This is to certify that the

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A Comparison of Selected Self-Concepts and Other Characteristics of Secondary Students Enrolled in Utah Non-Vocational Classes

presented by

William D. Woolf

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Business and Distributive Education

Peter G. Haines

Major professor

Date August 11, 1972

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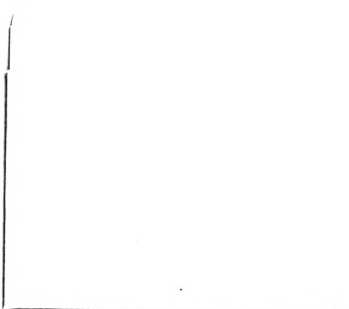

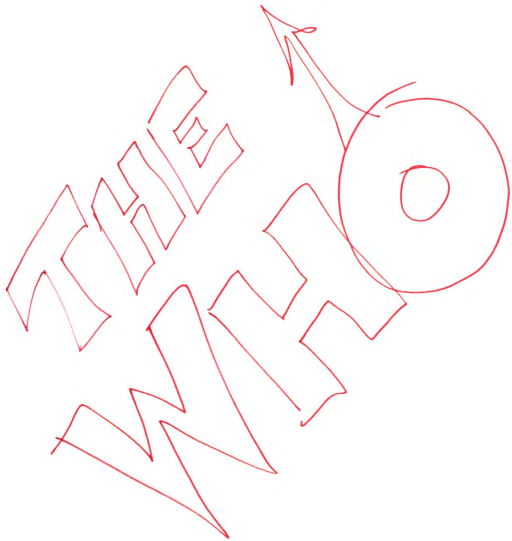
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A COMPARISON OF SELECTED SELF-CONCEPTS AND OTHER CHARACTERISTICS OF SECONDARY STUDENTS ENROLLED IN UTAH SENIOR VOCATIONAL AND NON-VOCATIONAL CLASSES

By

William D. Woolf

AN ABSTRACT

Submitted to
Michigan State University
in partial fulfillment of the requirements
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(Business and Distributive Education)

College of Education

1972

ABSTRACT

A COMPARISON OF SELECTED SELF-CONCEPTS AND OTHER CHARACTERISTICS OF SECONDARY STUDENTS ENROLLED IN UTAH SENIOR VOCATIONAL AND NON-VOCATIONAL CLASSES

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Purpose of the Study

This study was undertaken to determine selected characteristics of students enrolled in Utah senior vocational classes and to identify ways in which vocational students were either the same or different from their non-vocational peers. The variables of particular importance were: sex, place of residence, intelligence, academic achievement, socio-economic status, self-concept of academic ability, self-concept of vocational ability, and perceived parents', friends', and teachers' evaluations of academic ability. The influence of the variables intelligence, sex, place of residence, academic achievement, and socio-economic status upon the self-concept variables was of specific interest.

Procedures

The population samples were Utah high school seniors. Four sampling techniques were employed: (1) cluster sampling of total schools and total classes, (2) stratified sampling of vocational specialties and

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and place of residence, (3) random sampling of specific schools, and (4) non-random sampling of the rural school. Selected were seven high schools. Of the 674 students tested, 121 were enrolled in distributive education, 159 in office education (shorthand-transcription), 95 in agriculture education, 121 in home economics, 86 in trade and industry (automotives), and 92 in English or social studies classes.

Four instruments were administered: (1) The Michigan State General Self-Concept of Academic Ability Scale, (2) The Wamhoff Self-Concept of Vocational Ability Scale, (3) The Science Research Associates' Army General Classification Test (First Civilian Edition), and (4) A Self-Report Questionnaire. The Duncan Socio-Economic Index was used to determine students' socio-economic levels.

A randomized block statistical design was used for the test of significance. An analysis of variance, analysis of covariance, and correlation coefficients were the statistical treatments employed.

Findings

Only the major findings of the project are presented herein:

1. When vocational and non-vocational students were compared, only two variables were significantly different, academic achievement and self-concept of vocational ability. The non-vocational students scored significantly higher than the vocational students on the variable of academic achievement. The vocational students scored significantly higher on the variable self-concept of vocational ability.
2. In the comparison of each vocational specialty class with the

non-vocational control class, a substantial degree of difference was found. The distributive student was significantly lower on intelligence and academic achievement scores, but significantly higher on self-concept of vocational ability scores. The office education student scored significantly higher on intelligence and academic achievement variables. The agriculture student scored significantly lower on intelligence, academic achievement, socio-economic status, and self-concept of academic ability; but significantly higher on self-concept of vocational ability scores. The home economics student did not depart significantly from the non-vocational student on any variable. Trade and industry students scored significantly higher than the control group on the intelligence variable, but significantly lower on the academic achievement variable.

3. When the above vocational student characteristic profiles were tested for consistency across schools, the distributive, agriculture, and trade and industry classes were consistent, without exception, from school to school. The office education and home economics classes were not consistent in student characteristics comparing schools.
4. All independent variables (sex, intelligence, socio-economic status, grade point average) except place of residence, influenced significantly self-concept scores.
5. The variables self-concept of academic ability and self-concept of vocational ability behaved differently for most statistical tests undertaken in the study.

Conclusions

The major conclusions of the study are:

1. The two groups, vocational and non-vocational, were more similar than they were different, but the characteristics registering a significant difference were important for educational purposes. Vocational classes enrolled less academically capable students than the non-vocational classes, but these same students possessed an enhanced perception of their abilities to perform in an occupation. There was some justification in giving credit for this enhanced perception to the vocational classes even though this study could not fully substantiate the claim.
2. The vocational specialties were not homogeneous on the variables tested. Agriculture, distribution, and trade and industry (automotives) classes could be branded "dumping ground" classes. The programs enrolling females, on the other hand, were concluded to be catering to the educationally superior students when compared to non-vocational students.
3. The variables of sex, intelligence, grade point average, and socio-economic status did influence the results of the study. The place of residence variable did not.
4. The variable self-concept of academic ability on self-concept of vocational ability did measure different dimensions of self-concept.

Recommendations

The major recommendations advanced related to ideas for further research but also included the following points. It is recommended that:

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1. Utah school administrators and teachers examine the practice of enrollment procedures in vocational education currently used by the schools in the state.
2. Teaching practices in the agriculture, distributive, and trade and industry (automotives) classes should reflect the fact that they are teaching students significantly lower in academic performance than their non-vocational peers.
3. Teacher preparation programs for the agriculture, distributive, and trade and industry (automotives) teachers should implement material and practices to better prepare teachers to teach students exhibiting the stated characteristics.

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CHAPTER I

THE PROBLEM

Interest in students as individual learners appears to have gained considerable momentum as a focus of educational action.[1] This focus is a reversal of the "content" emphasis temporarily spurred by the advent of the Russian Sputnik.[2] Educational priorities of this century have been directed to students *per se*, as opposed to a subject-matter approach.

Several factors have operated, in the past as well as currently, to stimulate a theoretical and structural change in favor of the individual student. There appear to be at least seven important forces suggesting that this student focus is more than a temporary interlude. The seven factors are: (1) Student Demands. A sharp increase in student protests within the public school system has occurred.[3] High school students have followed the lead of their college counterparts and have been adamantly vocal that educators make the system more relevant to their

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[1]Gordon Edmund, "Introduction" to American Educational Research Association, Review of Educational Research: Education for Socially Disadvantaged Children, Vol. 40, No. 1 (February, 1970), p. 11.

[2]Lawrence A. Cremin, The Transformation of the School, (New York: Alfred A. Knopf, 1961), p. 347.

[3]K. A. Erickson, et al., ACTIVISM in Secondary Schools: Analysis and Recommendations, Bureau of Education Research and Science, College of Education (Eugene, Oregon: University of Oregon, 1969).

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needs and interests. Educators have responded by appointing students to various faculty committees and in many ways have met student demands. A pronounced shift in educational philosophy concerning the roles of students in the educational process has taken place. (2) Racial Conflicts. Race relations and economic problems of minority ethnic groups in the nation have spurred interest in individuals. A study of such groups, and individual adjustment within these groups, has attracted the interest of the nation's scholars. The present educational task is to search, find, and develop individual talent within these groups in order to achieve education's goal of equal educational opportunity.[4] America is striving to achieve this goal, and an educational system with new dimensions is bound to evolve. (3) Legal Rights. As the nationalistic spirit of minority and ethnic groups has increased, individuals have begun to fight for their legal rights. The courts have been challenged to enforce legislation regarding civil rights.[5] The government has been coaxed and threatened to administer contracts in favor of the disadvantaged and to intercede in their issues and causes. These legal maneuvers have accelerated national awareness of the importance of the individual. A structural change has resulted within societal

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[4]James S. Coleman, Equality of Educational Opportunity, U. S. Dept. of Health, Education, and Welfare, Superintendent of Documents, Catalogue No. FS5-238-38001, (Washington: Government Printing Office, 1966).

[5]Coretta Scott King, My Life With Martin Luther King, Jr. (New York: AVON Books, 1969), p. 273. NOTE: This book is one of many that documents the struggle of the blacks in challenging the courts to enforce local and national governments to honor the constitutional rights of black people. The Voting Rights Bill signed in August 6, 1965, and the Civil Rights Act of 1964 mean nothing unless they are enforced.

institutions with interest in individuals as its base. (4) Position of Educational Theorists. In his book of readings, Seigel suggested that learning theorists are now building learning models with the individual as the central focus. He concluded:

> . . . that all of the contributors reject the reactive-passive learner model (of learning), that is, the learner is a person to whom something is done and that . . . all of the chapters tend to emphasize the individual learner. Classes do not learn; students learn.[6]

Bloom, also, pointed out that 95 percent of all students can achieve a set of educational objectives in any course if the right teaching strategies are employed and if time is allowed to vary rather than be held as a constant.[7] These theorists are basically calling for the restructuring of the educational system in behalf of individuals rather than the masses. (5) Curriculum Planner Actions. Educators have designed special curricula to more fully meet the needs of various types of students. Special education programs for students classified as disadvantaged, as well as the proliferation of education course offerings on the basis of student interests, are the most obvious results of the individual interest approach in the public schools. Educational practice has swung so far to meet individual needs that it is unlikely that its direction will be abandoned in the near future. (6) Administrative Actions. The key word in educational jargon of the 1970's is "accountability." This concept has emphasized that every student should

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[6]Lawrence Seigel, Instruction: Some Contemporary Viewpoints, (San Francisco: Chandler Publishing Company, 1967),.p. 320.

[7]Benjamin S. Bloom, "Learning for Mastery," Evaluation Comment, Center for the Study of Evaluation of Instructional Programs, University of California, Los Angeles, California; Vol. 1, No. 2 (May, 1968).

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be educationally successful. Administrators are responding with techniques for making the school environment more flexible to meet the needs of each student. Modular scheduling is an attempt to modify the lock-step class period concept currently in vogue in most schools. Individual study techniques, team teaching arrangements, physical removal of school walls, the inclusion of individual-study carrels, computer-assisted instruction, and programmed learning are but a few techniques adopted by administrators to meet the pressures of critics to individualize instruction. (7) Prediction of Academic Performance. Taxpayers frequently have turned down educational requests for more money while, at the same time, demanded that educators be more efficient with the money already allocated. One technique investigated to meet the challenge of efficiency is prediction of academic performance. Lavin suggested that prediction of academic success is a promising procedure to improve educational efficiency since screening and diagnosing student problems can save inappropriate educational effort.[8]

Each of the above forces have been influential in compelling educators to develop stronger interest in individual learners rather than being content with the wholesale treatment of students in groups.

Consistent with the above forces, educational psychologists have formulated theories to meet the needs of students as individuals. Two important theorists interested in students per se are Glaser and De Cecco. These two writers, particularly, underscored the importance of knowing the student before instruction begins.

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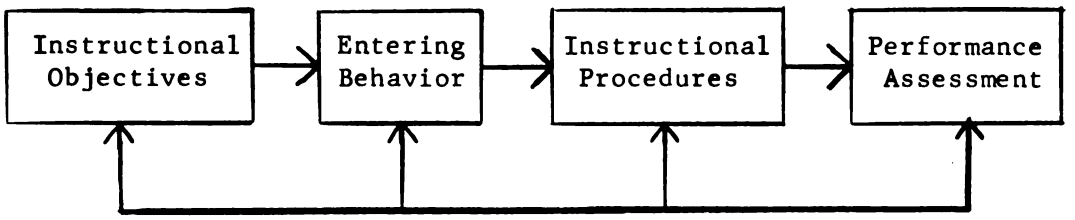
[8]David E. Lavin, The Prediction of Academic Performance (New York: Russell Sage Foundation, 1956)..

Glaser (1962) developed a teaching model in which an assessment of "entering characteristics" was the second important stage, and this step preceded the formulation and implementation of the instructional process. His complete model follows:[9]



De Cecco also displayed an interest in "entering characteristics" and gave a functional definition of the term:

> Entering behavior describes the student's level before instruction begins. It refers to what he has previously learned, his intellectual ability and developmental state, his motivational state, and certain social and cultural determinants of his learning ability.[10]

Many other educational theorists have been cognizant of the need to investigate various learner characteristics before an instructional system is formulated. Learner characteristics are an important input to the planning of any educational curriculum. The above model is adamant that collecting knowledge about a student is not merely an undertaking completed once and then abandoned, but is a continuous process.

Educational administrative practice has long reflected the above theorists' position. For a number of decades, formal data have been collected about selected student characteristics. Some of the more important scores gathered included: intelligence, aptitudes, interests,

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[9]John P. De Cecco, The Psychology of Learning and Instruction: Educational Psychology (New Jersey: Prentice-Hall, 1968), pp. 11-12.

[10]Ibid., p. 12.

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prior academic achievement, socio-economic level, aspirations, and creativity. Also, the chronological age grade system (grades 1-12) has been consistently adhered to, which attempts to assure that students have the needed prerequisites for a particular level of study.

Teaching practices within the classroom have also portrayed the need to recognize students as individual learners. Grouping procedures, enrichment units, and individual study techniques are but a sample of classroom teaching techniques designed to benefit individuals.

All the above practices reflect a concern for the state of the learner per se and are an important input to the process of formulating and modifying school curricula. Each concept mentioned has contributed to making education relevant to the student's interests, ability, and readiness.

This study investigates one of the social, environmental, and personal determiners of individual behavior. Brookover,[11] Coleman, [12] Rosenthal, [13] and others postulate that individualized interpretation of the social environment is a determiner of a student's ability and willingness to respond to the current educational structure. They hypothesize that the unique interpretation an individual makes of social and cultural factors are, in part, an explanation for the relatively poor academic

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[11]William B. Brookover, Self-Concept of Ability and School Achievement I. II. III., Human Learning Research Institute, (East Lansing, Michigan: Michigan State University, 1967).

[12]Coleman, loc. cit.

[13]Robert Rosenthal, et al., "Changing Children's I.Q. by Changing Teachers' Expectations," Chapter for M. G. Gottsegen, et al., (Eds.) Professional School Psychology, Vol. III (New York: Grune and Stratton, 1961).

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achievement of whole groups of students, e.g., the ghetto black. To test their theories, Brookover and others have devised instruments to assess the effect of environmental social-cultural factors that influence an individual's behavior. These instruments are measures of "self-concept."

STATEMENT OF PROBLEM

Description and analysis of the relationships, directions, and differences between dimensions of selected self-concepts and other variables as disclosed by vocational and non-vocational students was the central problem of this study. Emphasis was given to likenesses and differences between vocational and non-vocational students involving two components of environmental importance to student performance; namely, self-concept of academic ability and self-concept of vocational ability. Other characteristics such as intelligence, socio-economic status, place of residence (rural--urban), academic achievement, and sex were important variables compared.

Seven hypotheses have been formulated to give the study specificity:

H_1: There will be a significant difference between vocational and non-vocational students' mean scores of intelligence, academic achievement, and socio-economic status.

H_2: There will be a significant difference between vocational and non-vocational students' mean scores of academic ability, self-concept of vocational ability, perceived parental evaluation of academic ability, perceived friends' evaluation of academic ability, and perceived teachers' evaluation of academic ability. This significant difference will hold firm when the variables of intelligence, academic achievement, and socio-economic status are controlled.

H_3: Significant differences exist among vocational students' measures of self-concepts when using sex, intelligence, socio-economic status, place of residence, and grade point average as treatment effects.

H_4: Students participating in a vocational class exhibit an enhanced self-concept of vocational ability.

H_5: Significant differences in self-concept, intelligence, school achievement, and socio-economic status scores will exist when comparing students in each vocational speciality (distributive education, office education, agriculture education, home economics, and trade and industry) with non-vocational students under circumstances where intelligence, grade point average, and socio-economic status variables are controlled.

H_6: Significant differences in all variable scores (intelligence, academic achievement, socio-economic status, self-concept of academic ability, self-concept of vocational ability, perceived parents' evaluation of academic ability, perceived friends' evaluation of academic ability, and perceived teachers' evaluation of academic ability) exist when comparing vocational specialities across each of the sample schools.

H_7: The measures of self-concept of academic ability and self-concept of vocational ability measure separate dimensions of self-concept.

OBJECTIVES OF THE STUDY

The broad objectives of this study were to: (1) gain information regarding the characteristics of students who have enrolled in a Utah vocational class, (2) supply research data to an emerging theory of self-concept, and (3) draw inference from the data collected to educational administrative teaching practice.

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The specific objectives to be achieved in this study can best be stated in the format of relationships to be investigated. The following relationship questions are specific problems to be researched: (1) Does a statistical relationship exist between vocational and non-vocational students with respect to the variables intelligence, academic achievement, and socio-economic status? (2) Does a statistical relationship exist between vocational and non-vocational students with respect to the variables self-concept of academic ability, self-concept of vocational ability, perceived parents' evaluations of academic ability, perceived teachers' evaluations of academic ability, and perceived friends' evaluations of academic ability? Do the variables of place of residence, sex, socio-economic status, and intelligence enhance this relationship? If there is a difference between vocational and non-vocational students with regard to the self-concept variables, do the background variables explain the difference? (3) Does a statistical relationship exist between the variables self-concept of academic ability measures and self-concept of vocational ability measures?

SIGNIFICANCE OF THE STUDY

This study can be important in at least four ways to the general field of education.

Knowledge of the Vocational Student

Little empirical data exist relative to the question: Who are the vocational education students? The 1968 Amendments to the 1963 Vocational Education Act put great stress on expansion of vocational education to serve greater numbers of youth, but inadvertently raised

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questions: (a) Who is vocational education now serving? (b) Why is the vocational student enrolled in the vocational class? (c) Are there unique characteristics about the vocational student? and (d) Is it possible for educators to predict who the vocational student will be?

There are at least two important reasons to study characteristics of vocational students. The first reason is to assure that instructional content and strategy is truly relevant to student needs, interests, and aspirations. Vocational educators have long proclaimed that "vocational education meets the needs and interests of the students," but does it? The review of literature reveals relatively little specific research completed in the area of vocational student characteristics. As mentioned before, measures of self-concept will allow an objective analysis of the student's motivational set that will give aid to teachers, counselors, and administrators in the formulation of specific instructional programs.

The second reason is to assure equal educational opportunity. The practice of establishing special "tracks" within the school system has come under attack since, it is claimed, that practice denies equal educational opportunity to all students. The public school system in America has always been viewed as a structure whereby any person, regardless of the social position of his parents, can gain upward mobility from a lower status up to a higher social status if he has the ability and applies himself.[14]

Recently, certain educational practices have been attacked as violating the concept of equality in education. For example, the

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[14]David K. Cohan, "Immigrants and the Schools," Review of Educational Research, Vol. 40, No. 1 (February, 1970).

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tracking system, often used in the nation's schools, is accused of being an educational practice denying equality in education. In the Washington, D. C. judgment, the school board's educational practice of tracking was declared unconstitutional on the grounds that the system does not offer equal opportunity of education to all students; and, as a result, Judge Skelly Wright (1967) ordered the school board to abandon the practice.[15] The evidence used to support the judgment showed that the tracking system fed on unequal social environments rather than on some innate student ability, as was claimed by the school board.[16] It was found that students of the lower tracks were predominantly the low socio-economic and Negro students. The academic expectation of the school climate was low; and, therefore, it was concluded that the student achievement level was low. This system, then, clearly discriminated against certain groups of students and did not afford them equal opportunity of education.

Brookover and others have been critical of the vocational education system, viewing it as one of the tracks and, therefore, not offering a reasonable academic "press" to permit equal opportunity of education for students exposed to that track.[17] Social environmental factors are hypothesized to be the determiners (as in the Skelly Wright decision) of low self-concept of academic ability and, therefore, low academic achievement. One purpose of this dissertation is to investigate the magnitude and direction of vocational students' self-perceptions.

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[15]William B. Brookover and Edsel C. Erickson, Sociological Foundation of Educability, First Draft to be Published by Allyn E. Bacon, Chapter IV., pp. 2-8.

[16]Ibid.

[17]Ibid. Chapter IV., p. 8.

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The Social-Psychological Construct of Self-Concept

Brookover's self-concept studies deal with the student's self-concept of academic ability. However, he also stresses that individuals have many self-concepts.[18] This study will investigate another area of concept of self, namely, the self-concept of vocational ability. The use of this measure will add to the information (theory and practice) of the construct self-concept.

Study of "Across the Board" Vocational Education

Past research in vocational education has tended to concentrate on the individual specialty areas. Generally, specialty has come first and the broad field second. There are, however, common problems that can be organized on a functional basis; and these problems transcend each specialty area boundary. The quantity and quality of research applicable across specialty areas of vocational education must be given greatly increased emphasis. As evidence of this need, consider the fact that the 1968 Amendments to the 1963 Vocational Education Act did not specifically mention specialty areas at all, but allocated funds for "across the board" problems.[19] Congress has pointed the way, and it is imperative that vocational educators respond. This study investigates selected dimensions of the broad field of vocational education.

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[18]William B. Brookover, et al., "Self-Concept and Student Role Achievement," (paper presented at the American Education Research Associate Meeting, Los Angeles, February, 1969), p. 2.

[19]Public Law 90-576, 90th Congress, H. R. 18366, Amendments to the Vocational Education Act of 1963.

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Application of Social Science Theories to Education

There is a need for educators to form closer ties with concepts, theories, principles, and practices of the social and physical sciences. This statement, however simplistic, needs to be made; it is inefficient for each discipline to initiate research that another discipline has previously investigated. Each discipline has a backlog of information that could possibly be used by another. Studies to utilize social science theories are needed in education--particularly vocational education. Clinical psychologists, and more recently sociologists, have used self-concept theory to bring about behavioral change. Behavioral change is also the direct responsibility of the educator. This study takes the sociological and psychological construct of self-concept and applies it to an educational setting.

TERMS USED IN THIS STUDY

The definitions that follow are imposed on the study by the researcher, but each has been used previously or assumed by some group. The self-concept definitions are taken from Brookover's or Wamhoff's study quoted often in this research document. The definitions relating to vocational education are drawn from observation of practices undertaken by the State Board of Education within the State of Utah, i.e., students enrolling in a vocational class are counted as vocational students.

