two orientations: indifferent or community oriented. If the orientation is one of indifference, it should be possible for educators to encourage the teacher to become interested in the work situation. Since these people have no major life commitment, competent educators may be able to provide the opportunities and enlightenment necessary for these people to learn to value work as a major life interest. (It should be noted here that, while no direct effort has been made in this study to distinguish between the three types of job orientations, the author has noted a distinct tendency for non-job oriented teachers to exhibit indifferent involvement.)

Those teachers who exhibit community orientations already have a

major life interest. It may be more difficult for educators to convert outside interests to work-centered interests, but it is not necessarily impossible to do so. Since a person's interests are a product of learning in the first place, it is possible for them to learn new interests. Before this may be accomplished, however, the individual will have to become aware of new interests which are superior to those he now holds. It will also have to provide him with a better opportunity for personal recognition in his society. This implies that educators may be called upon to clarify the goals and procedures of the work institution, to make provisions for individuals to learn and internalize the work systems, to initiate procedures which will provide staff members with opportunities and incentives to participate in the decision-making processes of the work organization, to establish means by which staff members may receive recognition for his personal qualities and achievements, and to make a conscious effort toward achieving public recognition of teaching and education as office and status, ranked within the social structure.

The school administrator cannot be expected to achieve the preceding aims solely through his own works, but as the educational leader in the community, he must assume the responsibility for giving direction and continuity to the programs aimed at encouraging teachers to place a higher value on their work situation.

Higher education and graduate schools, also, must assist in "raising" job involvements of teachers in relation to their work. In the first place, during undergraduate education a conscious effort should be made to reduce conflicts in values between the various subject specializations--emphasising the integrative characteristics of the various subject areas within the total educational program, and at the same time, creating in the indi-

viduals an awareness that certain types of differences must exist, and co-exist, within any educational institution seeking to accomplish the "Democratic Ideal" in education.

Looking a little more closely at the results of this study, the following possibilities for modifying the job involvements of industrial education teachers are presented.

Increasing Formal Behavior Involvement. The following suggestions, based on the study implications, are postulated as possible ways of increasing teachers' job involvements to the broad goals and operational procedures of the work institution.

1. Administrators in larger, or growing school districts should make a particular effort to provide clear definitions of the purposes and procedural systems of the school organization.

2. The orientation systems used within the public school must provide means for the teachers to learn, and to utilize, the work procedural systems to achieve school goals; those in charge of orientation will need to remain alert to the need for re-orientation when procedural systems or goals are changing, or changed.

3. Administrators must provide systems which will enable teachers to receive recognition in relation to their work--to encourage them to look to the work situation for rewards and status recognition.

4. Every attempt should be made to de-emphasize departmentalization, and special caution exercised in dealings with the various subject area specializations in order to reduce the possibility of encouraging inter-specialization rivalries, and retard the development of a hierarchy of subject matter specializations which will promote conflicts between the

value systems of the various specializations.

5. The aim of industrial education teacher-educators should be to provide students with a concept of industrial education as one facet of a total educational program which has certain commonalities with, and certain differences from, other specializations.

6. Industrial education teacher-educators must assume a responsibility for making other educators (subject specialists, administrators, and the public) conscious of the place of industrial education in total-community education.

Increasing Technological Behavior Job Involvement. For educators concerned with modification of teacher's job involvement toward the prescribed means and standards of the work institution, the following suggestions are presented.

1. Graduate education should consciously provide means for industrial education teachers to maintain their identity with teaching. Current programs tend to encourage an individual to leave the teaching field and/or the teaching specialization, both of which encourage the development of alternate sets of expectations which may induce a teacher to value procedures and standards outside the work situation.

2. Graduate school educators should be aware of the conflicts which their programs may develop between the value systems of the school institution and those promoted by the higher-education institution. An attempt should be made to resolve these conflicts in ways which will enable the teacher to maintain his identity with the teaching position.

3. Administrators should provide all means possible for encouraging active participation of teachers in state educational associations, since

active participation seems highly related to recognition of the importance of institutional means and standards by teachers.

4. Administrators should provide teachers with recognition for job performance which supports existing work procedures and standards, and involve them in the decision-making processes aimed at improving prescribed work systems.

Increasing Non-formal Behavior Job Involvement. If it is desirable for teachers to value the prescribed systems of the work institution over personal objectives for achieving work goals, the following suggestions may encourage increased job commitment to the non-formal sector of work.

1. In general, the suggestions presented in relation to increasing technological commitments should also function to increase non-formal involvement.

2. Teacher educators should make every effort to assist school administrators in resolving the conflicts and inconsistencies in the prescribed means and standards of the work organization--making certain that prescribed means and operational procedures are clearly defined, purposeful, achievable, and desirable.

Further Considerations for Increasing Occupational Involvements. The industrial education teachers in this study seem to regard themselves as second-class citizens in the educational community. These individuals are frequently heard to complain that their classes are the "dumping-ground" of the school. They tend to believe that industrial education has an inferior status in the educational setting. This feeling is encouraged by educational critics who press for the "pursuit of excellence,"

and extol the virtues of academic subject matter over all "practical" fields. With all these forces against them, it is not too difficult to see why industrial education teachers are not highly dedicated to their work. Why should they seek status recognition from other staff members, or people in the community, for fulfilling a role which they are quite certain cannot provide satisfying role evaluations?

The teacher's negative attitude toward work should be a critical consideration for all persons in the democratic community, from the parent to the President. Our teachers must be dedicated to their work if each individual in our society is to have the best education possible. The barriers, discouraging the teacher from work involvement, must be eliminated.

The following considerations are premised, in addition to those previously stated, as possible means for increasing the work commitments of industrial education teachers.

1. Teacher-educators, at all levels, should consciously seek to involve their students in professional education associations of both types--industrial education centered and non-specialty associations. Participation in the first type will tend to strengthen the individual's confidence as a specialist in the educational community. Participation in the second type will provide the individual with an opportunity to evaluate his capabilities in relation to those of other subject teachers, and conversely, provide the other teachers with a knowledge of the capabilities and purposes fulfilled by the industrial education teacher.

2. Professional education associations should encourage, and provide for, the active participation of "student" members. Orientation should be provided to explain what the association can do for its mem-

bers, and what the members may do for the association.

3. Professional education associations of the non-specialty type should make certain that all subject specializations are adequately represented and recognized in the activities and publications of the association.

4. Professional education associations should seek to create a public image of education as a professional occupation. The public must be informed, constantly, of the special abilities and capabilities required for successful teaching. (Such statements as, "professional salaries for professional preparation," do little to create a professional image in the public mind.)

5. Graduate school teacher-educators of industrial education students must understand the kinds of occupational involvements their students bring to the colleges and universities with them. It is a false premise to assume that teachers are dedicated to their work simply because they enroll in graduate school. A negative approach by teacher-educators, following this premise, may actually tend to decrease a student's work commitment to the point where he is left with no alternative but to leave the teaching field. The conflicts forced upon the teacher through formal education may appear insurmountable. The teacher-educator's first responsibility is to help the student build an image of himself in relation to his occupational setting.

6. Teacher educators must help their students to develop an image of themselves as important participants in their society. The students should know the significant part that teachers play in our modern technological social order. Through case studies, the students may learn of the great contributions which teachers have made in the evolution of

modern civilization.

7. Educators, professional education associations, and the public must be conscious of the necessity for a regular and continual "boosting" of teacher morale. The teachers need to know that their work is viewed as important, and respected in the educational and public communities.

8. School administrators must recognize the "inferior" position that industrial education tends to be given in the educational program of the school. Whether this is a case of conscious delegation as inferior, or just a perception on the part of industrial education teachers, the inferior status of any subject specialization in the school should be of great concern to the administrator. He should use every means possible to create an image in the minds of staff members and the community of industrial education as an educative system which is no less essential than any other specialization in the school educational scheme.

9. School administrators should clearly acknowledge the fact that industrial education has particular value in the education of students of low academic ability. On the other hand, he must make every effort to see that the "superior" student is well represented in industrial education classes, for industrial education has much to offer all students in this technological society.

B. WORK ROLE ORIENTATIONS

During the course of his formal educational training, the industrial education teacher is confronted with two major directional forces. One force is applied in the direction of producing a person who is a specialist in the techniques and methodology of transmitting knowledge to other individuals. The other force seeks to produce a person who possesses the

knowledge and skills of a specialized subject-matter area upon whom a "learner" may draw--and become educated. These two directions have been conceived, in this study, as being two possible extremes of major work role orientations within the educational setting. As roles, they consist of expectations through which role performance may be evaluated by the individual, or by role evaluators. An individual, preferring performance evaluations as a specialist in knowledge transmission, has a self-image in the teaching role. The person desiring work evaluations in terms of his special subject knowledge and skills has an orientation, or perception of self, in the role of specialism.

As with most human traits, the perceptions of individuals within a role are variable. Since both teaching and specialism orientations are conscious elements in the education of teachers, some degree of both orientations must exist within teachers' perceptions. One or the other becomes a major role, however, when it attains preferential domination within the self-image of the teacher as he goes about his work.

Speaking in general terms, the work role orientations of the industrial education teachers are relatively balanced between the teaching and specialism orientations. The teachers seem to feel that they may expect satisfactory recognition for performances exhibited in either or both roles.

In comparing the more extreme role orientations, the role of specialism seems to be more valued than the teaching role. This would tend to indicate that the values associated with being a specialist in subject matter are accepted more readily than those for being a teacher-specialist. This position is reinforced by understanding that subject-matter specialization tends to receive greater emphasis in the education of teachers than

teaching methodology. A further reinforcement of this concept is the realization that possession of special subject-matter knowledge and skills is more easily evaluated than are teaching knowledge and skills.