Achievement: A measure of a student's past success in school as assized by his grade point average. The grade point average is that reported by the school on the report card which is calculated on the

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basis of grades given by teachers for each course on his total school program.

Agriculture Student: A student enrolled in a senior agriculture class designed to prepare workers in agriculture production and closely related career fields

Distributive Education Student: A student enrolled in a senior distributive education or marketing class designed to prepare workers at the job entry level for the field of marketing, retailing, sales, or other distribution industries.

Home Economics Student: A student enrolled in a senior home economics class designed to prepare students for various homemaking or related career roles.

Non-Vocational Student: A student enrolled in a regular academic program and not presently, or in previous years, associated with a vocational class; those enrolled in an English or social studies class.

Office Education Student: A student enrolled in a senior shorthand or transcription class designed to prepare the student for office tasks and responsibilities in the business community.

Perceived Friends' Evaluation of Academic Ability: A student's perception of his friends' evaluation of his ability to achieve in school in relation to other students. (PFAA)

Perceived Parents' Evaluation of Academic Ability: A student's perception of his parents' evaluation of his ability to achieve in school in relation to other students. (PPAA)

Perceived Teachers' Evaluation of Academic Ability: A student's perception of his teachers' evaluation of his ability to achieve in school in relation to other students. (PTAA)

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Rural Student: A student who resides in a community of 5,000 individuals or less and whose economic base is chiefly agriculture. This community must not be a suburb to an urban center.

Self-Concept of Academic Ability: The evaluation a person makes of himself with regard to his ability to achieve in academic tasks in general, especially as compared with others. (SCAA)

Self-Concept of Vocational Ability: An evaluation a person makes of himself with respect to his ability to achieve in occupational tasks as compared to others. (SCVA)

Socio-Economic Status: A measure of the father's (or head of the household) occupational level as estimated by the Duncan Scale. (SES)

Trade and Industry Student: A student enrolled in a senior automotive class designed to prepare students for employment in the automobile repair field.

Vocational Class: A high school class labeled agriculture, distribution, home economics, office, or trade and industry. For the purpose of this study, the definition includes only shorthand-transcription classes within the office education area and only automotive classes within the trade and industry specialty.

Vocational Education: Programs, services, or activities related to vocational or technical training or retraining provided under the Vocational Education Act of 1963 as amended, 20 USC 1241-1391.

Vocational Education--the Broad Field: A macro perspective of vocational education which extends beyond the traditional boundaries of agriculture, distribution, home economics, office, or trade and industry areas to the broad concept of preparing youth or adults for work in the heterogeneous array of occupations that exist in the labor market.

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The "broad" approach emphasizes the study of problems, functions, or procedures that are common to all vocational education rather than concentrating on any one vocational specialty area.

Vocational Student: A student enrolled in one or more classes in Utah public schools eligible for reimbursement with Federal funds in the areas of office, distributive, trade and industry, home economics, or agriculture education.

BASIC ASSUMPTIONS OF THE STUDY

Underlying the study are the following basic assumptions:

1. Student test performance on the dependent variables represents a valid index of the important components to learning and to choosing a career. However, learning and choosing a career are not restricted to only these components.

2. Self-concept of ability is phenomenological--i.e., known to the subject. This assumption makes possible the use of a self-report instrument rather than projective techniques. This assumption is supported by Wylie.[20]

3. The student has been truthful and accurate in his responses to the self-concept questions.

4. A self-concept of ability is a functionally limiting factor--that is, a positive or high self-concept is necessary but not sufficient

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[20]Ruth C. Wylie, The Self-Concept: A Critical Survey of Pertinent Research Literature (Lincoln: University of Nebraska Press, 1961), pp. 319-20.

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for a corresponding behavior exhibited by the student. This is the same assumption made in the Brookover studies and applies to this study.[21]

LIMITATIONS AND DELIMITATIONS

The limitations and delimitations that are important to the interpretation of the study include:

1. Students may exhibit mixed motives for enrolling in vocational classes; and, therefore, a homogeneous group of career-oriented pupils are not assembled for study.

2. Measures of prior academic achievement of students were limited to the student's grade point average in raw form.

3. The Duncan Index Measure of Socio-Economic Status is not sensitive enough to differentiate between occupational positions within the agriculture industry. This lack of sensitivity did appear to hamper the study of the variables place of residence and socio-economic status in this project.

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[21]Brookover, et al., Self-Concept of Ability and School Achievement, III.

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CHAPTER II

A REVIEW OF LITERATURE

In the past decade studies of self-concept have greatly increased numerically. The following review of literature contains a synopsis of research completed in the area of self-concept. An exhaustive review herein is not pretended, but rather a selective treatment of only those studies with relevance to the context of this specific research effort is presented. In particular, this chapter is organized around the following classifications: (1) Self-Concept Theory, (2) Self-Concept of Vocational Ability, (3) Self-Concept of Sub-Groups Within the General Population, (4) A Study of Vocational Students as a Sub-Group Within the General Student Population, (5) Modification of Self-Concept, (6) Self-Concept Instruments, and (7) Study Variables.

The classifications of "Self-Concept Theory" and "Self-Concept of Vocational Ability" were included to give the reader the background information necessary to understand the frame of reference of the main variables of the study. The classifications "Self-Concept of Sub-Groups in the General Population" and "Study of Vocational Students" were prepared to illustrate the value of studying vocational students as a group. Each hypothesis (Chapter I) makes the assumption that this group is worthy of study. The classification "Modification of Self-Concept" was submitted since this study investigates the direction of self-concept change when comparing vocational and non-vocational students.

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Hypothesis 4 suggests that the vocational program is influential in modifying self-concept. The classifications "Instruments Used to Assess Self-Concepts" and "Important Study Variables" were prepared to supply pertinent data for the study design. These two are basic to all hypotheses except number 4.

SELF-CONCEPT THEORY

Readers desiring a complete review of self-concept theory are referred to Mead,[1] Wylie,[2] or Brookover.[3] This selective review is limited to studies dealing with the three important factors of: (1) the formation of the self-concept, (2) the components of a person's self-concept, and (3) the relationship of self-concept to behavior. These three factors appear to be most relevant in communicating the basic elements of self-concept theory.

Formation of a Person's Concept of Self

This self-concept study is based on the symbolic interactionist theory of George Mead which is summarized in the following quotation:

> I have pointed out then, that there are two general stages in the full development of the self. At the first of these stages, the individual's self is constituted simply by an organization of the particular attributes of other individuals towards themselves and towards one another in the specific social acts in which he participates with them. But at the second stage in the full development of the individual's self, that self is constituted not only

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[1]George Herbert Mead, Mind, Self, and Society (Chicago: The University of Chicago Press, 1934).

[2]Wylie, Passim.

[3]Brookover, et al., Self-Concept of Ability in School Achievement, III.

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> by an organization of these particular individual attributes, but also by an organization of the social attitudes of the generalized other, or the social group as a whole to which he belongs.[4]

Mead emphasized, then, that an individual's concept of self forms through an internal perception of other's reactions to him.

An individual's self-concept is formed not only through the interaction of one or two people, but also with his adjustment to the social force of the enlarged society. Hodgkins explicitly pointed to the influence of social values and group norms in the developmental process of one's self-concept.

> Self-concepts develop consistent with the meaning of experiences interpreted in the context of values and beliefs learned from primary reference groups. They provide the frame of reference within which one's self is perceived.[5]

Sebeson's views showed similarity with the above authors that self-concept is environmentally induced, not an inherited trait. She postulated that self-concept development within the individual begins to develop as a person's perceptive powers develop.

> The self-concept of an individual is viewed as a developmental phenomena resulting from the dynamic interaction between the individual and his environment. It is generally accepted that the self-concept as a precept is not present at birth, but begins to develop gradually as perceptive powers develop.[6]

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[4]George Herbert Mead, Mind, Self, and Society (Chicago: The University of Chicago Press, 1934), p. 158, cited by Ronald Nels Oman, Self-Concept of Occupational Ability and Related Characteristics in Community College Occupational Academic Students (Michigan State Univ., 1971), p. 4.

[5]Benjamin A. Hodgkins and Robert G. Stakenas, "A Study of Self-Concepts of Negro and White Youth in Segregated Environments," Journal of Negro Education, Vol. 38 (Fall, 1969), pp. 370-77.

[6]R. F. Bodwin, "The Relationship Between Immature Self-Concept and Certain Educational Disabilities," Dissertation Abstracts, 1959, No. 59-1,645, cited by Lucille Sebeson, "Self-Concept and Reading Disabilities," The Reading Teacher, Vol. 23, No. 5 (February, 1970), pp. 460-63.

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Elements of Self-Concept

What are the elements of self-concept? Sebeson postulated that self-concept has three dimensions: (1) liking for oneself, (2) satisfaction with one's attainment, and (3) feelings of personal appreciation for others.[7]

Self-Concept and Behavior

The struggle to use the above theoretical posture as a functional guide in interpreting and predicting human behavior is most difficult and, consequently, is being studied by many researchers. In a major review of self-concept studies, Caplin offered these views regarding the effect of self-concept toward learning: (1) the learner proceeds, interprets, accepts, resists, or rejects what he meets in school in the light of the self-system he has within him; (2) substantive evidence indicates a relationship between self-concept and academic achievement; (3) self-concept is more important as a determiner of learning efficiency than learning experiences in the formation of self-concept.[8] He presented evidence that while the causal factors are difficult to determine, it would appear that self-concept is precedent and a determiner of the learning level and achievement. Brookover also concluded, "Research indicates that other's evaluation affects the student's concept of his academic ability and thus sets limits on his school achievement. . . ."[9]

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[7]Ibid., pp. 460-64.

[8]Morris D. Caplin, "The Relationship Between Self-Concept and Academic Achievement," The Journal of Experimental Education, Vol. 37, No. 3 (Spring, 1969), pp. 13-16.

[9]Brookover, et al., Self-Concept of Ability in School Achievement, III, pp. 147.

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However, both writers indicated that daily interaction in the social world does form and alter one's self-concept. It is not a case of "either/or" but of both, i.e., self-concept does determine behavior, and conversely, behavior does determine self-concept.

Kubiniec, likewise, was definite of the relationship between self-concept and behavior. She supported the notion that self-concept theory is important to the prediction of observable behavior in individuals.

> . . .the results support the predictive value of the self-concept which maintains that an individual's behavior is affected by his perception of himself and his environment . . . provides evidence that propositions from self-concept theory can predict observable behavior.[10]

SELF-CONCEPT OF VOCATIONAL ABILITY

The research and literature indicate that individuals do not hold one self-concept in a global sense, but, in fact, have many self-concepts. In his longitudinal study, Brookover not only studied a student's general self-concept of academic ability, but also studied self-concept in specific courses such as social studies and mathematics. It is consistent with this approach that a person has a self-concept of his abilities as a handiman, cook, musician, athlete, spouse, and other major facets of his life which, of course, include his vocation. It follows that a person's performance in each of these roles will depend largely upon his concept of self in that role.

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[10]Cathleen M. Kubiniec, "The Relative Efficacy of Various Dimensions of the Self-Concept in Predicting Academic Achievement," American Educational Research Journal, Vol. 7, No. 3 (May, 1970), pp. 321-334.

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Career selection and a person's performance in that career is a function of his concept of self. Brookover and Gottlieb,[11] suggested that several factors were involved. These factors were classified in three categories: (1) Self-identification (capabilities, interests, preferences), (2) Definition of reality (the individual's perception of others, career opportunities, and other factors important to the occupation), and (3) Reciprocal relations with significant persons (obligations and rights of reciprocal relations with significant others such as parents, teachers, or friends). This posture indicates that a person selects a career and performs in that career on the basis of how he identifies with and perceives himself in his occupation.

Oman's[12] study agreed with the theory of occupational self-concept and quoted many of the early theorists such as Ginzberg, Lazarfeld, Super, Beuhler, and others who supported the contention that career selection and occupational performance may indeed be a function of an individual's concept of self.

SELF-CONCEPT OF SUB-GROUPS WITHIN THE GENERAL POPULATION

Self-concept is gaining credibility among the nation's scholars, and it is only natural that various sub-groups in the population should be tested and studied in light of self-concept. Researchers are seeking explanations for possible behavioral patterns exhibited by many of these

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[11]Wilbur Brookover and David Gottlieb, A Sociology of Education, (New York: American Book Company, 1964), p. 361.

[12]Ronald Nels Oman, The Self-Concept of Occupational Ability and Related Characteristics in Community College Occupational and Academic Students, Doctoral Dissertation, Michigan State University, East Lansing, Michigan, 1971, pp. 23-31.

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groups. Why have not the black ghetto students excelled in school work? Why is there a tendency for some youth toward delinquency? Perhaps a concept of self explains in part the reason for this behavior. A very wide range of student groups have been studied.

Culey[13] investigated the self-concept of adopted versus non-adopted children. Bachar[14] was interested in the deaf child's self-concept in two different settings, i.e., the residential and non-residential. DeMeritt[15] investigated the effects of drugs upon a person's self-concept. Brodis[16] studied the influence of governmental welfare support upon a child's self-concept. Curtis[17] and McClenney[18] thought that differences in motor skills and physical fitness would make a difference in a person's

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[13]James Leland Culey, "A Study of Self-Concept, Self-Acceptance, and Ideal Self of Adopted and Non-Adopted Adolescent Children," Dissertation Abstracts, University of South Dakota, 1970, No. 71-12,636.

[14]James Robert Bachar, "Self-Concept of Academic Ability and Academic Performance Among Deaf Adolescent Children in Residential and Non-Residential Schools," Dissertation Abstracts, University of Pittsburg, 1969, No. 70-13,786.

[15]Mary Walter DeMeritt, "Differences in the Self-Concept of Drug Abuse, Non-Users, and the Former Users of Narcotics, and of Non-Narcotic Drugs," Dissertation Abstracts, Arizona State University, 1970, No. 70-17,420.

[16]Nellie Adams Brodis, "Parent-Child Relationships and Self-Concept as Related to Differential Academic Achievement of Adolescent Siblings in Father-Absent Families," Dissertation Abstracts, Cornell University, 1969, No. 69-20,968.

[17]Bruce Richard Curtis, "Differences in Self-Concept and Performance of a Gross Motor Task," Dissertation Abstracts, University of Illinois, 1968, No. 69-20,673.

[18]Nelson McClenney, "A Comparison of Personality Characteristics, Self-Concepts, and Academic Aptitude of Selected College Men Classified According to Performance on a Test of Physical Fitness," Dissertation Abstracts, University of Georgia, No. 69-15,775.

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self-concept. Crawford[19] hoped for an explanation of institutional deliquents' anti-social behavior in the concept of self. Garvey,[20] along with many other researchers, studied self-concept and the success of student teachers. And, too numerous to mention, are the number of studies that have investigated the relationship of self-concept to the disadvantaged and racial ethnic group norms. In summary, there is substantial evidence to convince many researchers that self-concept is a plausible concept in analyzing and diagnosing various human problems.

THE STUDY OF VOCATIONAL STUDENTS AS A SUB-GROUP WITHIN THE GENERAL STUDENT POPULATION

A study of vocational students as a sub-group within the general school population is consistent with the study of other student sub-groups mentioned above. Vocational students have been branded "dummies" enrolled in a program for "other people's kids." Who are the vocational students, and why have they chosen these courses? A study of the characteristics of these students is required.

Researchers have barely begun investigation of student characteristics. The investigation, thus far, is sketchy and incomplete but is showing signs of growth and maturity.

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[19]Edward E. Crawford, "Self-Concept, Self-Acceptance, and Affinity for Core Culture Values Among Institutionalized Delinquents," Dissertation Abstracts, The Catholic University of America, 1969, No. 69-19,745.

[20]Reba Garvey, "Self-Concept and Success in Student Teaching," Journal of Teacher Education, Vol. 21, No. 3 (Fall, 1970), pp. 357-61.

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High School Vocational Students' Characteristics

Kay's[21] study was characteristic of many studies of secondary vocational students. Most collect little more than demographic data, which for Kay's study included sex, age, grade level, choice of vocational programs, marital and family status, course load, and student plans. This is a purely descriptive study with few implications for program development or administrative and counselor interpretation.

However, studies have been completed at the secondary level that attempt to analyze specific aspects of a student's self-concept of his vocational ability. George[22] investigated the vocational aspirations of Negro male high school seniors. He concluded that the adolescents' and fathers' self-concepts and the congruency between the self-concepts of the fathers and the sons were all major variables influencing the vocational aspirations of Negro males.

A comparison of vocational high school students with those attending a regular high school was made by Pugh.[23] He found that after four months the two groups differed in self-concept and found that the vocational students possessed an enhanced concept of self. Bell[24]

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[21]Evelyn R. Kay, Vocational Education: Characteristics of Teachers and Students, U. S. Department of Health, Education, and Welfare, Order No. E80073 (Washington: Government Printing Office, 1969).

[22]Flavil H. George, "The Relationship of the Self-Concept, Ideal Self-Concept, Values, and Parental Self-Concept to the Vocational Aspiration of Adolescent Negro Males," Dissertation Abstracts, North Texas State University, 1969, No. 70-9,130.

[23]Dwight Allen Pugh, "Comparison of Changes Over a Period of Time in the Self-Concept of Students Enrolled in Vocational and Non-Vocational Curricula," Dissertation Abstracts, Ohio University, 1969, No. 69-19,872.

[24]Norman Darel Bell, "The Relationship of Occupational Choice to Ego Identity and Self-Concept," Dissertation Abstracts, Utah State University, 1969, No. 70-2,426.

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offered a possible explanation for Pugh's results. He selected 320 senior vocational high school students and tested them on a number of variables. He observed that the level of vocational commitment of senior high school boys tended to be dependent on the length of time the choice was considered, the amount of feedback and discussion with the parents concerning the choice, and the father's occupation.

Post-Secondary Level

By far the most significant amount of work regarding the study of student characteristics, particularly the vocational self-concept, has been completed at the post-secondary level. These institutions provide an ideal setting for investigation of vocational students' characteristics since many post-secondary programs are specifically designed to produce competent workers in various occupational fields. Students at this level typically have a firmer career goal commitment than do their high school counterparts. Further, a heterogeneous array of characteristics is displayed by students at this level due to the post-secondary institution's "open door" policy.

In a far-reaching study, Stewart[25] compared Hawaiian, Idahoan, and Californian occupational students on a number of different variables. His study rationale was built on the following points: (1) there are few hard data about the characteristics of students who enter vocational curricula, (2) vocational courses frequently serve as "dumping grounds for students who cannot hope to pursue a college curriculum," (3) academic

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[25]Lawrence H. Stewart, Study of Certain Characteristics of Students and Graduates of Occupation-Centered Curricula (University of California at Berkeley, 1968) U. S. Department of Health, Education, and Welfare, Office of Education, Contract No. OE 685072, ERIC, Clearinghouse, The Center of Vocational and Technical Education, pp. 5-6.

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ability of students enrolled in technical and trade courses is lower, on the average, than a four-year college student, (4) the range of ability on the occupational-centered curricula is about as great as that of the college and university groups, (5) there is a social-economic bias in the choice of vocational courses--relatively more students are from the low status background in vocational courses than in others, and (6) students in the occupational curricula tend to have common characteristics. The central purpose was to gather data about students' career selection problems at a post-secondary level. The data were to be used in counseling students and to provide them with insight to themselves. It was found that when comparing vocational versus non-vocational students, there was a sharp difference in measures of interest but a somewhat lesser difference in personality scores.

Another significant study relating to career selection problems was conducted at the junior collegiate level by Abe and Holland.[26] These researchers studied over 12,000 college freshmen from 31 institutions on 43 different variables. For each vocation selected, the means and standard deviations were computed for 117 student characteristics. Descriptions of students seeking different vocations were made. The following conclusions were drawn: (1) students seek vocations which are appropriate for their interests, values, and special talents, (2) vocational decisions depend upon many student characteristics, (3) there is probably a close association between the choice of subject major and the

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[26]Clifford Abe and John L. Holland, Students with Different Vocational Choices: A Description of College Freshmen, (Iowa City: American College Testing Program, June, 1965), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED.013457.

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In Minnesota, Pucel and Nelson[27] conducted a similar study called MINI-SCORE or Minnesota Student Characteristics and Occupationally Related Education. It was a six-year project funded by the U. S. Office of Education. Its prime purpose was to identify useful criteria for counselors, student selection committees, and administrators of post-high school vocational-technical schools to aid in their choice of specific vocational-technical curricula. They investigated the commonalities between groups enrolled in different vocational programs with respect to interests, aptitudes, job needs, and personality factors. Student profiles for each of the 18 curricula were constructed using standard scores. The study showed that students can be grouped by similar personal characteristics and matched to jobs utilizing those characteristics. It was possible also to cluster jobs based on those characteristics. This approach is helpful in the counseling procedure because it allows the student to identify several different jobs within a cluster compatible to his aptitudes and interests. Thus far, over 20,000 cases have been analyzed and tested; and a follow-up study is underway.

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[27]David J. Pucel and Howard F. Nelson, Project Mini-Score: Some Preliminary Implications for Vocational Guidance (University of Minnesota, 1968), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 025658.

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Abstract

The above data show that there is considerable interest in studying general student characteristics firstly and characteristics that are particularly relevant to students in occupational programs secondly. Curriculum development will benefit from the meaningful use of identified student characteristics.

Many scholars are becoming interested in students' vocational self-concepts as a separate and specific study. Tuckman[28] determined the extent to which students in community college occupational programs develop a heightened self-awareness and a heightened occupational awareness when compared to students who have had different experiences.

Wamhoff studied the self-concept of vocational ability of community college students. He recorded the following findings: (1) A substantial relationship was found to exist between the self-evaluation variables and the perceptions of others regarding occupational ability for both males and females; (2) Parents are the most frequently listed significant people in determining vocational careers; (3) The self-concept of vocational ability did not differ between vocational and non-vocational students, but there was a significant difference in their self-concept of academic ability.[29]

Oman's work supported much of Wamhoff's results and he recorded: (1) Parents are most often named as the most significant other person influencing occupational choice; (2) The occupation self-concept was

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[28]Bruce W. Tuckman, The Study of the Role of the Community College in the Development of Self- and Occupational-Concepts, Interim Report, (Rutgers University, 1968), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 027012.

[29]Carroll H. Wamhoff, "Self-Concept of Vocational Ability, Its Relation to Selected Factors and Creative Elements," Dissertation Abstracts, Michigan State University, 1969, No. 69-20,950.

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partly related to how the person perceived the important people around him and their feelings about his occupation; (3) The three background factors of the study--socio-economic level, previous occupational training, and previous occupational experience--did not relate to any of the creative element factors. It is clear from this study that academic students: (a) enjoyed higher perceived values of others' ratings of them, (b) felt that significant others expected higher occupational achievement, (c) had higher occupational self-concepts. The two groups did not differ on occupational aspirations. Males exhibited higher scores than females, but the socio-economic level groups did not differ.[30]

Foreman[31] investigated the extent to which students, during vocational counseling, over or underestimate their measured needs and interests in the areas of vocational identity (high, intermediate, and low) when measures of self-esteem and defense self-esteem were and were not controlled. Self-esteem and defense self-esteem, as measured here, showed little, if any, independence in their relationship with differences between estimated and measured needs and interests.

MODIFICATION OF SELF-CONCEPT

One problem under investigation in this study is the identification of the influence made by vocational classes upon students' self-concepts.

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[30]Oman, op. cit., pp. 130-32.

[31]Milton E. Foreman, Self-Esteem, Defense Positive and Perceptual Accuracy in Vocational Choice (Washington, D.C.: American Personnel and Guidance Association, April, 1968), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 626655.

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Abstracts

Basic to studies measuring self-concept is the underlying assumption that if a person possesses a low self-concept, and this low self-concept is an inhibiting factor to adequate performance, then ways must be found to enhance that low self-concept. Perhaps vocational classes will prove to be a valuable technique to enhance students' concepts of self. There are literally hundreds of studies now being conducted or have been conducted during the last five years attempting to discover ways that a person's self-concept can be improved. It is possible to review all these studies, but the scope of this chapter only allows a review of a limited number in an attempt to display the types of strategies employed to modify a student's self-concept.

Short-Term Counseling Sessions

A number of studies have investigated the effect of short-term counseling sessions upon a student's self-concept. The results were inconclusive. Scofield's[32] results showed individual counseling did significantly improve self-concept when compared with regular counseling sessions, and it was recommended that individual counseling be used rather than the regular sessions. Allen's[33] findings supported Scofield's. Allen discovered that in a short-term group session where cognitive structuring and verbal reinforcement was effectively

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[32]Robert Eugene Scofield, "The Comparative Effect of a Short-Term Group, Individual, and Regular Counseling on Self-Concept," Dissertation Abstracts, Lehi University, 1969, No. 70-I,744.

[33]Harry Albert Allen, "The Use of Cognitive Structuring and Verbal Reinforcement of Positive Self-Reference Statements Within A Short-Term Group Therapy Session to Enhance Self-Concept," Dissertation Abstracts, University of Arkansas, 1971, No. 71-19,532.

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manipulated, self-concept did improve. But, Ginn's[34] findings showed that participation in his counseling practicum did not significantly change the self-concepts of the participants.

Group Counseling Techniques

There have been several attempts to alter students' self-concepts using a group counseling technique, but most reported no success. The use of an expert in a group session did not seem to enhance self-concept of school abilities reported Shailer.[35] Hugo[36] concluded that no significant difference was found in the expressed self-concept of the students in this session. Axmaker[37] and Gold[38] found the same negative results. Bengtson[39] discovered contrary findings when he compared results of the

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[34]Robert John Ginn, "A Q-Sort Study of a Counseling Practicum on the Self-Concept of Selected Group of Counselors-In-Preparation at the University of Houston," Dissertation Abstracts, University of Houston, 1969, No. 69-13,332.

[35]Thomas Shailer, An Experimental Approach: The Enhancement of Self-Concept of Junior High School Students Through Group Sessions, Feb. 1964, ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 031524.

[36]Mirim Jean Hugo, "The Effect of Group Counseling on Self-Concepts and Behavior of Elementary School Children," Dissertation Abstracts, Ohio University, 1969, No. 70-4,739.

[37]Larry William Axmaker, "The Effect of Group Counseling on the Self-Concept on the Motivation to Achieve and on the Proportion of Drop-outs Among Unselected Community College Students at Southwestern Community College," Dissertation Abstracts, Oregon State University, 1970, No. 70-5,163.

[38]Robert Donald Gold, "Alteration of the Self-Concept in Attitudes Towards Others Using Group Behavior Modification Techniques," Dissertation Abstracts, Arizona State University, 1971, No. 71-9,9698.

[39]Wayne Roger Bengtson, "Comparison of Student Self-Concepts in Student Counselor Settings," Dissertation Abstracts, University of North Colorado, 1970, No. 71-4,754.

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proceedings of group counseling sessions and individual counseling sessions and found that group counseling produced a significantly more positive self-concept as compared to students who met with counselors individually.

In summary, the evidence from many reports showed that student self-concepts were not changed by a group counseling technique. Many authors mentioned, however, that there were several intervening variables which distort study results; such as, the capability of the director of counseling, the sensitivity of instruments that measure self-concept, the selections of students, the matching of student characteristics, the number of sessions conducted, and the length of each session.

Sensitivity Training Sessions

Sensitivity training has long been proclaimed as an instrument for changing students' behavior. Two studies reviewed addressed themselves to this technique. Elbert[40] and Smith[41] found that the use of video tape feedback and sensitivity training was effective in producing changes in some areas of self-concept and self-actualization, but for most dimensions there was no significant difference between the experimental and control groups.

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[40]Eugene Elbert, "Changes in Self-Concept, Self-Actualization, Through Interpersonal Relations as a Result of Video Feedback and Sensitivity Training," Dissertation Abstracts, Utah State University, 1969, No. 70-11,285.

[41]Osler Paul Smith, "Changes in Self-Actualization and Self-Concept as a Result of the Use of a Visual Feedback in Marathon Sensitivity Training," Dissertation Abstracts, East Texas State University, 1970, No. 71-230.

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Educational Administrative Arrangements

It is not surprising that those who promote and operate special administrative programs in our educational society also have attempted to show that their programs, do in fact, modify a person's self-concept. McNamara[42] used a pretest-posttest design for 180 Negro Headstart children in Dade County. The Headstart sample performed significantly better on tests measuring social skills, language skills, and self-concepts. Compensatory education programs also show significant gains in self-concept scores. Both Stevens[43] and Owen[44] reported significant positive change in the self-concepts of students as a result of these programs.

A special class placement arrangement was tested by Schurr[45] with positive results. He found that this arrangement did improve the child's self-concept of ability. Monson,[46] likewise, showed that adult males in

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[42]J. Regis McNamara, Evaluation of the Effects of Headstart Experience in the Area of Self-Concept, Social Skills, and Language Skills (Miami, Florida: Dade County Board of Public Construction, July, 1968), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 028832.

[43]Roe Stevens, "Changes in Self-Concept Resulting From Participation in College Compensatory Education Programs as Measured by the Edwards Personality Inventory," Dissertation Abstracts, University of Akron, 1970, No. 71-16,286.

[44]Henry D. Olsen, The Effect of Compensatory Education Upon the Others, and Academic Significant Others of Black and White Pre-College Students, February, 1971, ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 047075.

[45]Kenton T. Schurr and Wilbur B. Brookover, Effect of Special Class Placement on the Self-Concept-of-Ability of the Educable Mentally Retarded Child, (Michigan State University, 1967), Office of Education, U. S. Department of Health, Education, and Welfare, ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 027658.

[46]Marvin Ralph Monson, "The Self-Concept Change of Male Adults Enrolled in an M.D.T.A. Agra-Business Training Program," Dissertation Abstracts, University of Nebraska, 1969, No. 69-22,289.

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a Manpower Development Training Act Program indicated significant changes in self-concepts during the time that they were enrolled in the training program. But, Herskovitz[47] concluded that vocational rehabilitation programs produced no positive changes in self-concepts of participating students.

Within Class Techniques

Another approach used by educators to improve self-concept was to vary the environment in the classroom from autocratic to democratic, from passive-receiver to active-performer, or from traditional-didactic to experimental-discovery method of teaching. Again the results were mixed, with three researchers reporting that self-concept did increase with the change of environment and three researchers reporting that there was no change.

Bouchard[48] utilized a teacher interaction method for five weeks and concluded that students' self-concepts were significantly improved in the experimental groups but relatively little change was indicated in the control groups. He proclaimed the value of utilizing peer group interaction as a method of improving students' self-concepts. Dwyer[49] investigated the change in self-concept using three teachers' classes,

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[47]Schreiber Herskovitz, "Effects of Educational-Vocation Rehabilitation Program Upon the Self-Concept of Disadvantaged Youth," Dissertation Abstracts, University of Pennsylvania, 1969, No. 69-21,638.

[48]Richard Preston Bouchard, "Experiments in Students' Self-Concept Change Through Teacher Interaction," Dissertation Abstracts, St. Louis University, 1970, Order No. 71-21,271.

[49]F. O. Terreca Dwyer, "An Exploratory Study to Investigate the Influence of the Program of Primary Prevention Upon Self-Concept in the Effect of Self-Conception Academic Readiness," Dissertation Abstracts, Boston University, School of Education, 1968, No. 69-7,851.

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one utilizing an authoritarian approach and two using the permissive approach. She concluded that while there was no significant difference in the change of self-concept between the classes, within each of the three groups there was improvement. She concluded, also, that permissive teachers had a greater influence upon self-concept in children of low intelligence, children with low parental acceptance, and children of middle socio-economic class. Killough[50] supported the above results by observing that an abrupt change in educational environment such as moving children from a traditional self-contained classroom to a non-graded team-taught learning laboratory was effective. There were significant differences between the experimental and control groups using a pretest and posttest.

Jennings[51] utilized a two-hour block time arrangement in a regular core program but found the self-concept did not change. Likewise, Dethmers[52] concluded that when comparing children in two types of programs, one innovative and the other traditional, self-concept gains consistently occurred more frequently in the traditional instructional program. Boyko[53] also found no change.

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[50]Curtis Banion Killough, "Investigation of the Effects of Abrupt Change in Educational Environment Upon the Reported Self-Concept of Third Grade Pupils," Dissertation Abstracts, University of Southern Mississippi, 1968, No. 69-4,698.

[51]Wayne Bertrand Jennings, "Development of the Self-Concept in the Core Program," Dissertation Abstracts, University of Minnesota, 1968, No. 69-1,512.

[52]Claer Dethmers, "Self-Concept, Value Orientation and Achievement Level of Lower Class Elementary School Children in Two Types of Educational Programs," Dissertation Abstracts, University of Minnesota, 1968, No. 69-11,381.

[53]William Boyko, "Effect of Methodology on the Self-Concepts of Students," Dissertation Abstracts, University of the Pacific, 1970, No. 70-11,281.

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A Remedial Reading Technique

Remedial reading seems to hold high promise in producing positive changes in self-concept of students. Leffingwell[54] conducted special classes for naval recruits using taped interviews, discussion periods, and tests. He observed noticeable gains in self-esteem in most students having successful experiences in the reading program. Smith[55] showed that the personal interaction method in reading proved superior to other methods in developing higher self-concepts. Schultheis[56] used a bibliotherapy technique effectively. This method encouraged the student to identify with story book characters in order to gain insight into himself and to improve his self-concept.

The Use of Video Tape Recording

Biles[57] used televised instruction in one experimental class and a regular lecture-discussion approach in the other. She concluded that no significant difference in self-concept occurred between the two groups, but showed that there was a change of self-concept within the televised

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[54]Hirum Cyril Leffingwell, "Changes in Self-Concepts in Poorly-Reading Naval Recruits During a Remedial Reading Program," Dissertation Abstracts, United States International University, 1969, No. 69-19,843.

[55]Phyllis W. Smith, Self-Concept Gain Scores in Reading Efficiency Terminal Ratios as a Function of Specialized Reading Instruction or Personal Interaction (Paper Presented at the International Reading Association Conference, Boston, Mass., 1968), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 025375.

[56]Sister Miriam Schultheis, Building a Better Self-Concept Through Story Book Guidance (Paper Presented at the Language Arts and Reading Conference, Boston State University, 1970), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 044251.

[57]Fay Reifsnyder Biles, "Self-Concept Change in College Freshman Women in a Basic Physical Education Course Using Two Methods of Instruction," Dissertation Abstracts, Ohio State University, 1968, No. 69-4,847.

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instructional group. She concluded that the use of instructional television appeared to be as effective as traditional methods to effect self-concept changes in college freshman women enrolled in basic physical education courses. Fischer[58] claimed that due to the short duration of her study, the increase in positive concept of self could not be generalized to the total self-concept theory and suggested that a great amount of exploratory video tape experimentation should be conducted. Ezell[59] selected 36 men possessing a correct free-style swimming stroke, tested their self-concepts, and then divided them into matching groups. One experimental group received post-performance feedback while the other received none. He concluded that the application of correct or incorrect post-performance feedback does not assert a significant influence upon self-concept.

Camping Technique

Another technique appearing to have some promise in improving self-concept is the camping experience. Krieger[60] showed that participation in an organized camp increased self-concept and strongly decreased poorly adjusted behavior. Thus, a well-run, organized camp contributed to a positive self-concept change and hence to personal growth.

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[58]Shirley A. Lamb Fischer, "A Comparative Study of the Effects of Modified Teaching Methods on the Openness of Self-Concept," Dissertation Abstracts, The University of Southern Mississippi, 1969, No. 69-20,150.

[59]Melvin Haskell Ezell, Jr., "Comparative Effects of Correct and Incorrect Post-Performance Feedback Upon the College Men Exhibiting High and Low Self-Concepts," Dissertation Abstracts, University of Tennessee, 1969, No. 70-2,107.

[60]William Krieger, "The Effects of the Organized Camping Experience in Self-Concept Change in Relation to Three Variables: Age, Sex, and Observable Behavior Change," Dissertation Abstracts, New Mexico University, 1969, No. 69-20,936.

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In a four-week camp environment with educable mentally retarded adolescents, Townsend[61] found that the campers showed a greater immediate gain in general academic self-concept than the control group but that it was temporary and did not carry over to the second semester. Contrary results with the camping experience were gained by Alexander,[62] who found that there was no significant change between the experimental and control groups.

Other Techniques

Other types of administrative procedures seem to bring varied results. The use of adult males to interact with institutionalized mentally retarded boys was tried by Ghannad.[63] The results showed no significant difference, but the identification did have a positive influence upon the boys' self-concepts. Schleicher[64] concluded that his findings failed to support the thesis that a six-week parental educational program could effect significant positive changes of self-concept, behavior, and academic achievement in students.

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[61]David Townsend, "The Effects of Physical Skills and Academic Self-Concepts on General Self-Concepts and Academic Achievement in a Summer Camp Environment," Dissertation Abstracts, Michigan State University, 1969, No. 69-20,936.

[62]Albert Andria Alexander, "Effects of Residential Camping Experience on the Self-Concept of Boys From Low Income Families," Dissertation Abstracts, Boston University School of Education, 1969, No. 70-12,149.

[63]H. Roza Ghannad, "The Effects of Planned Interaction of Adult Males With Institutionalized Mentally Retarded Boys Upon Their Sex-Roles Identification and Self-Concept," Dissertation Abstracts, Brigham Young University, 1968, No. 69-3,518.

[64]Kirk Walter Schleicher, The Effects of Parent Education on the Self-Concept, Achievement, and Behavior of Educable Mentally Retarded Negro Pre-Adolescents (Virginia University, 1969), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 047280.

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Discussion of Studies of Change in Self-Concept

In summary, this review underscores the fact that our understanding of the use of the construct self-concept is at an early stage of development. The above studies seem to indicate the following problems in attempting to change self-concept: (1) Experimental Design. Many studies are poorly designed with no attempt to control intervening variables, (2) Program Quality. It is most difficult to assess the quality of an experimental program designed to produce self-concept improvement. This inability may account for the different findings resulting from use of similar techniques, (3) Generalizable Conclusions. An insufficient amount of consistent work with various types of students,(e.g., the mentally retarded, low socio-economic, etc.) precludes drawing any generalizable conclusions, (4) Time. Length of experimental program seems to be important in attempting to change self-concept. Longitudinal studies have proven more successful than those of minimal length, (5) Age. More success in enhancing self-concept is found with younger children than with older groups, (6) Individual Interest. Experimental programs that work with participants as important individuals appear to have a greater chance of successfully changing self-concept than using group techniques, (7) Permanence of Change. Permanency of the self-concept change, as result of these programs, has been ignored. Only one study reviewed attempts to examine the stability of the self-concept gain, (8) Types of Self-Concept. Individuals have different types of self-concepts, yet most studies deal with the global measure rather than specific measures of some particular sub-element.

A more comprehensive coordinated study is needed before self-concept can become a functional device for educational change.

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SELF-CONCEPT INSTRUMENTS

Instrumentation in the self-concept field is an acute problem. No analysis of the relative merits of different self-concept test instruments being used has been made. Zirkel[65] sums the reflection of many students of self-concept: (1) There is a lack of precision in the instruments developed to measure self-concept, (2) The instruments measure different constructs, while the same constructs are measured by different instruments, (3) Little information is known regarding any instrument, (4) Many instruments lack validity, reliability, or standardization, (5) The most frequently used formats for self-concept measures are rating scales, open-ended questions, the adjective check list, the semantic differential, and the Q-sort; while some non-verbal instruments have been developed. Some measures reported discrepancies between the real self and ideal self; others used a counselor rating compared to a student rating, while others used a direct report technique. Therefore, it is impossible to objectively select a preferred approach for lack of data.

At the present time, there are at least five instruments frequently used to measure a student's self-concept.

Coppersmith Self-Esteem Inventory

This test uses 42 statements in which a student rates each statement "like me" or "unlike me". The 42 items are divided into three subscores as follows: Twenty-six items relate to self, eight items relate to the social-self, and eight items relate to the school-self. A good reference

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[65]Perry A. Zirkel, "Self-Concept and the Disadvantaged of Ethnic Group Membership and Mixture," Connecticut State Department of Education, The Review of Educational Research, Vol. 41, No. 3 (June, 1971), p. 217.

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giving greater test detail is found in Zirkel.[66] Many studies have used this instrument as the measure of self-concept.

The Osgood Semantic Differential

The Osgood Semantic Differential is designed for students to rate a series of bi-polar adjective scales. For example, the meaning dimension might be activity and the bi-polar adjective scale would be active-passive, excited-calm, complex-simple, tense-relaxed. Kubiniec,[67] Philips,[68] Livingston,[69] and Hodgkins[70] all have used an Osgood Semantic Differential approach.

Piers-Harris Self-Concept Inventory (Scale)

The Piers-Harris Self-Concept Inventory generates a global self-concept score and six subscores. The six subfactors are: (1) behavior, (2) intellectual and school status, (3) physical appearance and attributes, (4) anxiety, (5) popularity, and (6) happiness and satisfaction. There are 80 items in total with 18 items relating to the

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[66]Perry A. Zirkel and Gnanaraj E. Moses, "Self-Concept in Ethnic Group Membership Among Public School Students," The American Educational Research Journal, Vol. 8, No. 2 (March, 1971), pp. 255-56.

[67]Kubiniec, loc. cit.

[68]Romeo Eldridge Philips, "Self-Concept in Student Activities in a Suburban Detroit, Michigan High School," Dissertation Abstracts, Wayne State University, 1967, No. 68-2,105.

[69]Gayle Borden Livingston, "A Correlational Analysis of Modes of Perception in Judgment and Measures of Self-Concept," Dissertation Abstracts, Washington State University, 1971, No. 71-18,578.

[70]Hodgkins and Stakenas, loc. cit.

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student's self. Lord,[71] Farls,[72] Felker,[74] and many others have used the Piers-Harris Instrument for measuring self-concept.

Tennessee Self-Concept Scale

This Scale determines a total self-concept score and, in addition, produces scores for 15 factors. The following researchers have used this instrument: Healey,[75] Christian,[76] and Queen.[77]

Brookover Instrument

The Brookover instrument was selected for this study since reliability data are provided and because it generates the needed self-concept

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[71]Sharon Burmeister Lord, "Self-Concept of Appalachian Children: A Comparative Study of Economically Poor and Economically Advantaged Children Using the Piers-Harris Self-Concept Inventory," Dissertation Abstracts, Indiana University, 1971, No. 71-14,463.

[72]Robert James Farls, "The High and Low Achievement of Intellectually Average Intermediate Grade Students Related to the Self-Concept and Social Approval," Dissertation Abstracts, University of Pittsburg, 1967, No. 67-12,388.

[73]Harold Wendell Lang, "Relationship of the Self-Concept of Fifth-Grade Negro Students with Their Knowledge of Negro Leaders and Events," Dissertation Abstracts, North Texas State University, 1970, No. 71-8,680.

[74]Donald W. Felker, Self-Concept, Divergent Thinking Abilities, and Attitudes About Creativity and Problem Solving (Lafayette, Indiana: Purdue University, 1971), ERIC, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 047347.

[75]Gary William Healey, "Self-Concept: Comparison of Negro-Anglo- and Spanish American Students Across Ethnic, Sex, and Social Economic Variables," Dissertation Abstracts, New Mexico State University, 1969, No. 70-1,231.

[76]Quentin Adris Christian, "The Relationship Between Physical Fitness and Self-Concept," Dissertation Abstracts, East Texas State University, 1969, No. 69-21,165.

[77]Renee Queen, "A Study of the Relationship Between the Self-Concepts and Ethnocentricism of Student Teachers and Their Teaching Behavior," Dissertation Abstracts, New York University, 1969, No. 69-21,221.

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values in a minimum testing time period. The details of this instrument are given in Chapter III under instrumentation.

STUDY VARIABLES

The review of self-concept literature has revealed that there is a lack of consistent research design and that generally study results are inconclusive. One weakness noted is that many researchers have neglected to examine the relationship of self-concept to various independent variables. Does student self-concept differ with intelligence, achievement patterns, ethnic or racial identification, sex, school, or social class? Many researchers have hypothesized that these variables do influence study results and that they should be controlled.

Variables of particular importance and interest to this researcher are those of sex, intelligence, academic achievement, and social class.

Sex

Sweet and Nuttal[78] controlled for the sex variable in their study. Girls were significantly higher on ideal self-concept than were boys. Kubiniec[79] criticized many early research efforts for failing to control for the sex variable in the study of self-concept. Long, Ziller, and Henderson[80] claimed that it is important to control for sex,

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[78]Phyllis R. Sweet and Ronald L. Nuttal, "The Effects of a Tracking System on Student Satisfaction and Achievement," The American Educational Research Journal, Vol. 8, No. 3 (May, 1971), pp. 511-20.

[79]Kubiniec, loc. cit.

[80]Barbara H. Long, Robert C. Ziller, and Edmund H. Henderson, "Developmental Changes in the Self-Concept During Adolescence," School Review, Vol. 76, No. 2 (June, 1968), pp. 210-30.

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particularly in the adolescence years, because the developmental stages of the student and the environmental expectations of different sex roles require that they be studied separately.

Intelligence

Butcher[81] found a close relationship between intelligence and self-concept. Gillman[82] and Schwarz[83] showed similar results between intelligence and self-concept. Contrary results showing no relationship between self-concept and intelligence were found by Knight[84] and Lambeth.[85]

While the results are not conclusive, many definitive studies have controlled for intelligence in the investigation of self-concept.

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[81]Donald George Butcher, "Study of the Relationship of Student Self-Concept to Academic Achievement in Six High Achieving Elementary Schools," Dissertation Abstracts, Michigan State University, 1967, No. 68-7,872.