From evidence gathered in this study, the following conclusions are postulated regarding significant relationships observed between work role orientations and the variable-characteristics of the study population.

First, the self images of teachers in their work roles exhibit certain characteristic relationships with membership and active participation in state educational associations. The following conclusions are in evidence.

1. Teachers who hold primary self-images in the specialism role may not expect to receive important recognition in this role through their affiliations within state educational associations. This concept is premised upon the noted condition that orientations toward specialism are slightly lower for members, only, than for non-members and, further, that a sharp decline in specialism orientations is noted for active participants in state associations. Therefore, we may postulate that affiliations with state educational associations do not appear to offer the opportunities which would encourage a teacher's orientation toward the functions of specialism.

There may, however, be some limited opportunity for reinforcement, or recognition, of role performance in the specialism role for persons holding officer status in the state associations. There appears to be a slight rise in the specialism orientation with the attainment of officer status. This condition is most likely to prevail when the office is held in educational associations organized around special subjects or special fields of knowledge.

2. Teachers who hold primary self-images in the balanced teaching-specialism orientation may not expect to receive role recognition through membership in state educational associations; however, they may find role reinforcement through active participation--committee work and officership. These conclusions are based upon observed characteristics of the study population--the balanced orientation decreases slightly with membership, followed by a sharp rise in balanced orientations with active participation.

We may speculate that, since committee work tends to involve persons with groups possessing diversified self-images and goals, and with problems that involve both teaching and specialism functions, the individual is encouraged to select a balanced orientation in order to perform adequately within the committee situation.

Finally, it is noted that the balanced orientation tends to decrease with the holding of recent officership in state associations, and as the orientation "decreased" the orientations toward the specialism and teaching roles increased and came into exact balance. This suggests that acceptance of officership may encourage some individuals to prefer one, or the other, extreme role orientation.. Since state associations tend to be of two general types (one concerned with the general improvement of the educative processes, and the other developed around subject-matter specialties), we may expect that the type of state association in which an individual attains officership tends to influence his work role preferences.

3. Teachers holding primary work self-images in the teaching role may view membership in state educational associations as a means for receiving work role recognition in the functions of teaching. This thesis is substantiated by an observed increase in teaching orientations with

membership in the association, as contrasted to non-membership. This observation suggests that state associations may provide one or more of the following means which could increase an individual's opportunity for recognition within the teaching role: (1) means for better understanding the expectations related to the teaching role, (2) means which increase an individual's knowledge of the techniques, media, etcetera which can improve his teaching performance, and (3) means for obtaining a larger, more competent audience to evaluate his performance in the teaching role.

Attaining an office in a state association may be a way through which teaching role orientations may be reinforced. A notable rise in orientations toward teaching is evidenced for recent officers, as contrasted to committee workers. The type of association in which an officer's orientation toward teaching would tend to be reinforced would be one which is highly concerned with the functions of teaching--this would be less likely to occur in a specialty-centered association than in an association which includes many different subject specialists.

The second major conclusion about the self-images of teachers in their work roles concerns the relationships evidenced between role orientations and the sizes of schools in which industrial education teachers perform their work. (The five school-size classifications used in this study will be termed, herein, as small, small-medium, medium, medium-large, and large.)

1. Teachers in small schools holding specialism role self-images may expect to receive recognition in this role to a greater extent than teachers, similarly oriented, in large schools. This idea is substantiated by the observation that a greater percentage of specialism orientations occurs in the small schools than in the large ones. From this observation,

it becomes possible to speculate that factors related to small school size encourage the acceptance of specialism as a means for obtaining rewarding role performance evaluations.

As a resultant of small size, the industrial education teacher is faced with certain limitations in the number and kinds of interactions provided in the work situation. Both of these factors may tend to affect role selection. On one hand, the teacher will have limited interaction with other industrial education teachers, and with supervisory personnel who could encourage him to work toward expectations beyond the areas of his particular subject specializations. On the other hand, the small school situation may encourage the teacher to accept the subject specialist role by consciously assigning industrial education a unique position in the school--separate and apart from the general education objectives of the school. Further, the evaluators of role performance in the school, lacking competence in evaluation of the teaching functions of industrial education, may tend to equate desirable role performance with the physical products produced in industrial education programs a condition which mandates a high degree of specialized competence in the subject areas taught.

In the study results, a general tendency is noted toward reduced acceptance of the specialism orientation as the size of schools increases. The rate of reduction and certain unpredictable variations, however, do not provide adequate bases for making generalizations on the nature of specialism orientation changes in the three intermediate school-size classifications. The author would suggest, in passing, that large variations in the numbers of industrial education teachers per school within the intermediate sizes may contribute to its heterogeneous nature.

2. Teachers having primary self-images in the balanced teaching-

specialism role tend to maintain this balance regardless of school size. There is some possibility that characteristics are to be found in the intermediate-sized schools which tend to promote a balanced orientation, since balanced orientations tend to be slightly higher in these classifications. (As noted in the conclusions on specialism orientations, there is a degree of variation between the intermediate classifications which tends to preclude making generalizations from them.)

3. Teachers having primary self-images in the teaching role tend to be found most frequently in the large schools. This observation suggests that factors related to acceptance of teaching as a primary role orientation are not operative until a certain large school size is reached.

Extreme largeness of school size carries with it implications suggesting largeness of school districts and greater financial bases for operating the schools. In turn, larger schools tend to have greater numbers of teachers, more industrial education teachers per school, more supervisors, and a greater variety of subject offerings. In all, the largest schools would seem to extend to a teacher a great opportunity for selecting the expectations of any work role reference group that he desires. Yet, observations in this study indicate that certain forces in the large school situation encourage the industrial education teacher to see himself as a teaching specialist.

Some of the forces influencing the industrial education teacher to accept the role of teaching specialist may include the following: (a) the fact that the industrial education teacher in the large school is proportionately less well represented than in smaller schools and, therefore, he finds it difficult to maintain an identification of uniqueness as a subject matter specialist, (b) the fact that the personnel, who supervise his

activities, hire, evaluate and assist him, have educational training and experiences which tend to stress teaching performance evaluations, and being in positions of authority, may apply sanctions to discourage other kinds of performances, and (c) the fact that the teaching role may provide the only common meeting-ground of expectations for subject specialists in a school staffed by a great variety of subject specialists.

Implications of Work Role Orientations. A knowledge of teachers' work role orientations may provide an educator with two types of clues in relation to the educational setting. First, it may tend to indicate the set of expectations which receive the greatest emphasis within the work institution. Secondly, it may indicate the set of expectations which an individual teacher perceives to be most important in the work setting.

In the first case, when we note that a great number of teachers have a tendency to select a particular role orientation, it becomes possible to infer that the institutional system provides the greatest opportunity for recognition of its members in the performance of that role. It may also provide an inference of the power structure of the educational community--the set of expectations which has the greatest force for determining educational directions.

In the second case, we may note that certain staff members prefer to identify themselves in work roles that differ from those held by the majority. Since the "non-conformists" expect to receive satisfactory evaluations through role performances which they select, we may postulate that these people either perceive their work role expectations differently than the larger group, or that they look to other sets of expectations for satisfying role recognition.

Increasing Balanced Role Orientations. Some of the things which may be done by educators to encourage the acceptance of a balanced teaching-specialism orientation by industrial education teachers may include the following.

1. The teachers should be encouraged to actively participate in state educational associations--especially at the committee level--and for the most part, in those associations which are not subject specialty centered.

2. An attempt should be made to maintain school sizes at enrollments that range somewhere between 750 to 1,500 students.

3. The specialization emphasis in teacher education programs should be reduced or, at least, greater emphasis placed upon the teaching functions.

4. More adequate means for evaluation of the teaching functions are needed--evaluation devices, better trained evaluators, and more recognized and acceptable criteria for teaching evaluation.

5. Educational authority figures should attempt to maintain relatively balanced expectations between the teaching and specialism orientations of their staff members, being careful not to stress one set of expectations over the other.

6. Means should be developed for providing recognition and rewards for individuals with balanced orientations.

Increasing Specialism Orientations. Some possible means for encouraging industrial education teachers to seek work role performance evaluations in terms of their specialization may include the following.

1. Teachers should be discouraged from active participation in

state education associations.

2. School sizes should be kept small.

3. The concept should be promoted that industrial education is uniquely different from other subject specializations in the educational institution.

4. The work performance of the industrial education teacher should be evaluated on the basis of the kinds of projects the students make, rather than the types of knowledges and learning achieved by the students.

Increasing Teaching Orientations. The following suggestions may serve to encourage industrial education teachers to seek role performance evaluations in terms of teaching performances.

1. Teachers should be encouraged to join state educational associations, but not to actively participate in them.

2. School sizes should be maintained above 1520 ADA.

3. Keep the proportion of industrial education teachers to the total number of staff members low to reduce the possibility that they will be able to use their specialty colleagues as an audience of evaluation for their role performance.

4. The functions of teaching should be emphasized in the school and district. Supervisory personnel should be specialists in teaching-evaluation techniques and in training methods for the improvement of teaching.

C. SUMMARIZATION

The devices and procedures utilized in this study seem to provide many types of information which may be of value to educators on many levels.

1. From a knowledge of the ways and extents that teachers relate themselves to the work behavioral systems, it becomes possible to identify areas of conflict between institutional systems and values, and these held by teachers.

2. The valuations an individual holds in relation to his work situation may provide educators with clues to his tendencies-toward-behavior in the work organization--providing bases from which more effective direction and supervision of teachers may be achieved.

3. Knowing an individual teacher's self-image in relation to the work behavioral systems may be used as one facet in merit evaluation systems to substantiate external behavioral evaluations of the ways the teacher carries out the functions of work.

4. Knowing the roles in which teachers prefer work performance evaluations may provide educators with cues to the power structures at work in the educational institution--suggesting the important persons, or groups, to whom teachers look as an audience for evaluation of their work performance.

5. Through knowledge of the dominant roles selected by staff members in the work situation, educators may be able to assess the major work-emphasis in the educational institution--teaching, specialism, etcetera.

6. From assessments of the work behavioral commitments of the graduates from a variety of teacher-education institutions--comparing commitments and analysing the educational programs--it may be possible to isolate factors in the programs which tend to promote commitment to the work situation.

7. Identification of factors in the environmental and experiential backgrounds of teachers which relate to their work commitments and role orientations may be used as bases from which modifications of these personal work-directions may be accomplished.

CHAPTER VIII

EVALUATION OF THE STUDY

Three general expectations for this study are defined at the end of Chapter II (Theoretical Framework for the Problem). The accomplishment of these expectations will now be examined.

A. THE FIRST EXPECTATION

> Industrial education teachers will show distinct differences in occupational involvements, but the primary characteristic will be one of non-involvement in the occupation, teaching.

Tests of hypotheses A1-A5 give evidence that distinct and significant differences exist in the job commitments of the Michigan junior high school, industrial education teachers studied.

In the primary characteristic of job involvement, "central life interest," the teachers, typically, exhibit non-job involvement characteristics.

In the behavioral sectors of work, the teachers tend to be job committed to the formal and technological sectors, and non-job committed to the non-formal and informal sectors.

B. THE SECOND EXPECTATION

> Industrial education teachers will have varying orientations toward their occupational role; one extreme may be identified as an orientation toward the functions of teaching, and at the other extreme, an orientation toward the functions of specialization--together encompassing one continuum of role perceptions for teachers.

Two tests of hypothesis B1 give evidence that differences in teachers' role orientations, as rated by the author's teaching-specialism inventory, are significant.

The types of orientations identified include: (1) teaching, (2) specialism, and (3) balanced teaching-specialism orientations. The balanced orientation seems to be the dominant work role orientation. The teaching role orientation seems to be the least preferred.

It has not been possible for the investigator to test the assumption that the assessed roles are part of a continuum of role perceptions. In the development of the teaching-specialism inventory, a degree of sophistication was not attained which would provide a scaling system necessary for indexing degrees along a continuum. Scalogram analysis on pre-tested subjects indicate the possible existence of as many as eighteen scale types; however, the reproducibility rating is not high enough to justify using the device for scaling (see Appendix A).

C. THE THIRD EXPECTATION

> Variations in the identification of self, on the part of industrial education teachers, with the occupation or in occupational roles may be affected by such factors as opportunities for identification with other teachers and other groups, length of time within the occupation, formal education, and occupational goals.

Tests of hypotheses A6-A10 provide evidence that relationships exist between three (of five) occupational behavior systems, and four of the independent variables. The dependent variables include the formal, technological, and non-formal sectors of work. The independent variables include all three areas of hypothesis environments--social, occupational and educational.

Tests of hypothesis B2 provide evidence that relationships exist

between the work role orientations analysed and two types of environmental variables--social and occupational.

Besides the significant findings noted above, a number of possible relationships are notable in this study. These relationships could not be accepted at the .05 level of significance, but do exceed the .10 level. These notable relationships include five tests of occupational involvement hypotheses; see Appendix D, Variables 13 (Total Inv.), 13 (Technological), 19 (General), 21 (General), and 25 (Formal). The notable relationships also include three work role hypotheses; see Appendix E, Variables 12 (2-answer), 13 (2-answer), and 16 (2-answer).

There are a group of variables whose relationships to the study involvement and role orientation classifications we have every reason to doubt. From the results noted in the study, we have strong reasons to believe that the following relationships do not exist in the study population:

1. informal involvements to all fifteen of the study variables, and, 2. occupational involvement and work role orientations to the following variables: (a) length of teaching experience, (b) currently taking coursework, (c) purpose for taking coursework, (d) length of manufacturing work experience, (e) type of teaching assignment, (f) affiliations with labor organizations, and (g) affiliations with trade associations.

D. CONCLUSION

In the final analysis, evaluation of this study must rest upon two questions: "Did it do the job it set out to achieve?" and "What may be done with the results?"

The results and conclusions presented in previous chapters must

ultimately serve as the center for judgment as to whether or not the professed task has been accomplished. The author submits that there is fair reason to suspect that some knowledge has been gained which may serve to increase our understandings of the nature of teachers in their work situation, and some clues implied, whereby modification of certain behavioral characteristics may be possible.

Study results have further pointed out a number of relationships between independent and dependent variables which appear to give promise as leads to any researcher who desires to follow the general direction of this study. A perusal of Appendices D and E will also indicate the existence of certain trends which may suggest further research.

Finally, this research effort has led to the conclusion that a number of factors probably do not directly affect the work commitments and work role orientations of industrial education teachers.

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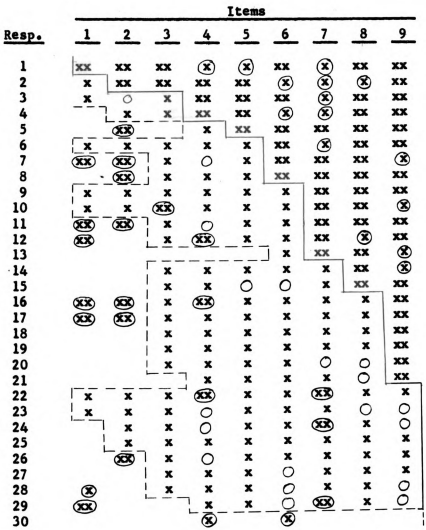
APPENDIX A. INVENTORY INFORMATION

Teacher-Specialism Scalogram Analysis (Three Answer)



Resp.	Score Type	Error
1	3	
2	3	
3	2	
4	2	
5	1	
6	1	
7	4	
7	1	
8	0	
8	2	
9	3	
9	3	
10	1	
11	1	
11	2	
12	3	
12	2	
12	0	
12	0	
12	2	
13	1	
14	2	
14	3	
15	3	
15	0	
16	2	
16	1	
16	3	
17	4	
18	2	
	57	

Reproducibility: 1.000 - 57/270 = 0.79

Hoyt's Test for Reliability
(3-answer)

For Selected-Sample Teacher-Specialism Inventory
(formulation on page 56)

Three-answer Responses

Source	d.f.	S. Sq.	M. Sq.
Betw. Indiv.	29	34.15	1.178
Betw. Items	8	11.43	-----
Residual	232	84.35	0.364
Total	269	129.93	-----

$r_{tt} = 1.178 - 0.364/1.178 = 0.691$

$S.E._{meas.} = \sqrt{9 \times 0.364} = 1.86$

Calculations:

n	x_c	nx_c^2	x_r	x_r^2
1	2	4	42	1764
6	6	216	30	900
3	7	147	22	484
5	8	320	26	676
1	11	121	39	1521
7	12	1008	31	961
5	13	845	28	784
2	14	392	31	961
			38	1444
30		3053	287	9495

x	n	x_r	ix_r^2
0	57	0	0
1	139	139	139
2	74	148	296
	270	287	435

Total S. Sq. = $435 - (287)^2 / 270 = 129.93$
Indiv. S. Sq. = $3053 / 9 - C.T. = 34.15$
Item S. Sq. = $9495 / 30 - C.T. = 11.43$
Residual S. Sq. = $129.93 - (34.15 + 11.43) = 84.35$

Teacher-Specialism Scalogram Analysis (Two Answer)

	Items									Score	
Resp.	3	4	7	2	5	1	8	9	6	Type	Error
1	x	x	x	x	x	x	x	x	x	1	0
2	x	x	x	x	x	x	x	x	x	1	0
3	x	x	x	x	x	x	x	x	x	1	0
4	x	x	x	x	x		x	x	x	1	1
5	x	x	x		x	x	x	x	x	1	1
6	x	x	x		x	x	x		x	1	2
7		x	x	x	x	x	x	x	x	2	0
8			x	x	x	x	x	x	x	3	0
9			x	x		x	x	x	x	3	1
10			x	x		x	x	x	x	3	1
11		x		x	x	x	x	x	x	4	1
12		x		x	x	x	x	x	x	4	1
13		x		x	x	x	x	x	x	4	1
14	x			x	x	x	x	x	x	4	1
15				x	x	x				4	3
16				x		x	x	x	x	4	1
17				x		x	x	x		4	2
18	x				x	x	x	x	x	5	1
19					x	x	x	x		5	1
20			x		x	x	x		x	5	2
21		x			x		x		x	5	3
22			x		x	x			x	5	3
23	x			x			x		x	7	3
24	x						x	x		7	2
25					x			x	x	8	1
26			x	x				x	x	8	2
27	x	x						x	x	8	2
28				x				x		8	2
29				x					x	9	1
30						x				10	1
											40

Reproducibility: 1.000 - 40/270 = 0.852

Hoyt's Test for Reliability
(2-answer)

For Selected-Sample Teacher-Specialism Inventory
(formulation on page 56)

Two-answer Responses

Source	d.f.	S. Sq.	M. Sq.
Betw. Indiv.	29	17.44	0.601
Betw. Items	8	6.03	-----
Residual	232	41.53	0.179
Total	269	65.00	-----

$r_{tt} = 0.601 - 0.179/0.601 = 0.702$

$S.E._{meas.} = \sqrt{9 \times 0.179} = 1.27$

Calculations:

n	x_c	nx_c^2	x_r	x_r^2
1	1	1	21	441
3	2	12	18	324
3	3	27	11	121
6	4	96	12	144
2	5	50	19	361
2	6	72	24	576
8	7	392	13	169
2	8	128	21	441
3	9	243	22	484
30		1021	161	3061

x	n	x_r	ix_r^2
0	109	0	0
1	161	161	161
	270	161	161

Total S. Sq. = $161 - (161)^2 / 270$ = 65.00
Indiv. S. Sq. = 1021 / 9 - C.T. = 17.44
Item S. Sq. = 3061 / 30 - C.T. = 6.03
Residual S. Sq. = 65.00 - (17.44 + 6.03) = 41.53

PART I, DIRECTIONS

For each of the following statements, there are three possible answers. We would like you to read each statement and the answers very carefully.