[82]Geneva B. Gillman Butcher, "The Relationship Between Self-Concept, Intellectual Ability, Achievement, and Manifest Anxiety Among Selected Groups of Spanish-Surname Migrant Students in New Mexico, ERIC, June 1969, Clearinghouse, The Center of Vocational and Technical Education, Order No. ED 029723.

[83]Mary Elizabeth Field Schwarz, "The Effect of Teacher Approval on the Self-Concept and Achievement of Fourth, Fifth, and Sixth Grade Children: Case Studies of Seven Children and Seven Teachers," Dissertation Abstracts, University of Nebraska Teachers College, 1967, No. 67-9,839.

[84]Octavia Bowers Knight, "The Self-Concept of Educable Mentally Retarded Children in Special and Regular Classes," Dissertation Abstracts, University of North Carolina, 1967, No. 68-6,744.

[85]Hosea DeWood Lambeth, Jr., "Self-Concept of Mentally Retarded Children in Relation to Educational Placement and Developmental Variables," Dissertation Abstracts, University of North Carolina, 1966, No. 67-5,345.

Kubiniec,[86] Brookover,[87] Johnson,[88] Harding,[89] and others controlled the intelligence variable.

Academic Achievement

A number of researchers have found direct relationships between self-concept and academic achievement. Gay[90] found that self-concept is influenced more by grade point average than by intelligence. Caplin[91] concluded that self-concept is higher with higher achievement. Hayes[92] discovered that there was a significant relationship between self-concept of arithmetic ability and the student's achievement. Ozehosky[93] studied

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[86]Kubiniec, loc. cit.

[87]Brookover, et al., Self-Concept of Ability in School Achievement III.

[88]Alex Alfred Johnson, III, A Study of the Relationship Between Nonpromotion and Male Student's Self-Concept of Academic Ability and His Perceived Parental, Friends', and Teachers' Evaluation of His Academic Ability, Doctoral Dissertation, Michigan State University, East Lansing, Michigan, 1967.

[89]Kenneth L. Harding, Comparative Study of Caucasian Male High School Students Who Stay in School and Those Who Drop Out, Doctoral Dissertation, Michigan State University, East Lansing, Michigan, 1966.

[90]Cleveland Johnson Gay, "Academic Achievement and Intelligence Among Negro Eighth Grade Students as a Function of Self-Concept," Dissertation Abstracts, North Texas State University, 1966, No. 66-6,409.

[91]Caplin, loc. cit.

[92]Edward John Hayes, "The Relationship Between Self-Concept of Arithmetic Ability and Arithmetic Achievement in the Selective Group of Sixth Grade Students," Dissertation Abstracts, Michigan State University, 1967, No. 68-4,150.

[93]Richard John Ozehosky, "Children's Self-Concept and Kindergarten Achievement," Dissertation Abstracts, St. Johns University, 1967, No. 67-11,450.

kindergarten children and found a positive relationship between achievement and self-concept, even at that age. Pascal[94] also found a significant relationship between self-concept and academic achievement. Achievement, reported Carroll,[95] is a dynamic factor in differences found in children's self-concepts.

While there is little evidence of conflicting results, Butcher[96] is a case in point. He found no overwhelming evidence to prove a close relationship between self-concept and achievement.

Socio-Economic Status (SES)

Binder[97] was adamant that socio-economic status was significantly related to self-concept at the ninth grade level but not at the twelfth grade level. Densley[98] discovered that students from low socio-economic levels tend to have a lower self-concept than their counterparts having higher socio-economic level backgrounds. Green and Rohwer, Jr.[99]

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[94]Billy J. Pascal, "The Role of Self-Concept and Achievement," The Journal of Negro Education, Vol. 37 (Fall, 1968), pp. 392-96.

[95]Rebecca Evans Carroll, "A Comparative Study of the Self-Perceptions of Fifth-Grade Boys and Girls as Learners," Dissertation Abstracts, University of Maryland, 1966, No. 67-2,366.

[96]Butcher, loc. cit.

[97]Dorothy Margaret Binder, "The Relationship Among Self-Expectations, Self-Concept, and Academic Achievement," Dissertation Abstracts, University of Wisconsin, 1965, No. 65-14,853.

[98]Kenneth Gordon Densley, "Determining Discrepancies that Might Exist Between Aptitude, Self-Concept, and Measured Aptitude," Dissertation Abstracts, Utah State University, 1967, No. 68-2,559.

[99]Richard B. Green and William D. Rohwer, Jr., "SES Differences on Learning and Ability Tests in Black Children," American Educational Research Journal, Vol. 8, No. 4 (1971), pp. 601-09.

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reported a strong positive relationship between socio-economic status and a long-term school learning measure. Carroll[100] found contrary results with no significant relationship between self-concept and socio-economic status.

SUMMARY OF CHAPTER

This review of literature has summarized pertinent studies related to the construct of self-concept with specific reference to the topics of: Self-Concept Theory, Self-Concept of Vocational Ability, Self-Concept of Sub-Groups Within the General Population, A Study of Vocational Students as a Sub-Group Within the General Student Population, Modification of Self-Concept, Self-Concept Instruments, and Study Variables.

Self-Concept Theory

Data show that a concept of self forms through social interaction with others. Social norms and mores influence this developmental process. Self-concept has three dimensions: liking for oneself, satisfaction with one's attainment, and feelings of personal appreciation for others.

A person's self-concept enhances or inhibits his behavior or performance in our society. Several authors have demonstrated that a positive relationship exists between a person's self-concept and his achievement in the academic domain.

Self-Concept of Vocational Ability

Individuals do not hold one self-concept in a global sense, but,

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in fact, have many self-concepts. Particularly important is a person's career selection and performance in his occupational role. Several studies have shown a positive relationship between one's self-concept and his selection of and performance in a career.

Self-Concept of Sub-Groups Within the General Population

Researchers are applying the construct of self-concept to study various students within the educational environment. Deaf children, drug users, welfare support children, motor skill deficient children, delinquent children, and many others have all been subject to this investigation.

A Study of Vocational Students as a Sub-Group Within the General Population

A study of vocational students is consistent with studies investigating other sub-groups in the general student population. In particular, researchers were quoted having investigated secondary and post-secondary students' characteristics. Specifically, student characteristics relating to vocational programs, career choice, and aspiration were selected. While these studies are important, many are weak in research methodology, which may contribute to their inconclusive results. The most comprehensive work has been done at the post-secondary level in an attempt to help students' in their career selections.

Modification of Self-Concept

The ultimate reason for studying student self-concept is the hope that a low self-concept inhibiting performance may eventually be enhanced. An enhanced self-concept increases the quality of student performance. Studies reviewed demonstrate several different techniques

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to enhance self-concept are possible. Most results are not conclusive and, in fact, rather conflicting.

Self-Concept Instruments

Five instruments for measuring self-concept were reviewed. There was a definite lack of data to compare the relative merits of the instruments.

Study Variables

Those intervening variables discovered to be important for control purposes were sex, academic achievement, intelligence, and socio-economic status. Evidence is given that these variables do, in fact, relate positively and significantly to self-concept.

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CHAPTER III

RESEARCH PROCEDURES

Five main procedural tasks were undertaken: (1) Defining the Setting and Identification of the Population; (2) Choice of Sampling Techniques; (3) Classification of the Variables; (4) Selection of the Testing Instruments; and (5) Data Gathering, Processing, and Analysis.

DEFINING THE RESEARCH SETTING AND IDENTIFICATION OF THE STUDY POPULATION

The Setting

The setting of this study was the State of Utah. As background, features about Utah's population, economy, and educational accomplishments are given and deemed important since characteristics of children are often reflections of characteristics of their parents and/or other environmental factors.

The State of Utah is mainly an urban state. It has a population of 1,059,273 individuals dichotomized into two main groups: (1) an urban population of 876,344 people, and (2) a rural population of 182,929 people. Approximately 127,000 persons are classified as handicapped in the state.[1]

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[1]Utah State Board of Vocational-Technical Education, Urban and Rural Disadvantaged and Handicapped Population (Salt Lake City, Utah: State Department of Public Instruction, 1970).

Most of Utah's citizens live in urban centers. The Wasatch Front, the counties of Davis, Salt Lake, Utah, and Weber, is the place of residence for 77.3 percent of the people; yet these counties comprise only 4.3 percent of the state's total acreage.[2]

Workers in the state--383,500 persons--are employed in a heterogeneous array of industries. Utah's major industries and percentages of employment are depicted in Table 1.

TABLE 1

SUMMARY OF UTAH'S MAJOR INDUSTRIES BY

PERCENT OF PERSONS EMPLOYED

State Industries	% of Persons Employed
Government	26
Wholesale and Retail Trades	17
Manufacturing	13
Services and Miscellaneous	12
Transportation and Public Utilities	6
Contract Construction	4
Agriculture	4
Finance, Insurance, Real Estate	3
Mining	2
Miscellaneous	13
Total	100

[3]

[2]Jack R. Ockey, "County Population Estimates for Utah, 1969," Economic and Utah Business Review, Vol. 29, No. 11 (November, 1969).

[3]Utah State Board of Vocational-Technical Education, 1969-1970 State Plans, Part I, II, III (Salt Lake City, Utah: State Department of Public Instruction), p. 231.

Evidence that Utahns are strong supporters of their educational system is found in their willingness to carry a substantial tax burden. While Utah ranks fortieth in per capita personal income in the nation and is thirtieth in revenue from state and local taxes, it is second in per capita expenditures for higher education.[4]

Utah's students perform strongly on measures of academic achievement. They rank above national norms in scholastic achievement as judged by standardized tests in all subjects except language and reading. They also rank ninth in the nation in percentage of registrants passing the Armed Forces Qualification Test.[5]

Only within the last few years has vocational education in Utah received substantial recognition from influential people. Recently, the Governor's Office, the Board for Higher Education, the Vocational Board, the Vocational Advisory Council, and many service groups have been campaigning for greater financial and moral support for vocational education. Their goal is to pursuade more students to enroll in vocational education. Their case rests chiefly with job availability and the high market demand for qualified employees. Eighty percent of jobs in the state of Utah require less than a four-year baccalaureate degree.[6]

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[4]Utah Conference on Higher Education, U. C. H. E. Newsletter, Vol. 15, No. 3 (February, 1972).

[5]Utah State Board of Education, How Good are Utah Public Schools? (Salt Lake City, Utah: State Department of Public Instruction, 1971), pp. v-vi.

[6]Utah State Advisory Council for Vocational-Technical Education, But What About Utah's Vital 80%?, The 1970 Annual Report (Salt Lake City, Utah: Utah State Board of Education, January, 1971).

Of the 84,283 secondary (9-12) school students in Utah, there are 52,574 enrolled in a course described as vocational education. Enrollments of vocational education in the state appear in Table 2.

TABLE 2

SUMMARY OF NUMBERS OF STUDENTS ENROLLED IN VOCATIONAL CLASSES IN UTAH BY VOCATIONAL SPECIALTY

Vocational Specialty	No. of Students Enrolled
Agriculture	5,581
Distribution	1,583
Health Occupations	182
Home Economics, Useful (home related)	20,511
Home Economics, Gainful (work related)	419
Office	17,610
Technology (Industrial)	13
Trade and Industry	6,725
Total	52,574

[7]

The data above show that the largest block of students counted as vocational students was home economics (useful). Some persons, of course, question the "vocational" nature of the home economics classes since the main emphasis is on homemaking rather than gainful employment skills. The second largest block of students counted as vocational

[7]Utah State Board of Education, op. cit., p. 51.

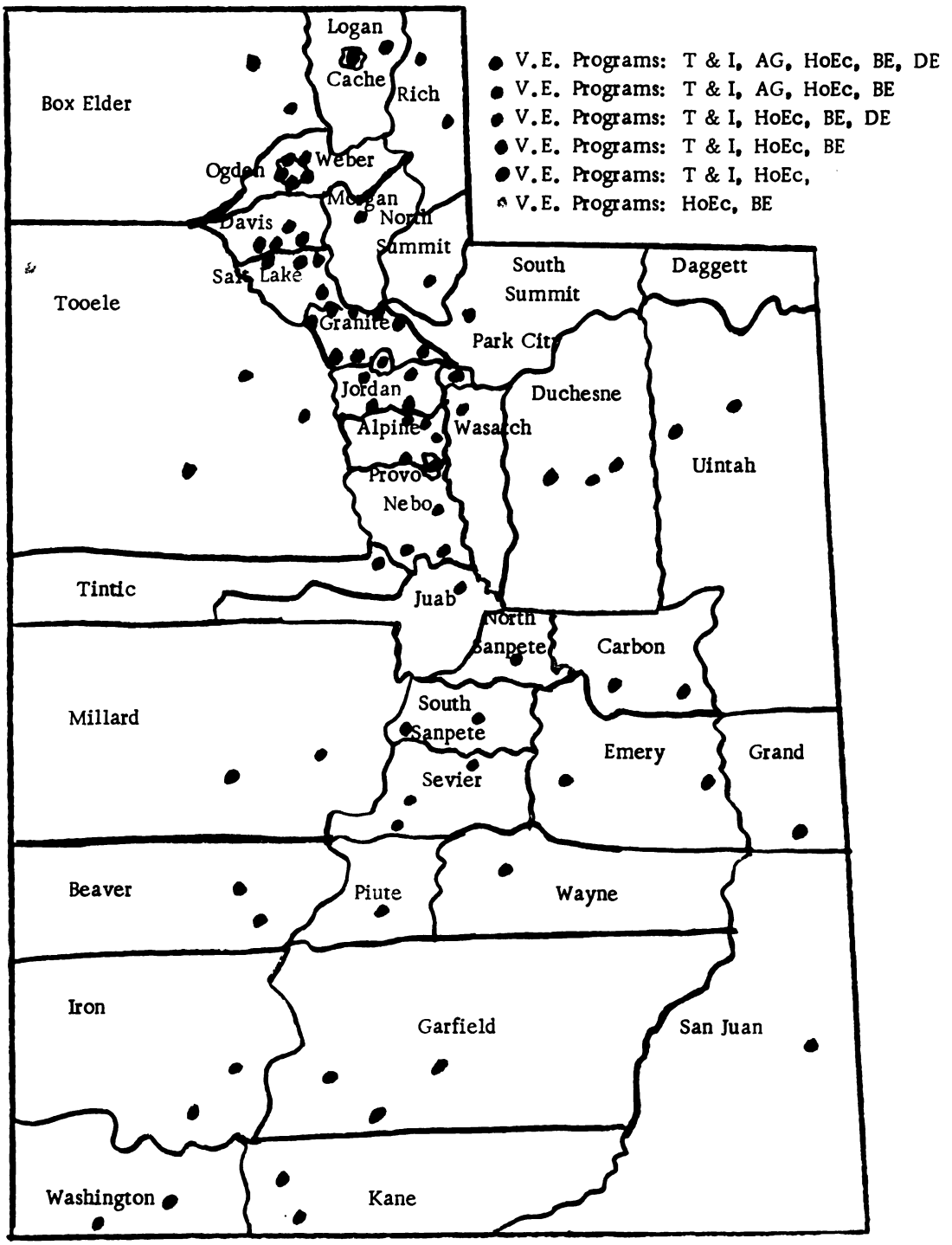
students was the office education group. Again, the vocational goal of many of these students could be questioned since beginning typewriting and shorthand students were included on the roles while many of these students probably have a personal use objective rather than vocational objective. Also, until objective evidence is found to the contrary, there is a strong suspicion that many students counted in the agriculture, distributive, and trade and industry specialty areas would not qualify as being career oriented. There exists, then, some evidence that the large count of students enrolled in vocational education in Utah is due in part to the liberal interpretation of the definition of vocational education.

Some type of vocational education offering is available in every county. A map of school districts within the state that offer vocational subjects is found on the following page. The map reveals that: (1) 16 high schools offered five vocational specialties; (2) 52 high schools offered four vocational specialties; (3) 15 high schools offered three vocational specialties; (4) two high schools offered two vocational specialties; and (5) no high school offered only one vocational specialty.

Identification of the Population

The subjects under investigation consisted of students enrolled in the senior year of the Utah public high schools, 1971-72, most of whom live in urban areas. The total high school population was divided into two main sub-groups: (1) Vocational Students. A vocational student was one enrolled in a public school class designated as agriculture (Agr.), distributive education (D.E.), home economics (H6. Ec.), office education (O.E.), or technical and industrial (T&I). (2) Non-Vocational Students.

UTAH SCHOOL DISTRICTS



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A non-vocational student was one enrolled in a regular academic program not associated with a vocational class.

CHOICE OF SAMPLING TECHNIQUES

Seven Utah high schools were selected as the sample for this study. In choosing specific high schools and students, four recognized sampling procedures were employed:[8]

Cluster Sampling Technique.

A cluster sampling technique was used as the first sampling procedure at two stages of the study. (1) School selection. All senior high schools in Utah were categorized by number of vocational specialties offered. Those schools offering at least four vocational specialties were identified; then specific schools selected by a random sampling technique. (2) Student selection. Classes of students were used rather than individuals. Since the study population was so large, the cluster procedure was invoked to save the researcher time, expense, travel, administrative effort, and to minimize disruption to school classes.

Stratified Sampling Technique

Students were stratified on the basis of (1) curriculum specialty, i.e., five vocational specialties and either senior English or social studies classes as the control group, and (2) place of residence. This technique was employed to enable inference to be made to the general student population and its sub-populations.

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[8]Allan Stuart, Basic Ideas of Scientific Sampling (New York: Hafner Publishing Company, 1968).

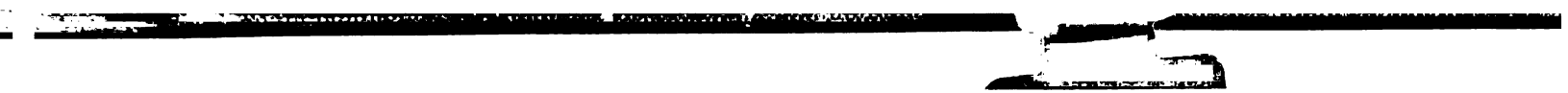
Random Sampling Technique

A random sampling procedure was used to select specific schools from those offering four or more vocational programs. Each school was assigned a number; then with a table of random numbers, seven schools were identified.

The senior English or social studies classes were selected from the schools identified by random process. Then, an interview was held with the principal of the schools to determine which two classes of either senior English or social studies would represent the non-vocational students. Care was taken to identify classes enrolling students with a heterogeneous array of characteristics. Where the control classes contained one or more students enrolled in a vocational class, those students were eliminated from the class for analysis purposes. A consistent use of either English or social studies classes was not made since schools were not consistent in graduation requirements for the senior year. In some schools English was required, while in others social studies was the required course at the senior level.

Non-Random Sampling

The study required at least one school to be classified as rural, so a jury technique was adopted. The jury, comprised of vocational teacher-educators and state department specialists, reviewed all schools selected and classified them rural or urban. Two schools were designated rural; five urban. Subsequent interviews with principals of the seven selected schools proved that only one could accurately be classified rural. This school supplied the data for the statistical purposes of this study.



The above sampling procedures enabled the researcher to infer study results derived from seven schools to the state vocational student population of like characteristics. Since the sample was randomly selected from schools offering four or more vocational specialties, inference can be drawn only to those schools. Since the sampled classes of two of the vocational areas, office and trade and industry, were limited to specific classes within the specialty, inference can only be made to these classes, i.e., office education shorthand-transcription and trade and industry automotives.

Description of Specific Schools Selected

The schools selected were representative of all geographic areas in the Utah public school system. Table 3 shows that one school, sampling 115 students, was a large city school; four schools, sampling 440 students, were medium sized schools--two located in small towns (consolidated schools) and two located in cities; two schools, sampling 139 students, were from small communities located in sparsely populated areas of Utah.

TABLE 3

SUMMARY OF SAMPLE SCHOOLS CLASSIFIED BY GEOGRAPHIC LOCATION AND SIZE OF STUDENT BODY

SCHOOL	SCHOOL LOCATION	SIZE OF SCHOOL
1	City	Large xxx
2	Town	Medium xx
3	Town	Small x
4	Town	Small x
5	City	Medium xx
6	Town	Medium xx
7	City	Medium xx

xxx 1500 students or more (grades 10-12)
xx 600 - 1499 students (grades 10-12)
x less than 600 students (grades 9-12)

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Description of Classes Sampled

The selected classes to be studied within each school were representative of classes in the state. Table 4 shows classes selected from each school with the numbers of students classified by educational class.

TABLE 4

NUMBER OF STUDENTS SAMPLED

BY EDUCATIONAL CLASS

SCHOOL	SCHOOL LOCATION	EDUCATIONAL CLASS						
		DE	OE	AGR	HO EC	T&I	ENG&HIST	TOTAL
1	City	42	26	8	13	17	9	115
2	Town	17	28	27	9	16	10	107
3	Town	--	17	15	13	11	8	64
4	Town	7	9	13	28	5	13	75
5	City	26	42	--	24	19	16	127
6	Town	15	18	12	19	18	20	102
7	City	14	19	20	15	--	16	84
Total		121	159	95	121	86	92	674

Although the sampling procedures used ensure a representative sample, the following brief description of each vocational class provides information useful to the generalizability of this study.

The agriculture classes sampled were all full year, one period per day in-school classes. None were cooperative on-the-job classes, but three schools utilized the project method extensively. One school,

for example, constructed and marketed a farm products storage building as its main project. All but one class studied farm production units. The other class concentrated on horticulture, lawn and garden units. Five classes sponsored Future Farmers of America chapters.

The distributive education classes sampled were all full year, one period daily, cooperative method classes. The students had one period released time each day for on-the-job experience supervised by a teacher-coordinator. The content taught within the class was oriented to the retailing industry. Three schools sponsored a Distributive Education Clubs of America chapter.

All home economics classes sampled were full year classes with four using a two-hour block and three using a one-period per day format. The content taught within the classes was homemaking skills except for one, which used a child care training program. Three schools sponsored Future Homemakers of America chapters.

Of the seven office education classes selected, five were full year, one period per day in-school classes. The sixth class utilized a full year, two-hour block. The seventh class utilized a full year co-operative on-the-job phase with one period per day released time supervised by a teacher-coordinator. The content taught within the classes was shorthand-transcription and related material. Each senior class was preceded by a junior class. Only one school sponsored a youth club chapter for the office education students.

Of the six trade and industry classes sampled, all were full year classes with four utilizing a two-hour block lab concept and two using a one period daily lab arrangement. All schools had fully equipped labs. Five trade and industry classes taught automotives mechanics while

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one was a farm machinery and equipment class. The farm machinery class also enrolled students from the vocational agriculture class. Only two of the schools sampled sponsored a Vocational Industrial Clubs of America chapter.

CLASSIFICATION OF THE VARIABLES

Since there are several major questions considered in this study requiring different statistical treatments, it is useful to identify the variables hypothesis by hypothesis.