After you have read the statement and the three answers under it, pick out the answer which comes closest to your own feelings about the matter. Place a check in the blank in front of this answer.

Sometimes, none of the answers will exactly fit your own ideas, but you can pick out the one which is closest to the way you feel and check it.

Please be sure to check only one answer to every statement. Do not skip any statement.

(I) If I received a promotion that meant moving to another city Ind my friendships wouldn't make any difference in my moving. J I would most dislike leaving my friends on the job. N-J I would most dislike leaving my other friends.	(G) I believe that N-J the things I do away from my job are more important than anything else. Ind. most things are about equally important. J. my job is more important than anything else.
(F) I sometimes hope that N-J I'll get to be a more important member in my club, church or lodge. J I'll get a promotion at work. Ind. such things won't ever bother me.	(I) I most like Ind. talking with my friends about things that are happening. N-J talking about whatever my friends want to talk about. J talking shop with my friends.
(T) I most enjoy keeping N-J my things around the house in good shape. J my tools and work areas in the shop in good shape. Ind. my mind off such things.	(T) In my spare time J I often think up better ways of doing my job. Ind. I just prefer to relax. N-J I often think about keeping my car in good shape.

CODES: I. Work Sectors--(F) formal; (T) technological; (G) general; (I) informal.
II. Scoring-- (J) job-committed; (N-J) Non-Job; (Ind) Indifferent.

(G)

The most pleasant things I do are concerned with

N-J. the things away from work.

Ind. different things at different times.

J. things at work.

(F)

If a job I know about was giving everybody trouble, and I heard that another school had solved this problem

J. I would tell the principal about it.

Ind. I wouldn't worry about things and would forget the whole matter.

N-J. I'm too busy to worry about the school's problems.

(I)

I would rather take my vacation with

N-J my family.

J. some friends, *from work.*

___ by myself.

(G)

I like to read

Ind. things about lots of different subjects.

J. things about my job.

N-J. things about what I most like to do.

(G)

In order to get ahead in the world

Ind. I think you have to have a lot of luck.

N-J. I think you have to be well liked and known about town.

J. I think you have to be well liked where you work.

(I)

When I am not around them, the people I miss most are

Ind. just people in general.

N-J. my friends around town.

J. my friends at work.

(T)

I would enjoy taking classes to learn more about

N-J. my hobby or other interests

J. my job.

Ind. only something very special and important.

(I)

I prefer to join a club or a lodge

N-J. where there are people from my neighborhood who are members.

J. where there are people from work who are members.

Ind. where the members come from all over.

(T)

Moving ahead on the job

J. is so important that I'm willing to spend all the time necessary to make contacts and pick up information about my work.

N-J. is not so important that I would give up my time to make contacts and get information about my work.

Ind. is not particularly important to me.

(F)

I am happier if I am praised for doing a good job of

J. something at work.

N-J something in an organization I belong to.

Ind. anything, but it doesn't matter very much what.

(I)
In my free time at work, I would rather

J. talk shop with the fellows.

Ind. talk about whatever comes up.

N-J. talk about things not concerned with the school.

(G)
When I am worried, it is usually about

J. how well I'm doing on my job.

Ind. just little things.

N-J the things that happen to me outside the school.

(I)
It is more important to me that

J. I be tops at my job and that my friends know this,

N-J. I be good at other things (away from my job) and that my friends know this.

Ind things go smoothly whether or not my friends think I'm good at them.

(F)
I would most hate

J. missing a day's work.

N-J. missing a meeting of an organization I belong to.

Ind. missing almost anything I usually do.

(T)
When I am doing some work, I usually try not to waste materials

J. on my job.

Ind. seldom; I don't worry about wasting materials.

N-J on a project at home

(F)
It is easier for me to take a bawling out

N-J. from an officer of an organization I belong to in town.

Ind. from a policeman.

J. from my principal.

(I)
I get a bigger kick out of

J. playing cards with the fellows from school.

Ind playing cards only with people I can win from.

N-J playing cards at night with friends

(T)
Noise bothers me most

N-J. when working at home.

J. when working at school.

Ind hardly ever.

(G)
I hope my children can

J. be sure to work at the same kind of job as mine.

N-J. be sure to work at a different kind of job from mine.

Ind. work at any job, I don't care what.

(T)
When I am doing some work

N-J I am usually most accurate, at home.

Ind. I seldom think about being accurate.

J. I am usually most accurate working at school.

(I)
I prefer to have as friends

N-J. people who do not work at the same place I do.

Ind. different people according to what they're like.

J. people who work at my school.

(T)
I don't mind getting dirty

N-J while working at home

Ind. at any time if I can wash up afterwards.

J. while working at school.

(F)
I would much rather be a leader in

J. my faculty's recreation program.

N-J. my lodge.

Ind. any organization just so it's a good one.

(I)
I prefer talking to

Ind. different people depending on what we talk about.

N-J. my neighbors.

J. the people here at work.

(T)
If I have to work with someone else, who is a slow worker, to get a job done

J. I am most annoyed on a job at school.

N-J. I am most annoyed on a project where we are fixing up the church or our organization club-house.

Ind. I am annoyed regardless of where we are working.

(I)
It hurts me more if I am disliked

J. by the people at work.

N-J by the people around town.

Ind. by anyone I know.

(G)
I think that if I were suddenly to get a much better job

J. probably my life would change and be better in lots of ways.

N-J probably my life would not change much except that I'd like it better.

Ind. I wouldn't know what would happen to my life.

(I)
I would rather spend my evenings with

Ind. different people depending mainly on what we do.

N-J. my family.

J. people from work.

(T)
If I get poor materials to work on

J. I am most annoyed when it slows me up at my work.

Ind. I just accept it as a matter of bad luck.

N-J. I am most annoyed when it makes me lose time on a project I am doing at home.

(F)
I would prefer going to

J. a faculty dance.

Ind. any dance depending upon the orchestra.

N-J. a dance at my lodge or other favorite organization.

(I)
The people I can count on most when I need help

Ind. almost any of my friends.

N-J. the friends I have around town.

J. the friends I have at work.

(G)
I am most interested in

J things about my job.

N-J things I usually do around the house.

Ind. anything I happen to be doing at the moment.

(G)
I do my best work

J. when I am on the job.

N-J. when I work around the house.

Ind. when I'm not bothered by people.

(I)
The people I would be most likely to borrow money from

N-J. the people I know around town.

Ind. anyone who would lend it to me.

J. people I know here in the school.

PART II, DIRECTIONS

Please select one choice from the listed alternatives for <u>each</u> question. You may not feel that the "best" ideas have been included in the alternatives, but choose the item you can most agree with.

Section A (Check one answer)

Section B (Check 1 answer)

Select the choice you would prefer between statements a and b.

Student projects in my shop are based on

a. T my analysis of the needs and problems of the students. — a. T

b. S my analysis of the methods and skills required in industry. — b. S

c. B cooperative planning with students, related to needs of students and industry.

The person who would be best qualified to evaluate the products of my teaching would be

a. T an expert teacher — a. T

b. S an expert from industry — b. S

c. B an industrial arts supervisor

As an industrial arts teacher, I am more concerned with the problems and issues related to

a. S improvement of industrial arts course content. — a. S

b. T improvement of my teaching techniques. — b. T

c. B improved achievement of the total school objectives.

If the quality of my teaching were to be rated, as a basis for a salary increase, I would rather have this rating done by

a. T teachers other than industrial arts. — a. T

b. S industrial arts teachers. — b. S

c. B people in educational supervision.

CODE: (T) teaching; (S) specialism; (B) balanced.

Junior high school industrial arts courses should be

a. S required of all boys for understanding industrial-technical problems and processes
b. T required of all boys and girls for general education values.
c. B available for any student who can profit from the course.

a. S
b. T

The teachers I like to associate with most outside of school are

a. S those who teach the same subject I do.
b. T any teacher who is truly dedicated to teaching.
c. B as many different kinds of teachers as possible.

a. S
b. T

A youngster asks me to identify the most desirable kind of teaching situation; I would recommend

a. S teaching in a technical-vocational school.
b. T teaching any subject, at any level.
c. B teaching industrial arts at any level.

a. S
b. T

One of the most enjoyable things about my job is

a. S directing student development of the skills which will make him a superior worker in industry.
b. T developing student's intellectual capacities to increase his ability to reason and think in abstract terms.
c. B leading the student to identify and fulfill the needs, interests and capacities he has today.

a. S
b. T

I would prefer to be known among my friends

a. S as an expert in knowledge of my subject field.
b. T as an expert in teaching techniques.
c. B as an expert in coordination of industrial arts with other subject field in school.

a. S
b. T

PART III, DIRECTIONS

In this section, check the blanks which are most appropriate in your case.