First Hypothesis. The first hypothesis states:

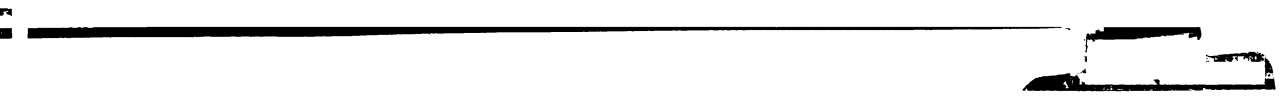
> There will be a significant difference between vocational and non-vocational students' mean scores of intelligence, academic achievement, and socio-economic status.

The factors of intelligence, academic achievement, and socio-economic status were handled as independent variables. Each was considered a different treatment to the same group. The vocational and non-vocational groups were the dependent variables or treatment effects.

Second Hypothesis. The second hypothesis states:

> There will be a significant difference between vocational and non-vocational students' mean scores of academic ability, self-concept of vocational ability, perceived parental evaluation of academic ability, perceived friends' evaluation of academic ability, and perceived teachers' evaluation of academic ability. This significant difference will hold firm when the variables of intelligence, academic achievement, and socio-economic status are controlled.

The independent or background control variables selected were: socio-economic status, academic achievement, and intelligence. The dependent or prediction variables were those of self-concept.



Third Hypothesis. The third hypothesis states:

> Significant differences exist among vocational students' measures of self-concepts when using sex, intelligence, socio-economic status, place of residence, and grade point average as treatment effects.

The self-concept variables were the dependent factors, with intelligence, socio-economic status, place of residence, and academic achievement the independent variables.

Fourth Hypothesis. The fourth hypothesis states:

> Students participating in a vocational class exhibit an enhanced self-concept of vocational ability.

The self-concept variables acted as the dependent factors, but this time, vocational and non-vocational factors were the independent variables.

Fifth Hypothesis. The fifth hypothesis states:

> Significant differences in self-concept, intelligence, school achievement, and socio-economic status scores will exist when comparing students in each vocational specialty (distributive education, office education, agriculture education, home economics, and trade and industry) with non-vocational students under circumstances where intelligence, grade point average, and socio-economic status variables are controlled.

The factors of intelligence, academic achievement, and socio-economic status were independent variables while the vocational specialties (D.E., O.E., Agr., HoEc., and T&I) and the non-vocational group were the dependent variables.

Sixth Hypothesis. The sixth hypothesis states:

> Significant differences in all variable scores (intelligence, academic achievement, socio-economic status, self-concept of academic ability, self-concept of vocational ability, perceived parents' evaluation of academic ability, perceived.

> friends' evaluation of academic ability, perceived teachers' evaluation of academic ability) exist when comparing vocational specialties across each of the sample schools.

The school factor was the dependent variable; and intelligence, academic achievement, socio-economic status, and the self-concept measures were the independent variables.

Seventh Hypothesis. The seventh hypothesis states:

> The measures of self-concept of academic ability and self-concept of vocational ability measure separate dimensions of self-concept.

The factor self-concept of academic ability was the dependent variable, and self-concept of vocational ability became the independent variable.

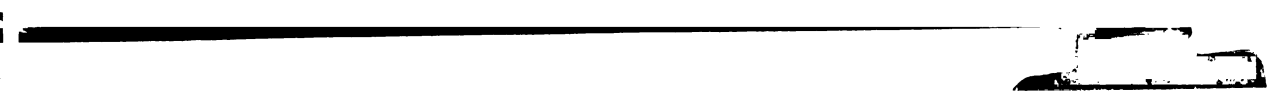
SELECTION OF THE TESTING INSTRUMENTS

The major instruments used in this study were: The Michigan State General Self-Concept of Academic Ability Scale, the Wamhoff Self-Concept of Vocational Ability Scale, the Duncan Socio-Economic Index, The Science Research Associates' Army General Classification Test (First Civilian Edition), and A Self-Report Questionnaire.

Michigan State General Self-Concept of Academic Ability Scale

The General Self-Concept of Academic Ability Scale was prepared by Brookover and consists of eight, five-choice items developed from a pretest analysis. Items were coded from five to one with the higher self-concept alternatives receiving the higher values.[9] These eight

[9]See Appendex B General Self-Concept of Academic Ability.



items were originally tested by the Guttman Scale and received coefficients of reproducibility of .95 for males and .96 for females when used with 1050 students.[10] These correlations were high; especially since self-concept is not constant, but fluctuates through changes that individuals experience in their personal relationships.

Only specific sections of the instrument were utilized in this study. These sections were: (1) General Self-Concept of Academic Ability,[11] (2) Perceived Parental Expectations of Academic Ability,[12] (3) Perceived Friends' Evaluations of Academic Ability,[13] and (4) Perceived Teachers' Evaluations of Academic Ability.[14]

Wamhoff Self-Concept of Vocational Ability Scale

This scale was patterned after the Self-Concept of Academic Ability Scale produced by Brookover at Michigan State University. It was designed to assess a student's perception of his ability to relate to and achieve in an occupation. Items were coded from five to one with the higher self-concept alternatives receiving the higher values. The eight items selected for this instrument were chosen from 22 original questions prepared by Wamhoff who administered them to high school students at Mason, Michigan. He then ran a Guttman Scale and received coefficients of reproducibility of over .90 for 10 of the 22 questions. A check of Wamhoff's work was made by running a Guttman Scale of this researcher's

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[10]Brookover, et al., op. cit., p. 51.

[11]See Appendix B General Self-Concept of Academic Ability.

[12]See Appendix B Perceived Parental Expectations of Academic Ability.

[13]See Appendix B Perceived Friends' Evaluations of Academic Ability.

[14]See Appendix B Perceived Teachers' Evaluations of Academic Ability.

pilot study results administered at Sky View High School in Smithfield, Utah. From the results of this analysis, questions 2, 3, 4, 7, 9, 11, 18, and 20 from the original 23 were selected as the eight test questions measuring self-concept of vocational ability.[15] These questions returned only nine errors out of a possible 460 responses giving a Guttman Scale reproducibility coefficient of 98 percent.[16]

The Guttman Scale gives reproducibility coefficients calculated from the ratio of errors to correct predictions. Ideally it should not exceed .10, which, when subtracted from 100 gives an acceptable reproducibility coefficent of .90.[17] The Guttman Scale technique, by definition, insures high internal consistency reliability.[18]

Duncan Socio-Economic Index

Use of the Duncan Index for assessing socio-economic status levels of occupations in this research project was consistent with procedures followed in previous research.[19] The Index was based on the interrelationship of three factors: (1) income, (2) education, and (3) occupation.

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[15]See Appendix B Concept of Vocational Ability.

[16]See Appendix C Guttman Scale Data.

[17]William J. Goode, and Paul K. Hatt, Methods of Social Research (Backetts, New York: McGraw-Hill, 1952), pp. 285-95.

[18]Ann Patterson, "An Evaluation of an Instrument Designed to Measure the Construct Self-Concept of Academic Ability" (unpublished Doctoral Dissertation, Michigan State University, 1966).

[19]Edward T. Ferguson, Jr., "A Comparison of the Effectiveness of the Project and Cooperative Methods of Instruction on Selected Competencies in Distributive Education at the Secondary Level" (unpublished Doctoral Dissertation, Michigan State University, 1967).

It was prepared by the National Opinion Research Center (NORC) from its study of the 1950 labor market to predict the prestige ratings of occupations.

Reiss[20] identified several problems associated with the construction and use of the instrument. He concluded, however, that most problems are a reflection of the complexity of the task rather than instrument causes.

> . . . then neither NORC investigators, who developed the prestige ratings, nor the subsequent investigators using the rating as a research instrument may be blamed for failing to resolve basic issues raised by any attempt to stratify an entire occupation structure.

In this research project several difficulties were encountered with the use of the Duncan instrument: (1) Several occupational titles listed by students were not rated by that specific title in the Duncan Index. In such cases, a socio-economic level rating was inferred by the researcher from a title that was similar to the unknown one. (2) Occasionally, both the father and mother worked. In every case the father's occupational title was used to find the Duncan Index number except where the socio-economic status of the home was obviously greatly altered because of the mother's occupation. If, for example, the mother was a professional with a high SES rating but the father held a position of low SES rating, then the mother's rating was used to acquire the desired information. (3) Occasionally, there was lack of complete information indicating that an interview technique would have proven more effective in determining individual measures of income or education. However, on the whole, the instrument was easy to use and, for the most part, returned useful data.

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[20]Albert J. Reiss, Jr., Occupations and Social Status (New York: The Free Press of Glencoe, Inc., 1961), p. 114.

One specific question necessitating elaboration, however, is: how can this instrument be defended in 1972 since it was formulated on 1950 census data? Reiss[21] answered the question of stability of the instrument by quoting a study by Hodge. Hodge compared selected Duncan type data based on the 1940 and 1950 census data. Reiss concluded:

> . . . that the index set forth here may be assumed to retain its validity (in the sense of ability to predict occupational prestige) in the short run.[22] Over a long period of time, however, it probably will be subject to serious obsolescence.

Since the measure was stable from 1940 to 1950, one can safely assume, as did Reiss above, that the measure would remain stable over at least the next short run period of ten years. While it is recognized that some error has occurred over a 20-year (1950-1970) span, this length of time would still be well within the spirit of short run interpretation advanced by Reiss. Hopefully, the Duncan Index will be updated using the 1970 census data, and then the precise extent of error could be determined.

Army General Classification Test (First Civilian Edition)

This is a measure of general learning ability in verbal comprehension, quantitative reasoning, and spacial perception. The test yields a total score.

Three types of items (vocabulary, arithmetic word problems, and block counting) are arranged in spiral omnibus fashion, that is, increasingly difficult questions proceeding throughout the test. The

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[21]Robert W. Hodge, "Occupational Composition and Status Crystallization: An Aggregate Approach to Social Stratification" (Master's thesis, University of Chicago, 1961) cited by Albert J. Reiss, Jr., Occupations and Social Status (New York: The Free Press of Glencoe, Inc., 1961) p. 152.

[22]It is assumed that Reiss is speaking of the ten-year span from 1940 to 1950.

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time allowed to answer 150 questions is sufficient to de-emphasize speed and reveal problem solving abilities.[23]

The test is recommended by Science Research Associates to classify the over-all mental ability of students, employees, or applicants. Individual scores can be prepared with norms for 125 civilian occupations. This test is conducive to the ordinary classroom period because its writing time is 40 minutes.

It should be noted that this instrument has come under sharp attack from various reviewers[24] for many reasons: (1) reliability study data are lacking and that which is available is questionable, (2) some of the norms are derived by interpolation rather than actually administering the instrument and collecting the data, (3) the validity data are suspect, and (4) the manual is inadequate with not enough information about the test reported.

While these criticisms seem well founded, the use of this instrument is defended on the following basis: (1) the test was not used for diagnostic or prescriptive purposes, which is assumed in some of the critical points mentioned and (2) the test was not administered to compare the study group with national norms. Rather, the instrument suited the needs of this study as indicated in the following statement by Dailey:

> The later forms of the AGCT were well-constructed tests and accomplished well the purpose for which they were

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[23]Science Research Associates, Inc., Tests and Management Tools for Business, Industry, Trade Schools, Vocational Schools, Agencies and Associations (Chicago: I.B.M., 1971).

[24]Oscar K. Buros, (ed.), The Sixth Mental Measurements Yearbook, (New Jersey: Gryphon Press).

> constructed: to serve as instruments to enable relatively untrained personnel to screen huge numbers of inductees in terms of their intellectual aptitude. The AGCT represented a compromise between a comprehensive classification battery suitable for maximum efficiency of differential classification and the traditional group intelligence test of the 1920's.[25]

It is recognized that the use of a battery of tests or a much longer test would have been ideal for this study, but the procedure was prohibitive in terms of cost and testing time required. Further, there was no way to use the intelligence data that existed at the school since the conversion of different test scores from school to schoolwas impossible. Therefore, a test that could be administered quickly to large numbers of students at low cost was needed. The AGCT was recommended by Counseling and Testing at Utah State University to meet this need.

Self-Report Questionnaire

This questionnaire was patterned after the one used by Wamhoff and Oman, eliminating, for the researcher, many problems typically encountered in a new questionnaire. When a pilot study was run with 35 high school seniors at Sky View High School in Smithfield, Utah, no difficulties were encountered in interpreting nor completing it.

The questionnaire[26] oriented students to the study and asked for personal demographic data such as name, age, date of birth, and sex. Educational background was sought as a check on student mobility, particularly between rural and urban areas. Students were required to list their school classes as a determinant of their academic tracks, and then a clear lineation between vocational and non-vocational educational

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[25] Oscar K. Buros, (ed.), "Tests and Reviews: Intelligence-Group," Fifth Mental Measurements Yearbook (New Jersey: Gryphon Press, 1959).

[26] See Appendix B for copy of questionnaire.

classes was established. Students were also required to report their grade point averages. This self-report procedure proved effective since a study of accuracy verified the approach. The amount of discrepancy between the students' actual grade point averages and their reported grade point averages proved statistically insignificant through a "t" test analysis.[27] Parents' occupations and their main responsibilities while on the job were asked. This information was translated to a Duncan Index score.

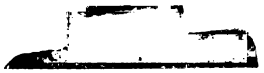
DATA GATHERING, PROCESSING, AND ANALYSIS

The procedures used to gather the data and process them are described herein.

Data Gathering

After identification of individual classes and their teachers through proper sampling procedures, a short training session was conducted in each school. The training sessions assumed three distinct phases: (1) Orientation. Teachers were given background information regarding important concepts of the study and student characteristics. (2) Acquaintance with testing instruments and their administration. Teachers were given copies of each instrument, were shown how to administhem, and were encouraged to ask questions where necessary. (3) Procedures for handling completed documents. A minimum of one-half hour was spent in each school to complete the above three objectives. At the conclusion of each session, teachers were given sufficient test

[27]See Appendix C for details of "t" test analysis.



materials for their classes and a test administrative packet containing the information discussed in the training sessions.

Student absences during the testing program were reported. Of particular interest were absences that could distort the study results. For example, if all students absent on a testing day were low academic achievers having low intelligence and were from low socio-economic homes, the absence of several students would distort the study results.

Table 5 summarizes student absences by education program.

TABLE 5

SUMMARY OF STUDENT ABSENCES IN THE SAMPLE SCHOOLS DURING TESTING PERIOD BY EDUCATIONAL CLASS

PROGRAM	ABSENCES	ABNORMAL ABSENCES
DE	16	3
OE	8	1
AGR	9	3
HO EC	12	0
T&I	11	4
Control	15	4
Total	71	16

These absences were considered unimportant to the study results since few absences were rated as abnormal and the remainder could be considered randomly dispersed. The abnormal absences were evenly distributed between the vocational specialties and control classes and were so few that the impact upon the study results was slight.

Processing the Data

In order to reduce non-sampling errors, a carefully designed procedure was implemented to process data as they were returned from each school. The six steps in this procedure were: (1) Coding. As the raw data (questionnaire and intelligence documents) were received, each questionnaire was coded by school (1-7), class type (1-6), and individual student number. The codes were written across the front page of the questionnaire for easy transfer to computer forms. (2) Collating. Each intelligence raw score answer sheet was collated with each questionnaire (that is, Mary Smith's intelligence raw score answer sheet was inserted into her questionnaire). (3) Unusable Questionnaires. Each questionnaire was checked to assure that it met the qualifications of the study. A questionnaire was rejected for the following reasons: (a) incomplete questionnaire, (b) freshman, sophomore, or junior student status, (c) move from rural to urban setting or vice versa during school year (d) absence from either of the testing periods.

A summary of questionnaires discarded from the study and the reasons for their being discarded is found in Table 6.

TABLE 6

SUMMARY OF REASONS STUDENT QUESTIONNAIRES

WERE NOT USED IN STUDY

SCHOOL	INCOMPLETE DATA	NON-SENIOR	RURAL-URBAN MOVE	ABSENT EITHER TEST	TOTAL
1	6	12	5	13	36
2	8	6	7	4	25
3	1	4	6	4	15
4	2	7	2	16	27
5	7	13	2	15	37
6	6	18	8	12	44
7	9	5	1	7	22
Total	39	65	31	71	206

(4) Scoring Procedures. The pilot study served to prepare researchers in handling the data. All instruments were scored. The Duncan Index was used to convert declared occupations of students' parents to numerical scores. A standardized key aided scoring of the intelligence tests. Total scores were determined from the self-concept measures, and then all scores were transferred to the computer laboratory data coding forms. When staff members had completed scoring all instruments and transferring the scores to computer forms, a check was made on each staff member's results. All obvious differences between staff members' tabulations were examined and discussed.

Scoring the pilot test papers proved to be a useful training procedure. As scoring procedures began, there were numerous differences between staff members; but as scoring progressed, the problems diminished. Scorers were encouraged to ask for clarification of questions. When scoring of the pilot study was completed, the research staff applied the same procedure to the study data. (5) Computer Key Punching. Following entry of data on computer laboratory data coding forms, an experienced key punch operator punched the computer cards. (6) The Computer Run. An experienced statistician and computer operator at Utah State University then supervised the running of the program through the University computer.

Statistical Analysis

The statistical model used for this study was an analysis of variance randomized block design, utilizing treatment effects, i.e., vocational and non-vocational group. The basic assumption of this design is that all variations within treatments are due to random variations within the groups. The main task was to test to see if the variable scores were similar in each group. If they proved similar then there was no significant difference between groups.

An analysis of covariance was used to adjust the mean scores (as in H_2 and H_5) to control for variables that may have an influence upon the dependent variables.

A correlation matrix was used to identify relationships between all variables.

CHAPTER IV

FINDINGS

The study findings are presented in the following seven sections: (1) Vocational and Non-Vocational Student Characteristics Compared; (2) Vocational Specialty Area Characteristics Compared; (3) Students Enrolled in Vocational Specialties Compared to Non-Vocational Students; (4) Homegeneity Within Each Vocational Specialty Class; (5) Influence of Vocational Classes on Student's Self-Concepts; (6) Importance of the Independent Variables; and (7) Self-Concepts Compared.

VOCATIONAL AND NON-VOCATIONAL STUDENT CHARACTERISTICS COMPARED

In overview, the data presented in this section reveal that there were remarkably few differences in selected measures of student characteristics that would differentiate the Utah vocational student from the non-vocational student. From a macro perspective, the two groups of students were more similar than they were different. Data in Tables 7-15 and Figures 2-6 indicate that only on the variable of academic achievement did non-vocational students score significantly higher than the vocational group; and vocational students scored higher than their non-vocational counterparts on the one variable of vocational self-concept. On the dimensions of intelligence, socio-economic status, self-concept of academic ability and the perceived parents', perceived

friends', and perceived teachers' concepts of academic ability, these two groups were not significantly different. However, non-vocational students' scores were quantitatively higher in most dimensions than vocational students' scores, but none of these differences were statistically significant.

Table 7 shows that the non-vocational students' mean scores were higher than the vocational students' mean scores on most variables but that the variability of the values was greater for the non-vocational group than for the vocational group.

TABLE 7

MEAN AND STANDARD DEVIATION SCORES FOR EIGHT VARIABLES COMPARING VOCATIONAL WITH NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

VARIABLES	MEANS		STANDARD DEVIATION	
	VOC	NON-VOC	VOC	NON-VOC
Intelligence	81.97	84.67	.89	2.23
GPA	2.89	3.08	.27	.67
SES	42.75	47.71	1.03	2.58
SCAA	28.33	29.15	.20	.51
SCVA	31.71	31.26	.18	.45
PPAA	19.76	20.16	.15	.38
PFAA	18.84	19.37	.14	.34
PTAA	18.73	19.00	.15	.38

Using the analysis of variance for the test of significance with no variables controlled, and an analysis of covariance where the variables intelligence, grade point average, and socio-economic status are controlled, details illustrating the relationships between the two treatment groups are presented variable by variable.

Intelligence

Table 8 shows that when vocational seniors and non-vocational seniors were compared on the variable intelligence, no significant difference was found at an alpha level of .05, even though the non-vocational group scores were considerably higher.

TABLE 8

AN ANALYSIS OF VARIANCE OF INTELLIGENCE MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR VOCATIONAL AND NON-VOCATIONAL STUDENTS

SOURCE	DF	SS	MS	F
Total	634	275,020.20		
Between	1	546.40	546.40	1.26
Within	633	274,473.80	433.61	

A frequency polygon (Figure 2) graphically shows that the non-vocational group possessed higher intelligence scores as exhibited by a higher peaked and slightly skewed to the right graph line.

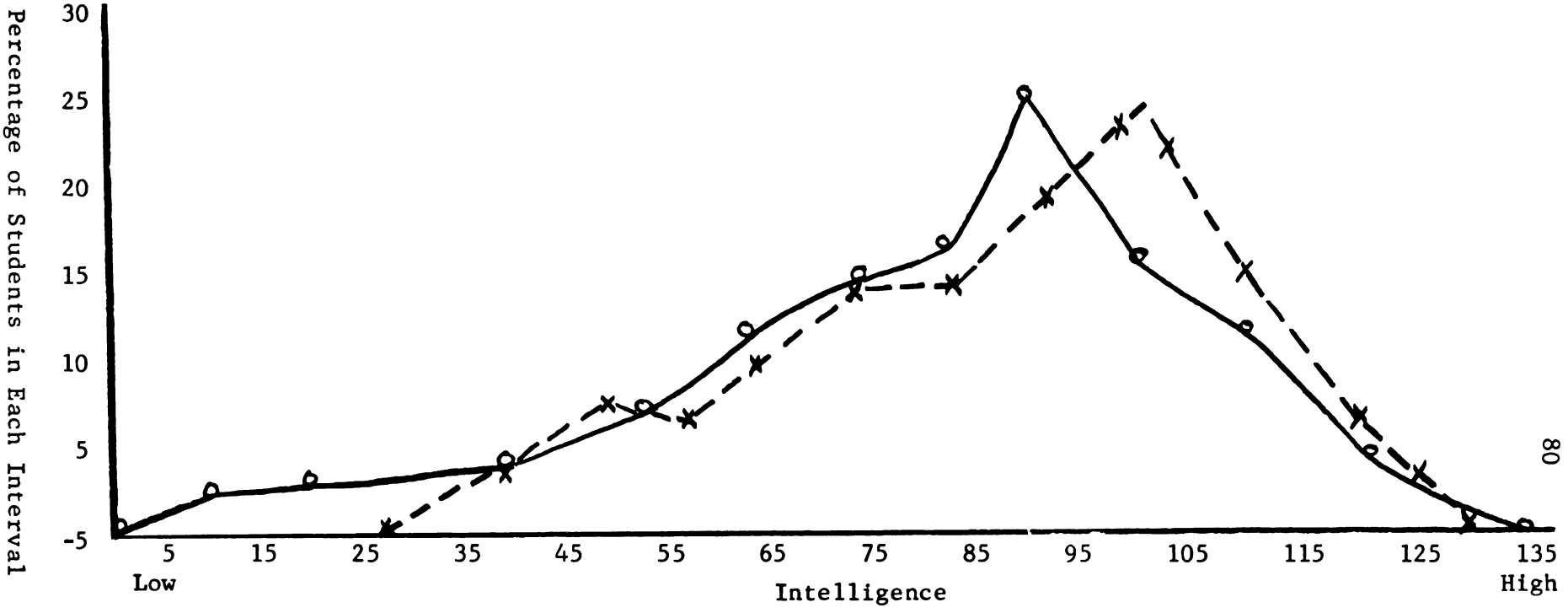


FIGURE 2

DISTRIBUTION OF INTELLIGENCE SCORES FOR VOCATIONAL AND NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

____o____o____Vocational ---x----x----xNon-Vocational

Academic Achievement

Grade point average reported by the students was the measure selected to gauge students' academic achievement. Table 9 demonstrates that when Utah senior vocational students' grade point averages were compared with non-vocational students' grade point averages, there was a significant difference. The non-vocational group was significantly higher than the vocational.