1. My school includes only grades 7 through 9. Yes___; No___; Other, please specify_____

2. The total student enrollment in my school is:

___less than 251; ___251-500; ___501-750; ___751-1000; ___over 1000.

3. How many teachers have taught industrial arts subjects in your school during the 1960-61 school year?

___1 or 2; ___3 to 5; ___over 5.

4. How many other industrial arts teachers are there in your school district?

___less than 5; ___5 to 20; ___over 20.

5. How many years have you taught in the public schools (including this year)?

___less than 3; ___3-5; ___6-10; ___over 10

6. What is the length of your work experience in manufacturing industries?

___none; ___1-3 years; ___4-7 years; ___over 7 years

7. What is your level of college education?

___less than a bachelor's degree;
___hold a bachelor's degree (may include work beyond);
___hold a master's degree (may include work beyond degree).

8. Are you currently in the process of taking further educational course work?

Yes____ No_____

If so, for what main purpose?

___to obtain a permanent teaching certificate;
___to prepare for an educational administrative position;
___to improve your knowledge and skills in industrial arts areas taught;
___to improve your understandings of the learning process and teaching techniques;
___to develop knowledge and skills that will enable you to go into a non-education occupation;
___other reason: please specify_____

9. During the school year, do you work at any other reimbursed occupation--non-teaching, non-educational?

___regularly (generally continuous program of work);
___occasionally (whenever the opportunity presents itself);
___rarely

10. My teaching assignments this year have included:

___one industrial arts subject area, or more than one industrial arts subject taught as separate shop activities;

___comprehensive general shop, only (more than two shop areas, integrated in one shop locale);

___at least one subject field other than industrial arts, or assignments in such areas as administration, counseling or guidance.

11. My organizational affiliations have included:

	Member	Committee Work	Officer
Prof. educ. associations:			
National: Current			
During past 3 yrs.			
State: Current			
In past 3 years			
Labor organizations:			
Current:			
In past 3 years			
Trade associations:			
Current			
In past 3 years			
Service organizations of the community (Kiwanis, Lions, YMCA, etc.):			
Current			
In past 3 years			

APPENDIX B. POPULATION FOR STUDY AND RESPONSES

	LOCATION	SCHOOL NAME	ADA	I.A. TEA.	TEA. RESP.
Class I (200-739)					
1	Allegan	Allegan	456	1	1
2	Allen Park	South	715	1	1
3	Alma	Stilwell	680	2	1
4	Battle Creek	Southeastern	444	2	1
5	Battle Creek	Southwestern	430	1	1
6	Benton Harbor	Fair Plain	431	2	1
7	Birmingham	Barnum	725	2	2
8	Bridgeport	Bridgeport	565	1	0
9	Carrollton	Carrollton	274	1	1
10	Clawson	Clawson	717	1	1
11	Dearborn	Stout	616	3	0
12	Detroit	Pearson	639	1	1
13	Ferndale, P.O.	Carmer	201	1	0
14	Flint	Zimmerman	712	2	2
15	Flint P.O.	Hamady	340	1	0
16	Freeland	Freeland	250	1	1
17	Fruitport	Fruitport	348	1	0
18	Grand Haven	Grand Haven	720	2	1
19	Grand Rapids	Burton	584	3	3
20	Grand Rapids	Harrison Park	486	2	2
21	Grand Rapids	Riverside	663	2	2
22	Grand Rapids	Ridgeview	561	2	1
23	Grand Rapids P.O.	Oakleigh	240	1	0
24	Harper Woods	Harper Woods	530	2	0
25	Jackson P.O.	Dettman	361	1	1
26	Kalamazoo	Hillside	725	2	1
27	Kalamazoo	Northeastern	680	2	2
28	Kalamazoo	Oakwood	475	1	0
29	Marysville	Marysville	370	2	1
30	Monroe	Cantrick	649	2	2
31	Monroe, P.O.	Custer	473	1	0
32	Mt. Morris	Mt. Morris	670	1	1
33	Muskegon P.O.	Churchill	235	1	0
34	Muskegon P.O.	Hile	250	1	0
35	Muskegon P.O.	Laketon	346	1	1
36	Muskegon P.O.	Wolf Lake	400	1	1
37	North Street P.O.	Ft. Gratiot	400	1	0
38	Pontiac	Jefferson	538	2	1
39	Port Huron	Chippewa	565	2	2
40	Romeo	Romeo	501	1	1
41	Roseville	Burton	630	2	2
42	Roseville	Eastland	525	1	1
43	Saginaw	Arthur Eddy	619	3	1
44	Saginaw P.O.	Zilwaukee	428	1	0

45	St. Clair Shores P.O.	Chippewa	600	1	1
46	St. Clair Shores P.O.	Ottawa	512	1	0
47	Sanford	Meridian	320	1	0
48	Spring Lake	Spring Lake	360	1	1
49	Walled Lake	Smart	648	1	1
50	Warren P.O.	Wolcott	265	1	1
51	Wayne	West	539	2	2
52	Ypsilanti	West	650	1	0

Class II (740-879)

1	Ann Arbor	Forsythe	755	3	3
2	Ann Arbor	Slauson	862	4	1
3	Battle Creek	Northwestern	870	2	0
4	Battle Creek	Kellogg	835	2	1
5	Benton Harbor	Benton Harbor	800	3	2
6	Berkley	Norup	750	2	1
7	Center Line	Busch	860	3	2
8	Dearborn	Adams	740	2	1
9	Dearborn	Smith	815	3	2
10	Detroit	Neinas	750	3	1
11	Detroit	Pierce	810	1	1
12	Detroit	Sherrard	800	2	1
13	Detroit P.O.	Marshall	743	1	1
14	Escanaba	Escanaba	874	4	3
15	Farmington	Dunckel	875	2	0
16	Grosse Pointe	Brownell	803	2	0
17	Grosse Pointe	Pierce	825	2	0
18	Jackson	East	800	2	2
19	Jackson	West	825	2	1
20	Kalamazoo	Milwood	836	2	1
21	Kalamazoo	South	860	2	0
22	Mt. Clemens P.O.	L'Anse Creuse	800	1	0
23	Mt. Pleasant	Mt. Pleasant	800	2	2
24	Port Huron	Washington	790	3	3
25	Saginaw	Webber	875	2	2
26	St. Clair Shores P.O.	South Lake	877	2	1
27	St. Joseph	St. Joseph	790	3	1
28	Troy	Baker	849	2	2
29	Walled Lake	Walled Lake	787	2	2
30	Wayne	Adams	760	2	1
31	Wayne	Franklin	800	2	1
32	Wayne	Marshall	795	2	2
33	Willow Run	Edmonson	764	2	2
34	Ypsilanti	East	788	2	1

Class III (880-1049)

1	Ann Arbor	Tappan	955	3	1
2	Battle Creek P.O.	Lakeview	970	3	3
3	Bloomfield Hills	Bloomfield Hills	900	2	1

4	Dearborn P.O.	Best	939	2	1
5	Detroit	Condon	952	3	1
6	Detroit	Greusel	1002	4	3
7	Detroit	Wilson	1045	4	4
8	East Detroit	Oakwood	966	2	1
9	Farmington	Farmington	950	2	1
10	Livonia	Emerson	920	3	2
11	Livonia	Riley	920	2	0
12	Livonia	Whitman	940	3	3
13	Muskegon P.O.	Beach	884	1	1
14	Muskegon Hts.	Muskegon Hts.	1000	3	1
15	Niles	Niles	998	2	1
16	Plymouth	Plymouth	970	2	2
17	Pontiac	Isaac Crary	975	3	2
18	Pontiac	Eastern	933	4	3
19	Pontiac	Lincoln	953	4	2
20	Pontiac	Madison	1001	4	3
21	Pontiac	Washington	1015	3	3
22	Roseville	Guest	960	3	3
23	Romulus	Romulus	1003	2	0
24	Saginaw	North Intermed.	900	3	3
25	Utica	Sterling	911	3	2
26	Wyandotte	Lincoln	881	4	3

Class IV (1050-1519)

1	Adrian	Adrian	1230	2	2
2	Berkley	Anderson	1150	2	2
3	Birmingham	Derby	1358	4	1
4	Detroit	Jefferson	1440	5	5
5	Detroit	Lola Valley	1100	3	2
6	Detroit	Ruddiman	1220	4	3
7	East Detroit	Grant	1300	1	0
8	Flint	Bryant	1050	4	1
9	Flint	Longfellow	1120	3	0
10	Flint	Lowell	1220	4	3
11	Flint	Whittier	1440	5	1
12	Jackson	Frost	1260	3	1
13	Lansing	Otto	1430	5	4
14	Lansing	Pattengill	1430	4	2
15	Midland	Central Intermed.	1187	4	3
16	Muskegon	Steele	1310	3	3
17	Rochester	Rochester	1100	2	0
18	Saginaw	Central	1057	6	5
19	Saginaw	South Intermed.	1140	4	2
20	Taylor	Taylor	1089	2	2
21	Taylor	Brake	1487	3	2
22	Traverse City	Traverse City	1191	1	1
23	Wyandotte	Wilson	1140	3	0

Class V (1520-2230)