TABLE 9

AN ANALYSIS OF VARIANCE OF ACADEMIC ACHIEVEMENT MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR VOCATIONAL AND NON-VOCATIONAL STUDENTS

SOURCE	DF	SS	MS	F
Total	634	24,822.67		
Between	1	289.36	289.36	7.47*
Within	633	24,533.31	38.76	

*significant alpha .05

A frequency polygon (Figure 3) graphically illustrates the significant difference between the two student groups on the variable academic achievement.

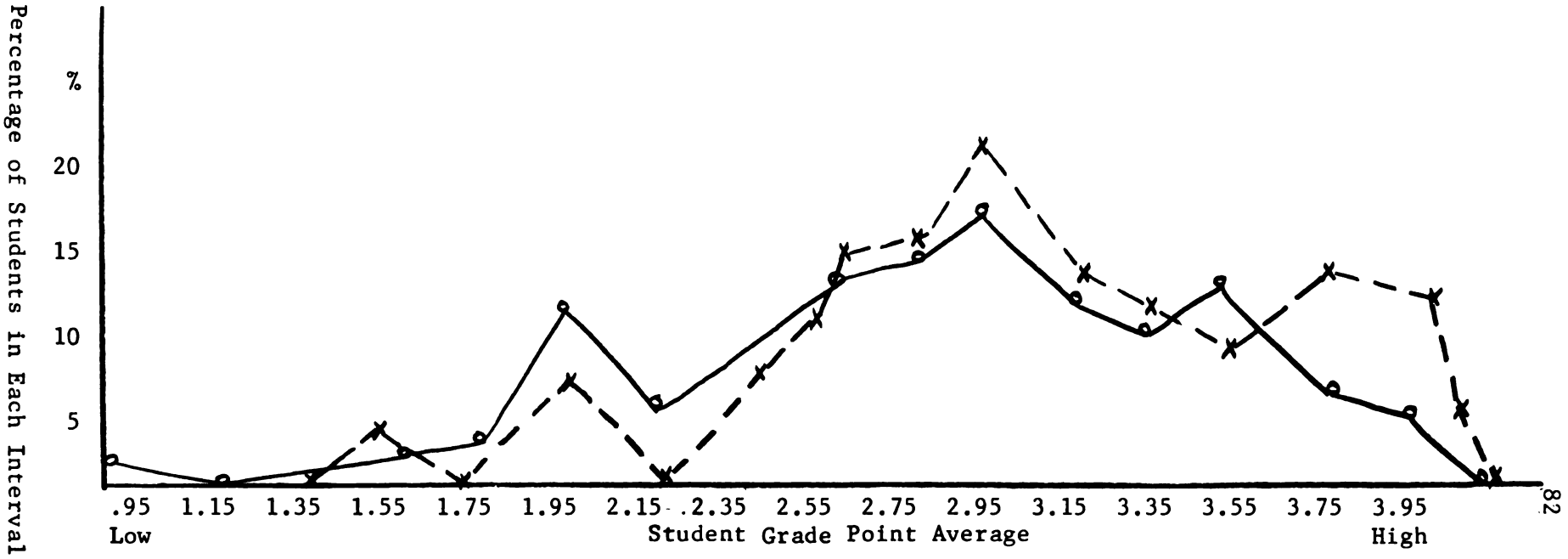


FIGURE 3

DISTRIBUTION OF GRADE POINT AVERAGES FOR VOCATIONAL AND NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

____o____0____Vocational ----x----x----Non-Vocational

Socio-Economic Status (SES)

Duncan Index scores were used to measure socio-economic status. Table 10 reveals that when Utah senior vocational students were compared with non-vocational seniors on the variable socio-economic status, there was a higher but not significant difference (alpha .05) in favor of the non-vocational group.

TABLE 10

AN ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC STATUS MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR VOCATIONAL AND NON-VOCATIONAL STUDENTS

SOURCE	DF	SS	MS	F
Total	634	368,903.50		
Between	1	1,850.43	1,850.43	3.19
Within	633	367,053.10	579.86	

A frequency polygon (Figure 4) graphically portrays the difficulty in describing differences in socio-economic status for these two groups.

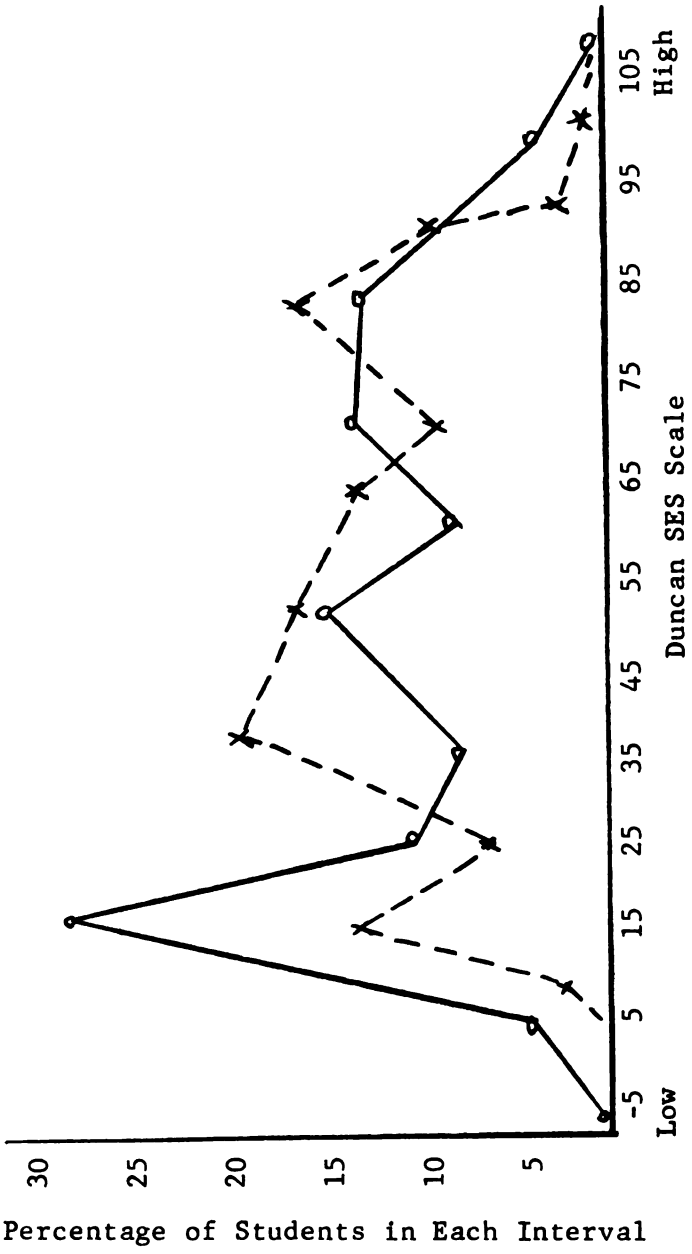
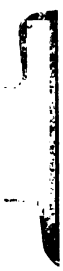


FIGURE 4

DISTRIBUTION OF SES SCORES FOR VOCATIONAL AND NON-VOCATIONAL UTAH HIGH SCHOOL STUDENTS

o——o——Vocational ----x----x----Non-Vocational



Self-Concept of Academic Ability (SCAA)

Brookover's instrument was used to acquire data for students' self-concepts of academic ability. Table 11 shows the relationship between groups when Utah senior vocational students were compared with non-vocational seniors on the variable of self-concept of academic ability. A higher but non-significant difference (alpha .05) was found in favor of non-vocational students.

TABLE 11

AN ANALYSIS OF VARIANCE OF SELF-CONCEPT OF ACADEMIC ABILITY MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR VOCATIONAL AND NON-VOCATIONAL STUDENTS

SOURCE	DF	SS	MS	F
Total	634	14,212.54		
Between	1	50.60	50.60	2.26
Within	633	14,161.93	22.37	

A frequency polygon (Figure 5) graphically illustrates how closely matched the two groups were on the self-concept of academic ability dimension.

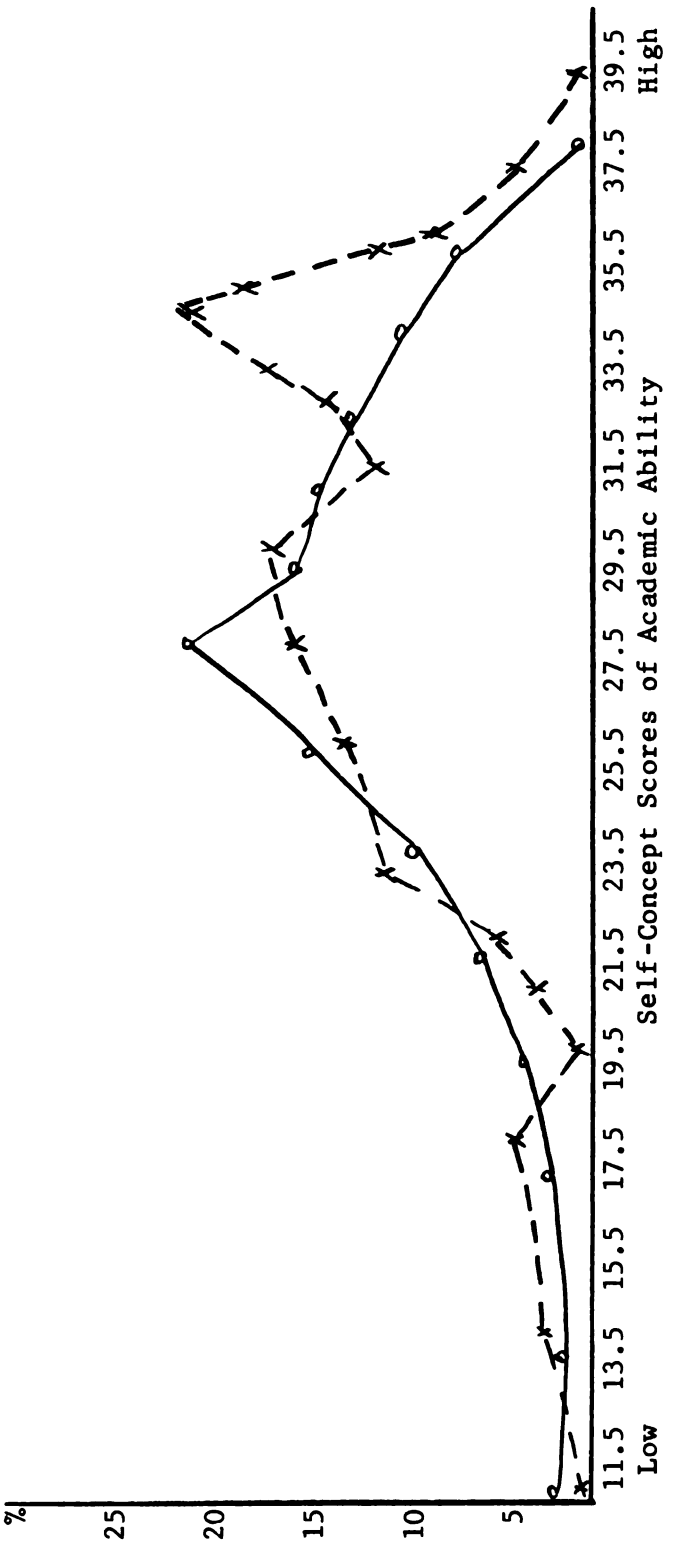


FIGURE 5

DISTRIBUTION OF SELF-CONCEPT OF ACADEMIC ABILITY SCORES FOR VOCATIONAL AND NON-VOCATIONAL UTAH HIGH SCHOOL STUDENTS

___o___o___Vocational ----x----x----Non-Vocational

In a second treatment of self-concept of academic ability, Utah senior vocational students and non-vocational seniors were compared when the variables of intelligence, academic achievement, and socio-economic status were statistically controlled. Table 12 illustrates that the relationship did not change, i.e., there still was no significant difference between the groups on this measure.

TABLE 12

AN ANALYSIS OF COVARIANCE OF SELF-CONCEPT OF ACADEMIC ABILITY MEAN SCORES WHEN CONTROLLING INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS FOR UTAH HIGH SCHOOL SENIOR VOCATIONAL AND NON-VOCATIONAL STUDENTS

SOURCE	DF	MS	ADJ. F
Groups	1	8.47	.67
Between	4	1,564.63	124.50
Within	629	12.56	

Self-Concept of Vocational Ability (SCVA)

Wamhoff's instrument was used to collect data for students' self-concepts of vocational ability. Table 13 illustrates that when Utah senior vocational students were compared (no variables controlled) with non-vocational seniors, the vocational students had a higher but not significantly different mean (alpha .05).

TABLE 13

AN ANALYSIS OF VARIANCE OF SELF-CONCEPT OF VOCATIONAL ABILITY MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR VOCATIONAL AND NON-VOCATIONAL STUDENTS

SOURCE	DF	SS	MS	F
Total	631	11,024.98		
Between	1	14.78	14.78	.85
Within	633	11,010.20	17.39	

A frequency polygon (Figure 6) graphically demonstrates how the lower-score, higher-frequency vocational group was offset by the higher-score, lower-frequency non-vocational group.

In an analysis of covariance, where the variables of intelligence, academic achievement, and socio-economic status were statistically controlled, the self-concept of vocational ability scores for Utah senior vocational students and non-vocational seniors were changed. Table 14, clearly illustrates that when these three variables were controlled, a significant difference did occur. Vocational students scored significantly higher than their non-vocational peers.

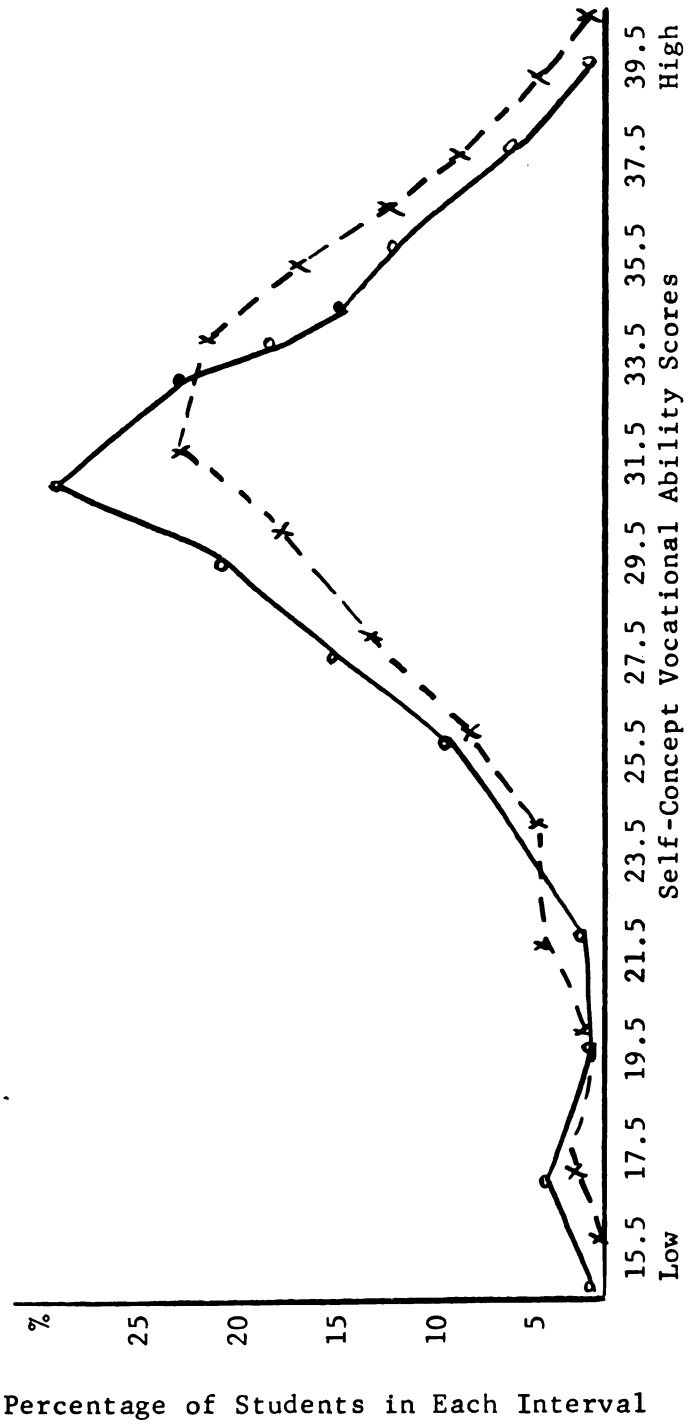


FIGURE 6

DISTRIBUTION OF SELF-CONCEPT OF VOCATIONAL ABILITY SCORES

FOR VOCATIONAL AND NON-VOCATIONAL UTAH HIGH SCHOOL STUDENTS

___o___o___Vocational ----x----x----Non-Vocational

TABLE 14

AN ANALYSIS OF COVARIANCE OF SELF-CONCEPT OF VOCATIONAL ABILITY MEAN SCORES WHEN CONTROLLING INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS FOR UTAH HIGH SCHOOL SENIOR VOCATIONAL AND NON-VOCATIONAL STUDENTS

SOURCE	DF	MS	ADJ. F
Groups	1	70.75	4.45*
Between	4	249.53	15.68
Within	629	15.92	

*significant alpha

Perceived Parents', Friends', and Teachers' Concepts of Self (PPAA, PFAA, PTAA)

Brookover's instruments were used to collect data for these three self-concept measures. Table 15, demonstrates that when vocational students were compared to non-vocational, no significant difference was found.

Summary of Comparison of Vocational and Non-Vocational Student Characteristics

Hypothesis 1, following, was rejected.

> There will be a significant difference between vocational and non-vocational students' mean scores of intelligence, academic achievement, and socio-economic status.

TABLE 15

AN ANALYSIS OF VARIANCE OF PERCEIVED PARENTS', PERCEIVED FRIENDS', AND PERCEIVED TEACHERS' CONCEPTS OF ACADEMIC ABILITY MEAN SCORES WHEN COMPARING VOCATIONAL AND NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

CRITERIA	SOURCE	DF	SS	MS	F
Perceived Parents	Total	634	7,832.07		
	Between	1	12.12	12.12	.98
	Within	633	7,819.95	12.35	
Perceived Friends	Total	634	6,492.23		
	Between	1	20.82	20.82	2.04
	Within	633	6,471.42	10.22	
Perceived Teachers	Total	634	7,880.43		
	Between	1	5.33	5.33	.43
	Within	633	7,875.10	12.44	

Hypothesis 2, following, was also rejected.

> There will be a significant difference between vocational and non-vocational students' mean scores of academic ability, self-concept of vocational ability, perceived parental evaluation of academic ability, perceived friends' evaluation of academic ability. This significant difference will hold firm when the variables of intelligence, academic achievement, and socio-economic status are controlled.

Most results showed similarity when comparing Utah vocational and non-vocational students on the variables of intelligence, socio-economic status, self-concept of academic ability, and their perceptions of parents', friends', and teachers' feelings of their academic abilities. Non-vocational students scored significantly higher than their vocational peers on the variable of academic achievement. Vocational students, on the other hand, scored significantly higher on self-concept of vocational ability.

These results are in direct conflict with Wamhoff's.[1] He found significant differences in Junior College vocational and non-vocational students on their self-concepts of academic ability, but no significant difference on their self-concepts of vocational ability. However, the results support the Oman[2] study, which found significant differences on self-concept of vocational ability, but no significant difference on self-concept of academic ability when comparing the two groups at the Junior College level.

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[1]Carroll H. Wamhoff, "Self-Concept of Occupational Ability and Relation to Selected Factors and Creative Elements," Dissertation Abstracts, Michigan State University, 1969, No. 69-20,950.

[2]Ronald Nels Oman, Self-Concept of Occupational Ability and Related Characteristics in Community College Occupational Academic Students, Doctoral Dissertation, Michigan State University, 1971, pp. 23-31.

VOCATIONAL SPECIALTY AREA CHARACTERISTICS COMPARED

The cause of so little significant difference between the two groups was puzzling. State vocational educators have complained that they have the "dummy" kids and that administrators and counselors have used their programs as a "dumping ground." Yet, the facts of the last section showed little difference between the two groups. Why?

A possible explanation of the few significant differences found in the last section, when comparing the vocational and non-vocational groups on each of the seven main variables, rests with the fact that there exists a greater degree of difference within the vocational group than exists between the vocational and non-vocational groups. There is a significant difference when comparing means of the vocational specialties (DE, OE, AGR, HO EC, T&I) on every variable except the perceived self-concept variables.

Intelligence

A wide range of means and standard deviations of the intelligence variable was anticipated when specialty areas were compared one to another; however, its extent was startling. The range of intelligence mean scores and standard deviations for each vocational specialty are shown in Table 16. The scores of agriculture and distributive education students were on the low end of the mean value continum, while office education and trade and industry students' socres were on the high end. Trade and industry and agriculture students portrayed higher standard deviation values.

TABLE 16

SUMMARY OF MEANS AND STANDARD DEVIATIONS OF INTELLIGENCE SCORES COMPARING VOCATIONAL SPECIALTY AREAS

VOC SPECIALTY	MEANS	SD
DE	76.60	.1.90
OE	89.52	1.64
AGR	75.02	2.13
HO EC	80.00	1.95
T&I	85.65	2.24
Overall	81.97	

The analysis of variance detail in Table 17 reveals that this difference was significant (alpha .05).

Academic Achievement

The means and standard deviations of students' grade point averages for each vocational specialty area are documented in Table 18. Again, office education students scored high, but in this case, trade and industry students' scores switched from high to low, with agriculture and distributive education scores falling close to the low. Home economics student scores are close to the overall mean.

TABLE 17

AN ANALYSIS FOR VARIANCE OF INTELLIGENCE MEAN SCORES FOR UTAH HIGH SCHOOL SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS

SOURCE	DF	SS	MS	F
Total	547	241,310.50		
Between	4	17,940.16	4,485.04	10.90*
Within	543	223,370.30	411.36	

*significant alpha .05

TABLE 18

SUMMARY OF MEANS AND STANDARD DEVIATIONS OF GRADE POINT AVERAGES WHEN COMPARING VOCATIONAL SPECIALTY AREAS

VOC SPECIALTY	MEANS	SD
DE	2.73	.54
OE	3.25	.46
AGR	2.65	.60
HO EC	3.00	.56
T&I	2.60	.63
Overall	2.89	

The analysis of variance detail of Table 19 shows that these differences were statistically significant.