1	Detroit	Barbour	2230	6	4
2	Detroit	Cleveland	1550	5	2
3	Detroit	Durfee	2131	7	3
4	Detroit	Foch	2000	6	3
5	Detroit	Hutchins	2000	5	3
6	Detroit	Jackson	1804	5	2
7	Detroit	McMichael	1767	4	2
8	Detroit	Miller	1571	5	3
9	Detroit	Nolan	1604	5	4
10	Detroit	Post	1570	5	1
11	Detroit	Tappan	1525	6	4
12	Flint	Emerson	1650	6	4
13	Lansing	French	1590	3	2
14	Lansing	West	1575	4	4
15	Pontiac P.O.	Pierce	1625	4	3

APPENDIX C. POPULATION DISTRIBUTION DATA SUMMARY

A6: Total Behavior, Distribution by Variables

(I Job Committed; II Non-Job)

Var #	I	II	Ti
11-1	15	32	47
2	12	32	44
3	11	39	50
4	9	36	45
5	9	35	44
Tj	56	174	230
12-1	6	15	21
2	32	83	115
3	12	59	71
4	6	17	23
Tj	56	174	230
13-1	10	16	26
2	25	67	92
3	21	91	112
Tj	56	174	230
14-1	9	34	43
2	19	44	63
3	10	47	57
4	18	49	67
Tj	56	174	230
15-1	9	24	33
2	32	74	106
3	9	48	57
4	6	28	34
Tj	56	174	230
16-1	36	97	133
2	20	75	95
Tj	56	172	228
17-1	35	106	141
2	21	68	89
Tj	56	174	230

Var #	I	II	Ti
18-1	6	22	28
2	9	17	26
3	10	34	44
4	6	20	26
5	2	2	4
6	3	11	14
Tj	36	106	142
19-1	10	45	55
2	23	72	95
3	23	57	80
Tj	56	174	230
20-1	30	88	118
2	16	44	60
3	10	42	52
Tj	56	174	230
21-0	26	83	109
1	29	82	111
2	1	9	10
Tj	56	174	230
22-0	10	27	37
1	39	111	150
2	5	22	27
3	2	14	16
Tj	56	174	230
23-0	45	138	183
1	11	32	43
2	0	4	4
Tj	56	174	230
24-0	48	158	206
1	8	16	24
Tj	56	174	230
25-0	38	120	158
1	15	32	47
2	0	12	12
3	3	10	13
Tj	56	174	230

A7: Formal Organization Behavior, Distribution by Variables (I Job Committed; II Non-Job)

Var #	I	II	Ti
11-1	34	13	47
2	28	16	44
3	36	14	50
4	29	16	45
5	26	18	44
Tj	153	77	230
12-1	16	5	21
2	77	38	115
3	45	26	71
4	15	8	23
Tj	153	77	230
13-1	21	5	26
2	66	26	92
3	66	46	112
Tj	153	77	230
14-1	25	18	43
2	43	20	63
3	40	17	57
4	45	22	67
Tj	153	77	230
15-1	21	12	33
2	68	38	106
3	44	13	57
4	20	14	34
Tj	153	77	230
16-1	88	45	133
2	63	32	95
Tj	151	77	228
17-1	89	52	141
2	64	25	89
Tj	153	77	230

Var #	I	II	Ti
18-1	14	14	28
2	18	8	26
3	27	17	44
4	17	9	26
5	3	1	4
6	11	3	14
Tj	90	52	142
19-1	37	18	55
2	64	31	95
3	52	28	80
Tj	153	77	230
20-1	80	38	118
2	38	22	60
3	35	17	52
Tj	153	77	230
21-0	68	41	109
1	80	31	111
2	5	5	10
Tj	153	77	230
22-0	21	16	37
1	98	52	150
2	22	5	27
3	12	4	16
Tj	153	77	230
23-0	124	59	183
1	25	18	43
2	4	0	4
Tj	153	77	230
24-0	138	68	206
1	15	9	24
Tj	153	77	230
25-0	106	52	158
1	35	12	47
2	7	5	12
3	5	8	13
Tj	153	77	230

A8: Technological Behavior, Distribution by Variables
(I Job Committed; II Non-Job)

Var #	I	II	Ti
11-1	33	14	47
2	33	11	44
3	35	15	50
4	31	14	45
5	27	17	44
Tj	159	71	230
12-1	14	7	21
2	81	34	115
3	50	21	71
4	14	9	23
Tj	159	71	230
13-1	20	6	26
2	70	22	92
3	69	43	112
Tj	159	71	230
14-1	33	10	43
2	44	19	63
3	35	22	57
4	47	20	67
Tj	159	71	230
15-1	22	11	33
2	73	33	106
3	40	17	57
4	24	10	34
Tj	159	71	230
16-1	101	32	133
2	57	38	95
Tj	158	70	228
17-1	98	43	141
2	61	28	89
Tj	159	71	230

Var #	I	II	Ti
18-1	19	9	28
2	17	9	26
3	32	12	44
4	20	6	26
5	3	1	4
6	8	6	14
Tj	99	43	142
19-1	37	18	55
2	68	27	95
3	54	26	80
Tj	159	71	230
20-1	83	35	118
2	41	19	60
3	35	17	52
Tj	159	71	230
21-0	70	39	109
1	80	31	111
2	9	1	10
Tj	159	71	230
22-0	21	16	37
1	101	49	150
2	24	3	27
3	13	3	16
Tj	159	71	230
23-0	129	54	183
1	28	15	43
2	2	2	4
Tj	159	71	230
24-0	140	66	206
1	19	5	24
Tj	159	71	230
25-0	103	55	158
1	36	11	47
2	9	3	12
3	11	2	13
Tj	159	71	230

A9: General Behavior, Distribution by Variables
(I Job Committed; II Non-Job)

Var #	I	II	Ti
11-1	14	33	47
2	10	34	44
3	11	39	50
4	12	33	45
5	7	37	44
Tj	54	176	230
12-1	4	17	21
2	30	85	115
3	15	56	71
4	5	18	23
Tj	54	176	230
13-1	9	17	26
2	20	72	92
3	25	87	112
Tj	54	176	230
14-1	10	33	43
2	16	47	63
3	11	46	57
4	17	50	67
Tj	54	176	230
15-1	10	23	33
2	24	82	106
3	13	44	57
4	7	27	34
Tj	54	176	230
16-1	39	94	133
2	15	80	95
Tj	54	174	228
17-1	35	106	141
2	19	70	89
Tj	54	176	230

Var #	I	II	Ti
18-1	7	21	28
2	8	18	26
3	11	33	44
4	6	20	26
5	2	2	4
6	2	12	14
Tj	36	106	142
19-1	8	47	55
2	21	74	95
3	25	55	80
Tj	54	176	230
20-1	30	88	118
2	16	44	60
3	8	44	52
Tj	54	176	230
21-0	20	89	109
1	33	78	111
2	1	9	10
Tj	54	176	230
22-0	9	28	37
1	38	112	150
2	5	22	27
3	2	14	16
Tj	54	176	230
23-0	45	138	183
1	9	34	43
2	0	4	4
Tj	54	176	230
24-0	47	159	206
1	7	17	24
Tj	54	176	230
25-0	35	123	158
1	13	34	47
2	4	8	12
3	2	11	13
Tj	54	176	230

A10: Informal Behavior, Distribution by Variables
(I Job Committed; II Non-Job)

Var #	I	II	Ti
11-1	7	40	47
2	5	39	44
3	5	45	50
4	6	39	45
5	5	39	44
Tj	28	202	230
12-1	5	16	21
2	14	101	115
3	7	64	71
4	2	21	23
Tj	28	202	230
13-1	6	20	26
2	11	81	92
3	11	101	112
Tj	28	202	230
14-1	5	38	43
2	13	50	63
3	5	52	57
4	5	62	67
Tj	28	202	230
15-1	5	28	33
2	16	90	106
3	5	52	57
4	2	32	34
Tj	28	202	230
16-1	18	115	133
2	10	85	95
Tj	28	200	228
17-1	16	125	141
2	12	77	89
Tj	28	202	230

Var #	I	II	Ti
18-1	4	24	28
2	6	20	26
3	3	41	44
4	3	23	26
5	0	4	4
6	1	13	14
Tj	17	125	142
19-1	7	48	55
2	10	85	95
3	11	69	80
Tj	28	202	230
20-1	16	102	118
2	7	53	60
3	5	47	52
Tj	28	202	230
21-0	14	95	109
1	13	98	111
2	1	9	10
Tj	28	202	230
22-0	3	34	37
1	21	129	150
2	4	23	27
3	0	16	16
Tj	28	202	230
23-0	23	160	183
1	5	38	43
2	0	4	4
Tj	28	202	230
24-0	23	183	206
1	5	19	24
Tj	28	202	230
25-0	17	141	158
1	9	38	47
2	1	11	12
3	1	12	13
Tj	28	202	230

B2a: Teacher-Specialism Orientations, Distribution by Variables
3-answer responses
(I Specialism; II Balanced; III Teaching)

Var #	I	II	III	Ti
11-1	17	19	11	47
2	15	22	7	44
3	15	25	10	50
4	16	20	9	45
5	11	18	15	44
Tj	74	104	52	230
12-1	8	9	4	21
2	40	55	20	115
3	22	27	22	71
4	4	13	6	23
Tj	74	104	52	230
13-1	8	13	5	26
2	38	38	16	92
3	28	53	31	112
Tj	74	104	52	230
14-1	17	16	10	43
2	21	29	13	63
3	16	27	14	57
4	20	32	15	67
Tj	74	104	52	230
15-1	18	9	6	33
2	32	50	24	106
3	16	28	13	57
4	8	17	9	34
Tj	74	104	52	230
16-1	46	53	34	133
2	26	51	18	95
Tj	72	104	52	228
17-1	43	63	35	141
2	31	41	17	89
Tj	74	104	52	230