TABLE 19

AN ANALYSIS OF VARIANCE OF GRADE POINT AVERAGE MEAN SCORES FOR UTAH HIGH SCHOOL SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS

SOURCE	DF	SS	MS	F
Total	547	216.50		
Between	4	38.65	9.66	29.50*
Within	543	177.85	.33	

*significant alpha .05

Socio-Economic Status

The means and standard deviations of students' socio-economic status scores classified by vocational specialty are given in Table 20. Agriculture students* had low socio-economic scores while distributive and office students possessed the higher values. Home economics and trade and industry student socio-economic scores were grouped fairly high.

The analysis of variance detail of Table 21 shows that SES value differences between vocational specialties were significant.

*In retrospect the Duncan Index does not appear sensitive enough to register adequately the socio-economic level of persons working in the agriculture industry.

TABLE 20

SUMMARY OF MEANS AND STANDARD DEVIATIONS OF SOCIO-ECONOMIC SCORES WHEN COMPARING VOCATIONAL SPECIALTY AREAS

VOC SPECIALTY	MEANS	SD
DE	45.94	2.26
OE	45.97	1.95
AGR	32.29	2.53
HO EC	44.85	2.32
T&I	41.13	2.66
Overall	42.75	

TABLE 21

AN ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC STATUS MEAN SCORES FOR UTAH HIGH SCHOOL SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS

SOURCE	DF	SS	MS	F
Total	546	330,203.20		
Between	4	13,405.06	3,351.26.	5.74*
Within	543	316,798.20	583.42	

*significant alpha .05

Self-concept of Academic Ability

A wide range in means and standard deviations of self-concept of academic ability scores existed when comparing vocational specialties as shown in Table 22. Office education students' mean scores were highest, trade and industry students' scores were lowest, and all other vocational classes were grouped near the overall mean.

TABLE 22

SUMMARY OF MEANS AND STANDARD DEVIATIONS OF SELF-CONCEPT OF ACADEMIC ABILITY SCORES COMPARING VOCATIONAL SPECIALTY AREAS

VOC SPECIALTY	MEANS	SD
DE	28.36	.43
OE	30.02	.37
AGR	27.08	.48
HO EC	28.23	.44
T&I	26.65	.50
Overall	28.33	

The analysis of variance detail of Table 23 indicates that these differences were significant.

Table 24 portrays that the difference in self-concept of academic ability between specialty areas was still significant when controlling variables of intelligence, academic achievement, and socio-economic status.

TABLE 23

AN ANALYSIS OF VARIANCE OF SELF-CONCEPT OF ACADEMIC ABILITY MEAN SCORES FOR UTAH SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS

SOURCE	DF	SS	MS	F
Total	547	120,048.80		
Between	4	813.26	203.32	9.87*
Within	543	11,191.61	20.61	

*significant alpha 105

TABLE 24

AN ANALYSIS OF COVARIANCE OF SELF-CONCEPT OF ACADEMIC ABILITY MEAN SCORES FOR UTAH SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS WHERE INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS VARIABLES ARE CONTROLLED

SOURCE	DF	MS	ADJ. F
Total	4	31.26	2.62*
Between	4	1,188.79	99.55
Within	539	11.94	

*significant alpha .05

Self-Concept of Vocational Ability

Unlike the other tests of significance in this section, Table 25 reports that the mean and standard deviation measures for self-concept of academic ability over each vocational specialty area were similar when no variables were controlled.

TABLE 25

SUMMARY OF MEANS AND STANDARD DEVIATIONS OF SELF-CONCEPT OF VOCATIONAL ABILITY SCORES COMPARING VOCATIONAL SPECIALTY AREAS

VOC SPECIALTY	MEANS	SD
DE	32.30	.39
OE	31.85	.34
AGR	32.12	.44
HO EC	30.97	.40
T&I	31.13	.46
Overall	31.71	

Table 26 shows no significant difference between the vocational specialties in self-concept of vocational ability scores. When, however, the means were adjusted for the variables intelligence, grade point average, and socio-economic status, the test of significance became significant (Table 27). There was a difference in self-concept of

vocational ability scores when students were compared by vocational specialties with the above mentioned variables controlled.

TABLE 26

AN ANALYSIS OF VARIANCE OF SELF-CONCEPT OF VOCATIONAL ABILITY MEAN SCORES FOR UTAH SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS

SOURCE	DF	SS	MS	F
Total	547	9,593.29		
Between	4	143.77	35.94	2.06
Within	543	9,449.51	17.40	

TABLE 27

AN ANALYSIS OF COVARIANCE OF SELF-CONCEPT OF VOCATIONAL ABILITY MEAN SCORES FOR UTAH SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS WHERE INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS VARIABLES ARE CONTROLLED

SOURCE	DF	MS	ADJ. F
Total	4	41.89	2.64*
Between	4	220.29	13.86
Within	539	15.90	

*significant alpha .05

Perceived Parents', Friends', and Teachers' Concepts of Self

The perceived evaluations of parents', friends', and teachers' were treated together in the one table because the results were similar. Table 28 illustrates that office education students had the highest mean scores, trade and industry students had the lowest mean scores, and that the other class scores were scattered between the two extremes.

TABLE 28

SUMMARY OF MEANS OF STUDENTS' PERCEIVED SELF-CONCEPT SCORES WHEN COMPARING VOCATIONAL SPECIALTY AREAS

VOC SPECIALTY	SELF-CONCEPT MEASURES		
	PPAA	PFAA	PTAA
DE	19.63	18.64	18.54
OE	20.19	20.12	19.75
AGR	18.97	18.03	18.08
HO EC	19.82	18.95	18.97
T&I	18.59	17.48	17.51
Overall	19.76	18.84	18.73

An analysis of variance, having no variables controlled, documents the fact that a significant difference existed on all the three self-concept variables when comparing vocational and non-vocational students as shown in Table 29.

TABLE 29

AN ANALYSIS OF VARIANCE OF PERCEIVED PARENTS', PERCEIVED FRIENDS', AND PERCEIVED TEACHERS' CONCEPTS OF ACADEMIC ABILITY MEAN SCORES FOR UTAH HIGH SCHOOL SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS

CRITERIA	SOURCE	DF	SS	MS	F
PPAA	Total	547	6,722.20		
	Between	4	374.50	93.63	8.01*
	Within	543	6,347.71	11.69	
PFAA	Total	547	5,391.12		
	Between	3	470.17	117.54	12.97*
	Within	543	4,921.02	9.06	
PTAA	Total	547	6,643.10		
	Between	3	330.39	82.60	7.11*
	Within	543	6,312.71	11.63	

*significant alpha .05

However, the score differences became non-significant when these three self-concept measures were adjusted for intelligence, socio-economic status, and grade point average as shown in Table 30.

TABLE 30

AN ANALYSIS OF COVARIANCE OF PERCEIVED PARENTS', PERCEIVED FRIENDS', AND PERCEIVED TEACHERS' CONCEPTS OF ACADEMIC ABILITY MEAN SCORES FOR UTAH HIGH SCHOOL SENIORS ENROLLED IN VOCATIONAL SPECIALTY AREAS WHEN INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS VARIABLES ARE CONTROLLED

CRITERIA	SOURCE	DF	MS	ADJ. F
PPAA	Treatment	4	10.36	1.27
	Between	4	490.86	60.35
	Within	539	8.13	
PPFA	Treatment	4	11.55	1.87
	Between	4	399.32	64.76
	Within	539	6.17	
PPTA	Treatment	4	12.98	1.67
	Between	4	531.57	68.44
	Within	539	7.77	

Apparently students of the vocational specialties were not significantly different in the way they perceived how "important others" view their academic abilities when these independent variables were controlled.

Summary of Vocational Specialty Students Compared

The vocational classes in Utah were not homogeneous. Characteristics were different when comparing students across vocational specialty classes. The student scores of intelligence, academic achievement, socio-economic status, self-concept of academic ability, and self-concept of vocational ability were all significantly different when the various vocational classes were compared.

STUDENTS ENROLLED IN VOCATIONAL SPECIALTIES COMPARED TO NON-VOCATIONAL STUDENTS ON SELECTED CHARACTERISTICS

The previous section has demonstrated that vocational specialty classes were significantly different on most variables, but insufficient information about the dimensions of that difference was given. How do each of the specialty areas compare with the control group? Which variables are significant and which are not? The purpose of this section is to supply the dimensionality of this difference.

Distributive Education

Evidence that Utah distributive education students were more homogeneous (standard deviation scores) than their non-vocational peers but significantly lower than their non-vocational peers on the dimensions of intelligence and grade point average is given in Table 31 and Table 32.

TABLE 31

MEAN AND STANDARD DEVIATION SCORES FOR EIGHT VARIABLES COMPARING DISTRIBUTIVE EDUCATION ENROLLEES WITH NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

VARIABLES	MEANS		STANDARD DEVIATIONS	
	DE	NON-VOC	DE	NON-VOC
Intelligence	76.60	84.67	1.90	2.23
GPA	2.73	3.08	.54	.67
SES	45.94	47.71	2.26	2.58
SCAA	28.36	29.15	.43	.51
SCVA	32.30	31.26	.39	.45
PPAA	19.63	20.16	.34	.38
PFAA	18.64	19.37	.30	.34
PTAA	18.54	19.00	.35	.38

Distributive education students also scored lower on all factors except self-concept of vocational ability than their non-vocational counterparts; however, the differences were not statistically significant.

When the factors intelligence, academic achievement, and socio-economic status were controlled, Table 33 shows that the variable of vocational ability became statistically significant.

TABLE 32

AN ANALYSIS OF VARIANCE OF SELECTED VARIABLE MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR DISTRIBUTIVE EDUCATION AND NON-VOCATIONAL STUDENTS

CRITERIA	SOURCE	DF	SS	MS	F
Intelligence	Total	200	73,188.39		
	Between	1	3,213.62	3,213.62	9.14*
	Within	199	69,974.77	351.63	
GPA	Total	200	72.53		
	Between	1	6.22	6.22	18.66*
	Within	199	66.31	.33	
SES	Total	200	104,339.70		
	Between	1	155.30	155.30	.29
	Within	199	104,184.40	523.54	
SCAA	Total	200	4,574.09		
	Between	1	30.78	30.78	1.35
	Within	199	4,543.31	22.83	
SCVA	Total	200	3,689.52		
	Between	1	52.74	52.74	2.89
	Within	199	3,636.78	18.28	
PPAA	Total	200	2,554.10		
	Between	1	13.83	13.83	1.08
	Within	199	2,540.27	12.77	
PFAA	Total	200	2,038.60		
	Between	1	26.11	26.11	2.58
	Within	199	2,012.48	10.11	
PTAA	Total	200	2,722.55		
	Between	1	10.27	10.27	.75
	Within	199	2,712.28	13.63	

*significant alpha .05

TABLE 33

AN ANALYSIS OF COVARIANCE OF SELECTED SELF-CONCEPT MEAN SCORES WHEN CONTROLLING INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS FOR UTAH HIGH SCHOOL SENIOR DISTRIBUTIVE EDUCATION AND NON-VOCATIONAL STUDENTS

VARIABLE	SOURCE	DF	MS	ADJ. F
SCAA	Treatment	1	.46.83	3.11
	Between	4	402.16	26.72
	Within	195	15.05	
SCVA	Treatment	1	128.26	7.32*
	Between	4	54.86	3.13
	Within	195	17.52	
PPAA	Treatment	1	22.63	2.48
	Between	4	190.18	20.84
	Within	195	9.13	
PFAA	Treatment	1	3.03	.38
	Between	4	116.31	14.66
	Within	195	7.93	
PTAA	Treatment	1	24.36	2.37
	Between	4	176.10	17.10
	Within	195	10.30	

*significant alpha .05

Office Education

Table 34 shows Utah office education students were more homogeneous (standard deviation scores) and scored significantly higher than their non-vocational peers in intelligence and academic achievement.

TABLE 34

MEAN AND STANDARD DEVIATION SCORES FOR EIGHT VARIABLES COMPARING OFFICE EDUCATION ENROLLEES WITH NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

VARIABLES	MEANS		STANDARD DEVIATIONS	
	OE	NON-VOC	OE	NON-VOC
Intelligence	89.52	84.67	1.64	2.23
GPA	3.25	3.08	.46	.67
SES	45.97	47.71	1.95	2.58
SCAA	30.02	29.15	.37	.51
SCVA	31.85	31.26	.34	.45
PPAA	20.19	20.16	.25	.38
PFAA	20.12	19.37	.25	.34
PTAA	19.75	19.00	.25	.38

Office education students also scored higher on all other dimensions except socio-economic status, but the differences were not significant. Table 35 shows that only on the variables of intelligence and academic achievement were the differences significant.

TABLE 35

AN ANALYSIS OF VARIANCE OF SELECTED VARIABLE MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR OFFICE EDUCATION AND NON-VOCATIONAL STUDENTS

CRITERIA	SOURCE	DF	SS	MS	F
Intelligence	Total	239	79.795.46		
	Between	1	1,307.96	1,307.96	3.97*
	Within	238	78,487.50	329.78	
GPA	Total	239	68.96		
	Between	1	1.52	1.52	5.38*
	Within	238	67.44	.28	
SES	Total	239	130,577.14		
	Between	1	167.68	167.68	.31
	Within	238	130,409.70	547.94	
SCAA	Total	239	4,460.00		
	Between	1	42.00	42.00	2.26
	Within	238	4,418.00	15.65	
SCVA	Total	239	3,743.46		
	Between	1	19.00	19.00	1.21
	Within	238	3,724.46	15.65	
PPAA	Total	239	2,487.46		
	Between	1	31.00	31.00	3.00
	Within	238	2,456.47	10.32	
PFAA	Total	239	2,330.60		
	Between	1	31.73	31.73	3.28
	Within	238	2,298.87	9.66	
PTAA	Total	239	2,381.87		
	Between	1	31.33	31.33	3.17
	Within	238	2,350.56	9.88	

*significant alpha .05

Table 36 indicates that controlling for intelligence, grade point average, and socio-economic status made no significant difference to self-concept scores when comparing office education students with non-vocational students.

TABLE 36

AN ANALYSIS OF COVARIANCE OF SELECTED SELF-CONCEPT MEAN SCORES WHEN CONTROLLING INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS FOR UTAH HIGH SCHOOL SENIOR OFFICE EDUCATION AND NON-VOCATIONAL STUDENTS

VARIABLE	SOURCE	DF	MS	ADJ. F
SCAA	Treatment	1	24.48	2.37
	Between	4	499.77	48.35
	Within	234	10.34	
SCVA	Treatment	1	26.58	1.90
	Between	4	112.00	8.00
	Within	234	14.00	
PPAA	Treatment	1	15.90	2.80
	Between	4	282.87	49.96
	Within	234	5.67	
PFAA	Treatment	1	1.07	.16
	Between	4	196.04	30.29
	Within	234	6.47	
PTAA	Treatment	1	14.79	2.20
	Between	4	193.67	28.76
	Within	234	6.73	

Agriculture Education

Table 37 shows agriculture students were almost as heterogeneous (standard deviation scores) but were significantly lower than their non-vocational peers on all variables except self-concept of vocational ability and perceived teachers' concepts of academic ability.

TABLE 37

MEAN AND STANDARD DEVIATION SCORES FOR EIGHT VARIABLES COMPARING SENIOR AGRICULTURE EDUCATION ENROLLES WITH NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

VARIABLES	MEANS		STANDARD DEVIATIONS	
	AGR	NON-VOC	AGR	NON-VOC
Intelligence	75.02	84.67	2.17	2.23
GPA	2.65	3.08	.60	.67
SES	32.29	47.71	2.53	2.58
SCAA	27.08	29.15	.48	.53
SCVA	32.12	31.26	.44	.45
PPAA	18.97	20.16	.37	.38
PFAA	18.03	19.37	.35	.35
PTAA	18.08	19.00	.38	.38

Table 38 illustrates that agriculture students scored significantly lower on the variables of intelligence, academic achievement, socio-economic status, self-concept of academic ability, and perceived parents' and friends' concepts of academic ability.

TABLE 38

AN ANALYSIS OF VARIANCE OF SELECTED VARIABLE MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR AGRICULTURE AND NON-VOCATIONAL STUDENTS

CRITERIA	SOURCE	DF	SS	MS	F
Intelligence	Total	177	79,848.59		
	Between	1	4,137.30	4,137.30	9.62*
	Within	176	75,711.29	430.18	
GPA	Total	177	68.20		
	Between	1	8.48	8.48	25.00*
	Within	176	59.72	.34	
SES	Total	177	93,541.60		
	Between	1	10,585.21	10,585.21	22.46*
	Within	176	82,956.39	471.34	
SCAA	Total	177	4,576.56		
	Between	1	191.04	191.04	7.67*
	Within	176	4,385.52	24.92	
SCVA	Total	177	3,355.22		
	Between	1	32.63	32.63	1.73
	Within	176	3,322.59	18.88	
PPAA	Total	177	2,260.05		
	Between	1	63.40	63.40	5.08*
	Within	176	2,196.65	12.48	
PFAA	Total	177	1,990.38		
	Between	1	79.25	79.25	7.30
	Within	176	1,911.13	10.86	
PTAA	Total	177	2,352.36		
	Between	1	37.90	37.90	2.88
	Within	176	2,314.46	13.15	

*significant alpha .05

Table 39 illustrates that when an analysis of covariance was applied to the self-concept measures, self-concept of vocational ability scores for agricultural students were significantly greater than the scores of the non-vocational students; but self-concept of academic ability, perceived parents' and perceived friends' concepts of academic ability were non-significant.

TABLE 39

AN ANALYSIS OF COVARIANCE OF SELECTED SELF-CONCEPT MEAN SCORES WHEN CONTROLLING INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS FOR SENIOR UTAH HIGH SCHOOL AGRICULTURE AND NON-VOCATIONAL STUDENTS

VARIABLE	SOURCE	DF	MS	ADJ. F
SCAA	Treatment	1	.44	2.85
	Between	4	438.23	28.63
	Within	172	15.31	
SCVA	Treatment	1	92.07	5.38*
	Between	4	94.46	5.32
	Within	172	17.12	
PPAA	Treatment	1	1.76	21.42
	Between	4	195.90	23.55
	Within	172	8.22	
PFAA	Treatment	1	.61	7.90
	Between	4	143.28	18.42
	Within	172	7.78	
PTAA	Treatment	1	3.44	.40
	Between	4	211.41	24.76
	Within	172	8.54	

*significant alpha .05

Home Economics

Utah home economics students, while classified as vocational, were virtually indistinguishable from non-vocational students on all dimensions. No significant differences were discovered when comparing the two groups. Table 40 demonstrates the similarity of the mean and standard deviation scores.

TABLE 40

MEAN AND STANDARD DEVIATION SCORES FOR EIGHT VARIABLES COMPARING HOME ECONOMICS ENROLLEES WITH NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

VARIABLES	MEANS		STANDARD DEVIATION	
	HO EC	NON-VOC	HO EC	NON-VOC
Intelligence	80.00	34.67	1. 1.95	2.23
GPA	3.00	3.08	.56	.67
SES	44.85	47.71	2.32	2.58
SCAA	28.23	29.15	.44	.51
SCVA	30.97	31.26	.40	.45
PPAA	19.82	20.16	.35	.38
PFAA	18.95	19.37	.32	.34
PTAA	18.97	19.00	.35	.38

Table 41 shows that no variables were significantly different when comparing these two groups of students.

TABLE 41

AN ANALYSIS OF VARIANCE OF SELECTED VARIABLE MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR HOME ECONOMICS AND NON-VOCATIONAL STUDENTS

CRITERIA	SOURCE	DF	SS	MS	F
Intelligence	Total	194	88,526.69		
	Between	1	1,049.35	1,049.35	2.32
	Within	193	87,477.33	453.25	
GPA	Total	194	73.33		
	Between	1	.35	.35	.94
	Within	193	72.98	.38	
SES	Total	194	101,859.80		
	Between	1	394.35	394.35	.75
	Within	193	101,465.40		
SCAA	Total	194	4,500.87		
	Between	1	40.60	40.60	1.76
	Within	193	4,460.27	23.11	
SCVA	Total	194	3,189.95		
	Between	1	4.11	4.11	.25
	Within	193	3,185.58		
PPAA	Total	194	2,506.87		
	Between	1	5.47	5.47	.42
	Within	193	2,2501.41	12.96	
PFAA	Total	194	2,237.26		
	Between	1	8.26	8.26	.72
	Within	193	2,229.00	11.55	
PTAA	Total	194	2,546.95		
	Between	1	3.72	3.72	28.17
	Within	193	2,546.92	13.20	

The analysis of covariance in Table 42 shows that when comparing home economic students and non-vocational students, with variables intelligence, grade point average, and socio-economic status controlled, all self-concept scores remained non-significant.

TABLE 42

AN ANALYSIS OF COVARIANCE OF SELECTED SELF-CONCEPT MEAN SCORES WHEN CONTROLLING INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS, FOR UTAH HIGH SCHOOL SENIOR HOME ECONOMICS AND NON-VOCATIONAL STUDENTS

VARIABLES	SOURCE	DF	MS	ADJ. F
SCAA	Treatment	1	12.60	.98
	Between	4	505.31	39.16
	Within	189	12.90	
SCVA	Treatment	1	8.11	.57
	Between	4	120.95	8.46
	Within	189	14.30	
PPAA	Treatment	1	18.15	2.32
	Between	4	255.15	32.57
	Within	189	7.83	
PFAA	Treatment	1	9.23	1.19
	Between	4	190.04	24.45
	Within	189	7.77	
PTAA	Treatment	1	30.16	3.47
	Between	4	226.42	26.07
	Within	189	8.68	

Trade and Industry Education

Table 43 illustrates the somewhat greater variability but lower mean scores of Utah trade and industry students when compared to the non-vocational students on all but one of the selected variables--intelligence.

TABLE 43

MEANS AND STANDARD DEVIATION SCORES FOR EIGHT VARIABLES COMPARING SENIOR TRADE AND INDUSTRY ENROLLEES WITH NON-VOCATIONAL UTAH HIGH SCHOOL SENIORS

VARIABLES	MEANS		STANDARD DEVIATION	
	T&I	NON-VOC	T&I	NON-VOC
Intelligence	86.65	84.67	2.24	2.23
GPA	2.60	3.08	.63	.67
SES	41.13	47.71	2.66	2.58
SCAA	26.65	29.15	.50	.51
SCVA	31.13	31.26	.46	.45
PPAA	18.59	20.16	.40	.38
PFAA	17.48	19.37	.40	.34
PTAA	17.51	19.00	.43	.38

Table 44 demonstrates that trade and industry students had significantly higher scores than the non-vocational group on intelligence, but significantly lower scores on most other study variables.