Var #	I	II	III	Ti
18-1	8	15	5	28
2	6	12	8	26
3	19	18	7	44
4	4	11	11	26
5	1	1	2	4
6	6	6	2	14
Tj	44	63	35	142
19-1	20	25	10	55
2	28	46	21	95
3	26	33	21	80
Tj	74	104	52	230
20-1	43	51	24	118
2	18	30	12	60
3	13	23	16	52
Tj	74	104	52	230
21-0	42	48	19	109
1	31	50	30	111
2	1	6	3	10
Tj	74	104	52	230
22-0	14	16	7	37
1	53	58	39	150
2	4	20	3	27
3	3	10	3	16
Tj	74	104	52	230
23-0	60	80	43	183
1	14	22	7	43
2	0	2	2	4
Tj	74	104	52	230
24-0	68	91	47	206
1	6	13	5	24
Tj	74	104	52	230
25-0	54	65	39	158
1	12	27	8	47
2	6	4	2	12
3	2	8	3	13
Tj	74	104	52	230

B2b: Teacher-Specialism Orientations, Distribution by Variables
2-answer responses
(I Specialism; II Balanced; III Teaching)

Var #	I	II	III	Ti
11-1	22	11	10	47
2	11	24	9	44
3	20	18	12	50
4	17	18	10	45
5	10	15	19	44
Tj	80	90	60	230
12-1	12	5	4	21
2	41	49	25	115
3	23	27	21	71
4	4	9	10	23
Tj	80	90	60	230
13-1	11	8	7	26
2	38	38	16	92
3	31	44	37	112
Tj	80	90	60	230
14-1	16	16	11	43
2	26	26	11	63
3	18	21	18	57
4	20	27	20	67
Tj	80	90	60	230
15-1	13	12	8	33
2	42	41	23	106
3	18	21	18	57
4	7	16	11	34
Tj	80	90	60	230
16-1	54	46	33	133
2	25	43	27	95
Tj	79	89	60	228
17-1	53	52	36	141
2	27	38	24	89
Tj	80	90	60	230

Var #	I	II	III	Ti
18-1	12	8	8	28
2	8	12	6	26
3	20	18	6	44
4	6	11	9	26
5	1	0	3	4
6	7	3	4	14
Tj	54	52	36	142
19-1	24	23	8	55
2	27	39	29	95
3	29	28	23	80
Tj	80	90	60	230
20-1	42	50	26	118
2	23	20	17	60
3	15	20	17	52
Tj	80	90	60	230
21-0	43	44	22	109
1	34	42	35	111
2	3	4	3	10
Tj	80	90	60	230
22-0	11	18	8	37
1	56	54	40	150
2	9	11	7	27
3	4	7	5	16
Tj	80	90	60	230
23-0	61	73	49	183
1	19	15	9	43
2	0	2	2	4
Tj	80	90	60	230
24-0	71	82	53	206
1	9	8	7	24
Tj	80	90	60	230
25-0	54	62	42	158
1	15	21	11	47
2	7	4	1	12
3	4	3	6	13
Tj	80	90	60	230

C1: Total Involvement, Teacher-Specialism Distribution

3-answer Resp.

	Job	Non-Job	Ti
Spec.	23	51	74
Bal.	23	81	104
Tea.	10	42	52
Tj	56	174	230

2-answer Resp.

	Job	Non-Job	Ti
Spec.	25	55	80
Bal.	22	68	90
Tea.	9	51	60
Tj	56	174	230

C2: Formal Organization Behavior, Teacher-Specialism Distribution

3-answer Resp.

	Job	Non-Job	Ti
Spec.	49	25	74
Bal.	71	33	104
Tea.	33	19	52
Tj	153	77	230

2-answer Resp.

	Job	Non-Job	Ti
Spec.	50	30	80
Bal.	65	25	90
Tea.	38	22	60
Tj	153	77	230

C3: Technological Behavior, Teacher Specialism Distribution

3-answer Resp.

	Job	Non-Job	Ti
Spec.	52	22	74
Bal.	72	32	104
Tea.	35	17	52
Tj	159	71	230

2-answer Resp.

	Job	Non-Job	Ti
Spec.	55	25	80
Bal.	67	23	90
Tea.	37	23	60
Tj	159	71	230

C4: General Behavior, Teacher-Specialism Distribution

3-answer Resp.

	Job	Non-Job	Ti
Spec.	21	53	74
Bal.	21	83	104
Tea.	12	40	52
Tj	54	176	230

2-answer Resp.

	Job	Non-Job	Ti
Spec.	19	61	80
Bal.	24	66	90
Tea.	11	49	60
Tj	54	176	230

C5: Informal Behavior, Teacher-Specialism Distribution

3-answer Resp.

	Job	Non-Job	Ti
Spec.	12	62	74
Bal.	12	92	104
Tea.	4	48	52
Tj	28	202	230

2-answer Resp.

	Job	Non-Job	Ti
Spec.	13	67	80
Bal.	12	78	90
Tea.	3	57	60
Tj	28	202	230

APPENDIX D. JOB INVOLVEMENT DISTRIBUTIONS BY VARIABLES

Variable	Tot. Inv.	Formal Inv.	Techn. Inv.	Gen. Inv.	Informal	N
11. School Size						
200 - 739	32%	72%	70%	30%	15%	47
740 - 897	27	64	75	23	11	44
880 - 1049	22	72	70	22	10	50
1050 - 1519	20	64	69	27	13	45
1520 - 2230	9	59	62	16	11	44
						(230)
Calculated x^2	2.6390	2.7310	1.9988	2.7737	0.6568	
(Rejection values of x^2, 4 d.f., .05 level = 9.49; .10 level = 7.78)						
12. I.E. Tea./Sch.						
1 teacher	28%	76%	67%	19%	24%	21
2, 3 teachers	28	67	70	26	12	115
4, 5 teachers	17	63	70	21	10	71
6, 7 teachers	26	65	61	22	9	23
						(230)
Calculated x^2	3.1338	1.2235	0.9425	0.9223	3.2752	
(Rejection values of x^2, 3 d.f., .05 level = 7.81; .10 level = 6.25)						
13. I.E. Tea./Dist.						
Less than 5	38%	81%	77%	35%	23%	26
5 - 20	27	72	76	22	12	92
Over 20	19	59	62	22	10	112
						(230)
Calculated x^2	5.1160	6.3940	5.7967	2.0333	3.4746	
(Rejection values of x^2, 2 d.f., .05 level = 5.99; .10 level = 4.61)						

Variable	Total Inv.	Formal Inv.	Techn. Inv.	Gen. Inv.	Informal	N
14. Tea. Experience						
Less than 3 yrs.	21%	58%	77%	23%	12%	43
3 - 5 years	30	68	70	25	21	63
5 - 10 years	18	70	61	19	9	57
Over 10 years	27	67	70	25	7	67
						(230)
Calculated x^2	3.0907	1.7956	2.8103	0.8185	6.2381	
(Rejection values of x^2, 3 d.f., .05 level = 7.81; .10 level = 6.25)						
15. Manuf. Work Exper.						
None	27%	64%	67%	30%	15%	33
1 - 3 years	30	64	69	23	15	106
4 - 7 years	16	77	70	23	9	57
Over 7 years	18	59	71	21	6	34
						(230)
Calculated x^2	5.2119	4.2102	0.1603	1.0692	2.9950	
(Rejection values of x^2, 3 d.f., noted in variable 14)						
16. Degree Status						
Bachelor's	27%	66%	76%	29%	14%	133
Master's	21	66	60	16	11	95
						(228)
Calculated x^2	1.0821	0.0006	6.6180	5.6158	0.4653	
(Rejection values of x^2, 1 d.f., .05 level = 3.84; .10 level = 2.71)						
17. Taking Courses Now						
Yes	25%	63%	70%	25%	11%	141
No	24	72	69	21	13	89
						(230)
Calculated x^2	0.0446	1.8927	0.0238	0.3666	0.2327	
(Rejection values of x^2, 1 d.f., noted in variable 16)						

Variable	Total Inv.	Formal Inv.	Techn. Inv.	Gen. Inv.	Informal	N
18. Course work Purpose						
Permanent certif.	21%	50%	68%	25%	14%	28
Enter Admin.	35	69	65	31	23	26
I. E. knowledge and skills	23	61	73	25	7	44
Teach. skills	23	65	77	23	12	26
Leave teaching	50	75	75	50	0	4
Other	21	79	57	14	7	14
						(142)
Calculated x^2	3.0359	4.2901	2.2068	2.6690	5.1521	
(Rejection values of x^2, 5 d.f., .05 level = 11.07; .10 level = 9.24)						
19. Freq. Outside Employment						
Regularly	18%	67%	67%	15%	13%	55
Occasionally	24	67	72	22	11	95
Rarely	29	65	68	31	14	80
						(230)
Calculated x^2	1.9779	0.1276	0.4555	5.2320	0.4428	
(Rejection values of x^2, 2 d.f., .05 level = 5.99; .10 level = 4.61)						
20. Tea. Assignment						
Unit Shop	24%	62%	64%	18%	13%	118
Comp. General	26	72	72	30	12	60
I. E. and other	10	50	90	10	10	52
						(230)
Calculated x^2	0.9885	0.3744	0.1796	2.4841	0.5446	
(Rejection values of x^2, 2 d.f., noted for variable 19)						

Variable	Tot. Inv.	Formal Inv.	Techn. Inv.	Gen. Inv.	Informal	N
21. Nat'l Ed. Assoc. Affiliations						
Non-member	24%	62%	64%	18%	13%	109
Member, only	26	72	72	30	12	111
Partic. member	10	50	90	10	10	10
						(230)
Calculated x^2	1.3227	3.5986	3.7225	5.0221	0.1122	
(Rejection values of x^2, 2 d.f., .05 level = 5.99; .10 level = 4.61)						
22. StateEd. Assoc. Affiliations						
Non-member	27%	57%	57%	24%	8%	37
Member, only	26	65	67	25	14	150
Comm. member	18	82	89	18	15	27
Recent officer	13	75	81	13	0	16
						(230)
Calculated x^2	2.0839	4.9090	8.9222	1.7451	3.4338	
(Rejection values of x^2, 3 d.f., .05 level = 7.81; .10 level = 6.25)						
23. Labor Organ. Affiliations						
Non-member	24%	68%	71%	24%	13%	183
Member, only	26	58	65	21	12	43
Partic. member	0	100	50	0	0	4
						(230)
Calculated x^2	1.3287	3.4956	1.1696	1.5086	0.5931	
(Rejection values of x^2, 2 d.f., noted in variable 21)						

Variable	Tot. Inv.	Formal Inv.	Techn. Inv.	Gen. Inv.	Informal	N
24. Trade Assoc. Affiliations						
Non-member	23%	67%	68%	23%	11%	206
Member	33	63	79	29	21	24
						(230)
Calculated x^2	1.1746	0.1946	1.2648	0.4826	1.8793	
(Rejection values of x^2, 1 d.f., .05 level = 3.84; .10 level = 2.71)						
25. Service Organ. Affiliations						
Non-member	24%	67%	65%	22%	11%	158
Member, only	32	75	77	28	19	47
Comm. member	0	58	75	33	8	12
Recent officer	23	38	85	15	8	13
						(230)
Calculated x^2	5.3421	6.3129	4.0315	1.7348	2.8440	
(Rejection values of x^2, 3 d.f., .05 level = 7.81; .10 level = 6.25)						

APPENDIX E. WORK ROLE ORIENTATION DISTRIBUTIONS BY VARIABLES

Variable	3-Answer Responses			2-Answer Responses			N
	Special.	Balanced	Teach.	Special.	Balanced	Teach.	
11. School Size							
200 - 739	36%	41%	23%	47%	32%	21%	47
740 - 879	34	50	16	25	55	20	44
880 - 1049	30	50	20	40	36	24	50
1050 - 1519	36	44	20	38	40	22	45
1520 - 2230	25	41	34	23	34	43	44
							(230)
	Calculated x^2 = 5.8600			Calculated x^2 = 15.4510			
	(Rej. level x^2, 8 d.f.: .05 level, 15.51; .10 level, 13.36)						
12. I.E. Tea./School							
1 teacher	38%	43%	19%	57%	24%	19%	21
2, 3 teachers	35	48	17	36	42	22	115
4, 5 teachers	31	38	31	32	38	30	71
6, 7 teachers	17	57	26	17	39	44	23
							(230)
	Calculated x^2 = 7.5552			Calculated x^2 = 11.0280			
	(Rej. level x^2, 6 d.f.: .05 level, 12.59= .10 level, 10.64)						
13. I.E. Tea./District							
Less than 5	31%	50%	19%	42%	31%	27%	26
5 - 20	41	41	18	41	41	18	92
Over 20	25	47	28	28	39	33	112
							(230)
	Calculated x^2 = 7.2562			Calculated x^2 = 8.4963			
	(Rej. level x^2, 4 d.f.: .05 level, 9.49; .10 level, 7.78)						

Variable	3-Answer Responses Special.	Balanced	Teach.	2-Answer Responses Special.	Balanced	Teach.	N
14. Teach. Experience							
Less than 3 yrs.	40%	37%	23%	37%	37%	26%	43
3 - 5 years	33	46	21	41	41	18	63
5 - 10 years	28	47	25	32	36	32	57
Over 10 years	30	48	22	30	40	30	67
							(230)
	Calculated x^2 = 2.1486			Calculated x^2 = 4.5100			
	(Rej. level x^2, 6 d.f.: .05 level, 12.59; .10 level, 10.64)						
15. Manuf. Work Exper.							
None	55%	27%	18%	40%	36%	24%	33
1 - 3 years	30	47	23	39	39	22	106
4 - 7 years	28	49	23	32	36	32	57
Over 7 years	24	50	26	21	47	32	34
							(230)
	Calculated x^2 = 9.6663			Calculated x^2 = 5.7423			
	(Rejection levels are the same as in variable 14)						
16. Degree Status							
Bachelor's	35%	40%	25%	40%	35%	25%	133
Master's	27	54	19	26	46	28	95
							(230)
	Calculated x^2 = 4.3033			Calculated x^2 = 5.1566			
	(Rej. level x^2, 2 d.f.: .05 level, 5.99; .10 level, 4.61)						
17. Taking Courses Now							
Yes	30%	45%	25%	38%	37%	25%	141
No	35	46	19	30	43	27	89
							(230)
	Calculated x^2 = 1.1319			Calculated x^2 = 1.3397			
	(Rejection levels are the same as in variable 16)						

Variable	3-Answer Responses			2-Answer Responses			N
	Special.	Balanced	Teach.	Special.	Balanced	Teach.	
18. Coursework Purpose							
Permanent certif.	28%	54%	18%	44%	28%	28%	28
Enter admin.	23	46	31	31	46	23	26
I.E. knowledge and skills	43	41	16	45	41	14	44
Teach. skills	16	42	42	23	42	35	26
Leave teaching	25	25	50	25	0	75	4
Other	43	43	14	50	21	29	14
							(142)
	Calculated x^2 = 13.6820			Calculated x^2 = 14.7190			
	(Rej. level x^2, 10 d.f.: .05 level, 18.31; .10 level, 15.99)						
19. Freq. Outside Employment							
Regularly	36%	46%	18%	43%	42%	15%	55
Occasionally	29	49	22	28	41	31	95
Rarely	32	42	26	36	35	29	80
							(230)
	Calculated x^2 = 1.9694			Calculated x^2 = 6.6780			
	(Rej. level x^2, 4 d.f.: .05 level, 9.49; .10 level, 7.78)						
20. Teaching Assignment							
Unit shop	37%	43%	20%	36%	42%	22%	118
Comp. General	30	50	20	38	33	29	60
I.E. and Other	25	44	31	29	38	33	52
							(230)
	Calculated x^2 = 3.9875			Calculated x^2 = 3.3351			
	(Rejection levels are the same as in variable 19)						

Variable	3-Answer Responses			2-Answer Responses			N
	Special.	Balanced	Teach.	Special.	Balanced	Teach.	
21. Nat'l Education Assoc. Affiliations							
Non-member	39%	44%	17%	39%	41%	20%	109
Member, only	28	45	27	31	38	31	111
Partic. Member	10	60	30	30	40	30	10
							(230)
	Calculated x^2 = 6.5298			Calculated x^2 = 4.1666			
	(Rej. level x^2, 4 d.f.: .05 level, 9.49; .10 level, 7.78)						
22. State Ed. Assoc. Affiliations							
Non-member	38%	43%	19%	30%	49%	21%	37
Member, only	35	39	26	37	36	27	150
Comm. member	15	74	11	33	41	26	27
Recent officer	19	62	19	25	44	31	16
							(230)
	Calculated x^2 = 14.4140			Calculated x^2 = 2.8120			
	(Rej. level x^2, 6 d.f.: .05 level, 12.59; .10 level, 10.64)						
23. Labor Organ. Affiliations							
Non-member	33%	44%	23%	33%	40%	27%	183
Member, only	33	51	16	44	35	21	43
Partic. member	0	50	50	0	50	50	4
							(230)
	Calculated x^2 = 3.9113			Calculated x^2 = 4.2424			
	(Rejection levels are the same as in variable 21)						

Variable	3-Answer Responses			2-Answer Responses			N
	Special.	Balanced	Teach.	Special.	Balanced	Teach.	
24. Trade Assoc. Affiliations							
Non-member	33%	44%	23%	34%	40%	26%	206
Member	25	54	21	38	33	29	24
							(230)
	Calculated x^2 = 0.9405			Calculated x^2 = 0.3844			
	(Rej. levels of x^2, 2 d.f.: .05 level, 5.99; .10 level, 4.61)						
25. Service Organ. Affiliations							
Non-member	34%	41%	25%	34	39%	27%	158
Member, only	25	58	17	32	45	23	47
Comm. member	50	33	17	58	33	9	12
Recent officer	15	62	23	31	23	46	13
							(230)
	Calculated x^2 = 7.5805			Calculated x^2 = 7.0323			
	(Rej. levels of x^2, 6 d.f.: .05 level, 12.59; .10 level, 10.64)						

APPENDIX F. JOB INVOLVEMENT DISTRIBUTIONS BY WORK ROLE ORIENTATIONS

Orientation	Tot. Inv.	Formal Inv.	Techn. Inv.	Gen. Inv.	Informal	N
3-Answer Responses						
Specialism	31%	66%	70%	28%	16%	74
Balanced	22	68	69	20	12	104
Teaching	19	63	67	23	8	52
						(230)
Calculated x^2	2.8420	0.3643	0.1265	1.6187	2.1470	
(Rejection values of x^2, 2 d.f., .05 level = 5.99; .10 level = 4.61)						
2-Answer Responses						
Specialism	31%	63%	69%	24%	16%	80
Balanced	24	72	74	27	13	90
Teaching	15	63	62	18	5	60
						(230)
Calculated x^2	4.9159	2.1681	2.7626	1.3965	4.2444	
(Rejection values are the same as above)						