TABLE 44

AN ANALYSIS OF VARIANCE OF SELECTED VARIABLE MEAN SCORES FOR UTAH HIGH SCHOOL SENIOR TRADE AND INDUSTRY AND NON-VOCATIONAL STUDENTS

CRITERIA	SOURCE	DF	SS	MS	F
Intelligence	Total	168	77,576.59		
	Between	1	40.51	40.51	8.73*
	Within	167	77,536.08	464.29	
GPA	Total	168	67.45		
	Between	1	11.87	11.87	35.66*
	Within	167	55.58	.33	
SES	Total	168	83,858.18		
	Between	1	1.826.84	1,826.84	3.72
	Within	167	83,031.34	491.21	
SCAA	Total	168	4,434.28		
	Between	1	264.48	264.48	10.59*
	Within	167	4,169.80	24.97	
SCVA	Total	168	2,665.16		
	Between	1	.72	.72	4.49*
	Within	167	2,664.44	15.95	
PPAA	Total	168	2,246.44		
	Between	1	104.79	104.79	8.17*
	Within	167	2,141.65	12.82	
PFAA	Total	168	2,021.82		
	Between	1	151.14	151.14	13.49*
	Within	167	1,870.68	11.20	
PTAA	Total	168	2,641.93		
	Between	1	93.44	93.44	6.12
	Within	167	2,548.49	15.26	

*significant alpha .05

When an analysis of covariance was applied to control for intelligence, academic achievement, and socio-economic status, all self-concept variables showed non-significance as portrayed in Table 45.

TABLE 45

AN ANALYSIS OF COVARIANCE OF SELECTED SELF-CONCEPT MEAN SCORES WHEN CONTROLLING INTELLIGENCE, ACADEMIC ACHIEVEMENT, AND SOCIO-ECONOMIC STATUS, FOR UTAH HIGH SCHOOL SENIOR TRADE AND INDUSTRY AND NON-VOCATIONAL STUDENTS

VARIABLES	SOURCE	DF	MS	ADJ. F
SCAA	Treatment	1	25.34	1.76
	Between	4	454.92	31.55
	Within	163	14.42	
SCVA	Treatment	1	6.40	.43
	Between	4	55.37	3.69
	Within	163	14.99	
PPAA	Treatment	1	7.29	.88
	Between	4	200.29	24.35
	Within	163	8.22	
PFAA	Treatment	1	9.22	1.18
	Between	4	150.16	19.27
	Within	163	7.79	
PTAA	Treatment	1	7.64	.72
	Between	4	202.18	.19
	Within	163	10.67	

Summary of Differences in Variable Scores Comparing Students Enrolled in Vocational Specialties with the Non-Vocational Control Group

Hypothesis 5 was rejected.

> Significant differences in self-concept, intelligence, school achievement, and socio-economic status scores will exist when comparing students in each vocational specialty (DE, OE, Agr, Ho Ec, and T&I) with non-vocational students under circumstances where intelligence, grade point average, and socio-economic status variables are controlled.

While most students enrolled in vocational specialty classes were significantly different from non-vocational students when the groups were compared on selected measures, the home economics classes were not. Table 46 summarizes the source and direction of group differences documented in the last section.

TABLE 46

SUMMARY OF DIMENSIONS AND DIRECTIONS EACH VOCATIONAL SPECIALTY AREA DEPARTS SIGNIFICANTLY WHEN COMPARED TO THE CONTROL GROUP

VOC SPECIALTY	VARIABLES				
	INTELLIGENCE	GPA	SES	SCAA	SCVA
DE	Yes↓	Yes↓	No	No	Yes↑
OE	Yes↑	Yes↑	No	No	No
AGR	Yes↓	Yes↓	Yes↓	Yes↓	Yes↑
HO EC	No	No	No	No	No
T&I	Yes↑	Yes↓	No	No	No

↑Higher than mean ↓Lower than mean

The distributive education students appeared significantly lower than the non-vocational control group on the variables intelligence and academic achievement, but, on the other hand, appeared significantly higher on the variable self-concept of vocational ability.

The office education students departed significantly in the positive direction from the control group on the dimensions of intelligence and academic ability.

The agriculture students registered significantly lower mean score for the variables intelligence, academic achievement, socio-economic status, and self-concept of academic ability, but possessed significantly higher self-concept of vocational ability scores.

The home economics students could not be distinguished from the non-vocational control group since no variable reported a significant departure.

The trade and industry students possessed significantly higher intelligence, but exhibited signficantly lower academic achievement mean scores.

HOMOGENEITY OF STUDENT CHARACTERISTICS WITHIN EACH VOCATIONAL SPECIALTY

There follow two important and persistent questions that demand an extensive and more close examination of the degree of homogeneity found to exist within each vocational specialty: Could we say that each vocational specialty was composed of students exhibiting a homogeneous array of characteristics? Were the distributive education, office education, agriculture, home economics, and trade and industry

students consistent in their characteristics from school to school? The next section of this study compares each vocational specialty by school for the eight major variables in direct answer to these questions.

Distributive Education

Distributive education enrollees displayed consistent student characteristics across schools. Table 47 shows that significant differences existed between schools when comparing selected variables except in the case of socio-economic status.

TABLE 47

AN ANALYSIS OF VARIANCE OF DISTRIBUTIVE EDUCATION UTAH HIGH SCHOOL SENIOR VARIABLE SCORES ACROSS SCHOOLS

VARIABLE	SOURCE	DF	SS	MS	F
	Total	113	67,334.57		
SES	Between	5	12,445.00	2,489.00	4.90*
	Within	108	54,889.57	508.24	

*significant alpha .05

Only significant variables reported.

Office Education

Office education students did not display consistent characteristics across schools. Significant differences were exhibited for the variables intelligence, academic achievement, socio-economic status, and self-concept of academic ability in Table 48.

TABLE 48

AN ANALYSIS OF VARIANCE OF OFFICE EDUCATION UTAH HIGH SCHOOL SENIOR VARIABLE SCORES ACROSS SCHOOLS

VARIABLE	SOURCE	DF	SS	MS	F
Intelligence	Total	152	45,324.17		
	Between	6	73,419.36	1,223.66	4.70*
	Within	146	37,982.23	260.15	
GPA	Total	152	38.60		
	Between	6	4.52	.68	2.85*
	Within	146	34.55	.24	
SES	Total	152	93,559.90		
	Between	6	21,565.85	3,594.31	7.29*
	Within	146	71,994.05	493.11	
SCAA	Total	152	2,260.94		
	Between	6	241.81	40.30	2.91*
	Within	146	2,019.13	13.83	

*significant alpha .05

Only significant results reported.

A table of means identifies the source of variance by school. Table 49 gives this information.

TABLE 49

SUMMARY OF OFFICE EDUCATION STUDENT VARIABLE MEAN SCORES ACROSS SEVEN SCHOOLS

SCHOOLS	INT	GPA	SES	SCAA
1	101.95	3.44	48.11	32.32
2	93.50	3.00	37.11	28.33
3	89.19	3.30	52.28	30.39
4	75.56	2.86	46.11	28.00
5	80.71	3.43	32.24	28.89
6	84.92	3.19	32.14	29.57
7	93.69	3.29	65.65	30.92
Overall	89.52	3.25	45.97	30.02

For ease of interpretation, the data from the above table were converted to rank-order position in Table 50. The rank-order enables the reader to see at a glance that schools 1 and 7 were ranked consistently high, whereas schools 4 and 6 were ranked consistently low for most variables.

TABLE 50

A RANK-ORDER OF SCHOOLS ON OFFICE EDUCATION SCORES OF SIGNIFICANT VARIABLES

SCHOOLS	INT	GPA	SES	SCAA
1	1	1	3	1
2	3	6	5	6
3	4	3	2	3
4	7	7	4	7
5	6	2	6	5
6	5	5	7	4
7	2	4	1	2

Agriculture Education

Agriculture students displayed consistent characteristics across schools. No significant difference existed between schools when comparing selected variable scores except in the case of socio-economic status as shown in Table 51.

Home Economics

Home economics students did not display consistent characteristics across schools. Significant differences for the variables intelligence, grade point average, socio-economic status, self-concept of academic ability, self-concept of vocational ability, perceived friends' and

TABLE 51

AN ANALYSIS OF VARIANCE OF AGRICULTURE EDUCATION UTAH HIGH SCHOOL SENIOR VARIABLE SCORES ACROSS SCHOOLS

VARIABLE	SOURCE	DF	SS	MS	F
	Total	90	46,106.57		
SES	Between	5	17,805.44	3,561.09	10.70*
	Within	85	28,301.13	332.95	

*significant alpha .05

Only significant results reported.

perceived teachers' concepts of academic ability are exhibited in Table 52.

A summary of variable mean scores, shown in Table 53 identifies the source of variance by school. To assist in interpretation, as with the office education data, the information from this table was converted to rank-order position in Table 54. The rank-order enables the reader to see at a glance that the results were not consistent from school to school. It appears that schools 4 and 7 ranked high, while schools 1, 2, and 3 ranked low. Some of the schools, i.e., school 5, have a wide discrepancy between classes within the school.

TABLE 52

AN ANALYSIS OF VARIANCE OF HOME ECONOMICS UTAH HIGH SCHOOL SENIOR VARIABLE SCORES ACROSS SCHOOLS

VARIABLE	SOURCE	DF	SS	MS	F
Intelligence	Total	107	54,314.00		
	Between	6	12,167.68	2,027.95	4.86*
	Within	101	42,146.32	417.29	
GPA	Total	107	44.14		
	Between	6	10.23	1.70	5.08*
	Within	101	33.91	.34	
SES	Total	107	64,615.63		
	Between	6	12,266.31	2,044.39	3.94*
	Within	101	52,349.32	518.31	
SCAA	Total	107	2,303.21		
	Between	6	302.21	50.37	2.54*
	Within	101	2,001.00	19.81	
PFAA	Total	107	1,148.77		
	Between	6	232.20	38.70	4.26*
	Within	101	916.56	9.07	
PTAA	Total	107	1,314.92		
	Between	6	164.78	27.46	2.41*
	Within	101	1,150.14	11.39	

*significant alpha 105

Only significant variables reported.

TABLE 53

SUMMARY OF HOME ECONOMICS STUDENT VARIABLE

MEAN SCORES ACROSS SEVEN SCHOOLS

SCHOOLS	INT	GPA	SES	SCAA	SCVA	PFAA	PTAA
1	61.00	3.02	24.87	27.67	30.78	18.22	18.44
2	66.23	2.36	56.08	24.85	28.92	15.69	16.69
3	74.30	2.99	26.69	27.69	29.00	18.08	18.62
4	90.79	3.26	46.11	30.18	33.00	20.50	20.32
5	87.53	2.81	57.67	27.53	30.07	19.47	18.13
6	74.21	2.91	46.63	27.89	30.63	18.95	18.74
7	90.82	3.46	49.18	29.91	32.55	19.86	20.64
Overall	80.00	2.99	44.85	28.23	30.97	18.95	18.97

TABLE 54

A RANK-ORDER OF SCHOOLS ON HOME ECONOMICS SCORES

OF SIGNIFICANT VARIABLES

SCHOOLS	INT	GPA	SES	SCAA	SCVA	PFAA	PTAA
1	7	3	7	4	3	5	5
2	6	7	2	7	7	7	7
3	4	4	6	5	6	6	4
4	2	2	5	1	1	1	2
5	3	6	1	6	5	3	6
6	5	5	4	3	4	4	3
7	1	1	3	2	2	2	1

Trade and Industry

Trade and industry students displayed consistent student characteristics across schools. Table 55 reveals that there was no significant difference between schools when comparing selected variable scores except in the case of socio-economic status.

TABLE 55

AN ANALYSIS OF VARIANCE OF TRADE AND INDUSTRY UTAH HIGH SCHOOL SENIOR VARIABLE SCORES ACROSS SCHOOLS

VARIABLE	SOURCE	DF	SS	MS	F
	Total	81	45,181.52		
SES	Between	5	13,463.42	2,692.68	6.45*
	Within	76	31,718.11	417.34	

*significant alpha .05

Only significant results reported.

Summary of Homogeneity of Student Characteristics Existing Within the Vocational Specialties

The distributive, agriculture, and trade and industry classes were homogeneous when comparing selected student traits across the seven schools. Office education and home economics classes, to the contrary, were heterogeneous in nature when comparing student traits across the seven schools. On the basis of these data, Hypothesis 6, following, was rejected.

> Significant differences in all variable scores (intelligence, academic achievement, socio-economic status, self-concept of academic ability, self-concept of vocational ability, perceived parents' evaluation of academic ability, perceived friends' evaluation of academic ability, perceived teachers' evaluation of academic ability) exist when comparing vocational specialties across each of the sample schools.

Significant differences on all variable scores did not exist across the sample schools for all vocational specialties.

INFLUENCE OF VOCATIONAL CLASSES ON STUDENTS' SELF-CONCEPTS

The review of literature, Chapter II, presented numerous planned programs and activities explicitly designed to modify students' self-concepts. Some programs specifically determined the effect of their activities, e.g., Head Start, upon the participants' self-concepts; others did not. The question is: Can any determination be made, after-the-fact, without a pretest-posttest design, about the influence vocational classes have upon self-concept measures, strengths and directions? The data presented in this section show that Utah vocational classes probably have had some limited success enhancing self-concept of vocational ability and probably little, if any, upon self-concept of academic ability.

Self-Concept of Vocational Ability

The data have shown that students who enrolled in vocational classes possessed significantly higher self-concepts of vocational ability. Table 14, page 90, demonstrates that vocational students, as a group, possessed significantly higher self-concepts of vocational ability than did the non-vocational group. Further, this difference

registered significant despite the lack of support from three of the five vocational specialties.

Table 33, page 108, shows that distributive students possessed a significantly higher self-concept of vocational ability. Likewise, Table 39, page 114, shows that agriculture students possessed a significantly higher self-concept of vocational ability. Table 46, page 121, summarizes the statistical findings of earlier tables and reveals that only distributive and agriculture students registered a significantly higher self-concept of vocational ability; while office education, home economics, and trade and industry students recorded no significant difference when compared to the non-vocational group.

The data also demonstrated that the independent variables did not account for this enhanced level of self-concept of vocational ability: (1) Sex Factor. When the variable sex was block out, (statistically controlled) no effect on the self-concept of vocational ability was registered. Table 56 illustrates the analysis of variance when the sex factor was blocked out. (2) Place of Residence Factor. When the variable place of residence was blocked out, as shown also in Table 56, no significant change occurred in the self-concept of vocational ability scores. (3) Intelligence, Academic Achievement, and Socio-Economic Status Factors. A Pearson's Product Moment Correlation Coefficient revealed little influence (low correlation) of the variables intelligence ($r = .22$) and socio-economic status ($r = .08$) on the self-concept of vocational ability values.

The data have shown that vocational students did possess a significantly higher self-concept of vocational ability at a point in time and that the independent variables were not the source of the

TABLE 56

AN ANALYSIS OF VARIANCE TEST OF SIGNIFICANCE BLOCKING OUT THE VARIABLES SEX AND PLACE OF RESIDENCE FOR SCVA VALUES

SOURCE	DF	SS	MS	F
Total	244	4,454.80		
Block	1	35.35	35.35	3.06 (Sex)
Treatments	1	21.39	21.39	1.85 (R-U)
Error	1	11.57	11.57	
Sample	241	4,386.49	18.20	

difference. What is the source of this enhanced self-concept of vocational ability? Perhaps, since the independent variables did not account for the difference and since one must logically expect a vocational class to enhance a student's self-concept of vocational ability, the vocational classes had some effect upon the level of the self-concept of vocational ability scores. It was easy to credit the vocational class for the enhanced self-concept of vocational ability, but it was impossible to substantiate the claim based on the data of this study.

Self-Concept of Academic Ability

From the data, no evidence was available to document the influence of vocational classes on self-concept of academic ability values. Table 11, page 85, shows that there was no significant difference when comparing vocational and non-vocational students. Table 46, page 121, also demonstrates that students enrolled in a vocational class did not possess enhanced self-concepts of academic ability. This table shows, however, that students enrolled in an agriculture class possessed a depreciated self-concept of academic ability. The extent to which the influence of the agriculture class can be blamed for this lack, after the fact, without pretest-posttest design data may be answered, in part, by the following data: (1) Sex Factor. When the variable sex was blocked out, as shown in Table 57, the significance of the variable did not change self-concept of academic ability. (2) Place of Residence Factor. When the variable place of residence was blocked out, also Table 57, the statistical significance of the variable self-concept of academic ability did not change. (3) Intelligence, Grade Point Average, and Socio-Economic Status Factors. A Pearson's Product Moment Correlation Coefficient revealed some influence. The variable intelligence correlated at the .44 level with self-concept of academic ability, while grade point average correlated at an even higher level, $r = .64$. Socio-economic status did not appear to make much impact since the $r = .17$. The correlation strength of self-concept of academic ability with intelligence and academic achievement was great enough to suggest that these variables did influence self-concept

TABLE 57

AN ANALYSIS OF VARIANCE TEST OF SIGNIFICANCE BLOCKING OUT THE VARIABLES SEX AND PLACE OF RESIDENCE FOR SCAA VALUES

SOURCE	DF	SS	MS	F
Total	244	5,253.28		
Blocks	1	40.19	40.19	1.48 (Sex)
Treatments	1	50.33	50.33	1.85 (R-U)
Error	1	27.14	27.14	
Sample	241	5,135.62	21.31	

of academic ability scores. Due to the lack of other evidence, these factors may account for the depreciated SCAA scores rather than the agriculture class.

Hypothesis 4 Rejected

Hypothesis 4 was rejected.

> Students participating in a vocational class exhibit an enhanced self-concept of vocational ability.

This hypothesis was rejected because the study results showed that office education, home economics, and trade and industry students *did* not possess enhanced self-concepts of vocational ability even though distributive and agriculture students did possess significantly higher self-concepts of vocational ability.

EFFECTS OF SEX, PLACE OF RESIDENCE, INTELLIGENCE, GRADE POINT AVERAGE, AND SOCIO-ECONOMIC LEVEL ON SELF-CONCEPT SCORES

The review of literature revealed how strongly many researchers feel about the influence of the variables sex, intelligence, academic achievement, socio-economic status, and place of residence upon self-concept. The purpose of this section is to identify the effects of these variables upon self-concept values in this study. Following is a detailed discussion of each individual variable.

Sex

When the variable sex was blocked out so that it no longer influenced self-concept values, a significant change occured in the perceived parents' and perceived friends' concepts of academic ability as shown in Table 58. There was no significant change in the other self-concept variables.

Further, the influence of sex differences on vocational students' self-concepts is shown in Table 59. There was a significant difference on all self-concept variables but the self-concept of vocational ability variable. It can be assumed, therefore, that sex significantly influenced students' self-concept scores.

While the data showed that the sex variable did significantly influence self-concept scores, this factor could not be fully controlled in this study because vocational education specialty programs are structured on the basis of sex. Vocational classes are dichotomized male or female by vocational specialty, i.e., males tend to enroll in

TABLE 58

SUMMARY OF THE EFFECTS OF THE VARIABLES SEX AND PLACE OF RESIDENCE ON UTAH HIGH SCHOOL SENIOR SELF-CONCEPT MEASURES USING ANALYSIS OF VARIANCE STATISTICAL TECHNIQUE

VARIABLE	SOURCE	DF	SS	MS	F
SCAA	Total	244	5,253.28		
	Blocks	1	40.19	40.19	1.48 (Sex)
	Treatments	1	50.33	50.33	1.85 (R-U)
	Error	1	27.14	27.14	
	Sample	241	5,135.62	21.31	
SCVA	Total	244	4,454.80		
	Blocks	1	35.35	35.35	3.06 (Sex)
	Treatments	1	21.39	21.39	1.35 (R-U)
	Error	1	11.57	11.57	
	Sample	241	4,386.49	18.20	
PPAA	Total	244	2,669.25		
	Blocks	1	33.33	33.33	10.53*(Sex)
	Treatments	1	2.01	2.01	.64 (R-U)
	Error	1	3.16	3.16	
	Sample	241	2,630.74	10.92	
PFAA	Total	244	2,398.11		
	Blocks	1	76.66	76.66	23.30*(Sex)
	Treatments	1	3.40	3.40	1.03 (R-U)
	Error	1	3.29	3.29	3.29
	Sample	241	2,341.76	9.60	9.60
PTAA	Total	244	3,121.17		
	Blocks	1	37.30	37.30	3.00 (Sex)
	Treatments	1	7.64	7.64	.62 (R-U)
	Error	1	12.44	12.44	
	Sample	241	3,063.78	12.71	

*significant alpha .05

TABLE 59

SUMMARY OF THE EFFECTS OF THE VARIABLE SEX ON UTAH HIGH SCHOOL VOCATIONAL SENIORS' SELF-CONCEPT SCORES

VARIABLE	SOURCE	DF	SS	MS	F
SCAA	Total	547	12,004.88		
	Between	1	372.54	372.54	17.49*
	Within	546	11,632.34	21.31	
SCVA	Total	547	9,593.29		
	Between	1	15.19	15.19	.87
	Within	546	9,578.10	17.54	
PPAA	Total	547	6,722.20		
	Between	1	230.07	230.07	19.35*
	Within	546	6,492.13	11.89	
PFAA	Total	547	5,391.19		
	Between	1	351.31	351.31	38.06*
	Within	546	5,039.88	9.23	
PTAA	Total	547	6,643.10		
	Between	1	185.27	185.27	15.66*
	Within	546	6,457.83	11.83	

*significant alpha .05

agriculture education and trade and industry, while females choose to register in office education and home economics. The only class enrolling any portion of both sexes is distributive education.

Place of Residence

When the variable place of residence was blocked out from influencing self-concept values, there was no change in statistical significance for perceived parents', perceived friends', or perceived teachers' concepts of academic ability values. Table 58, clearly shows the insignificance of the self-concept values. Apparently, place of residence had no measured effect upon self-concept scores.

Intelligence, Grade Point Average, and Socio-Economic Status

The variables intelligence, grade point average, and socio-economic status were not reported separately since facts have shown that a significant difference occured in measures of self-concept when these variables were controlled. Table 60 synthesizes the data previously given for these three variables.

Summary and Discussion

Hypothesis 3 was accepted.

> Significant differences exist among vocational students' measures of self-concepts when using sex, intelligence, socio-economic status, place of residence, and grade point average as treatment effects.

All variables in hypothesis 3, except place of residence, did influence self-concept scores.

The data showed that controlling independent variables was most important in the study of self-concept. The variable sex proved to

have considerable influence on self-concept scores. The variables intelligence, academic achievement, and socio-economic status also were important since they altered several significant factors when controlled.. The place of residence factor was the only one that proved not important to this study.

These data supported those researchers earlier identified who were concerned with the control of independent variables when studying self-concepts. The question of whether to control the independent variables has proven mute since the evidence of data suggest that all intervening variables be controlled. The identification of specific variables requiring control is of concern. Certainly this study showed that males and females should be studied separately and intelligence, academic achievement, and socio-economic status controlled.

The Self-Concepts Compared

As has been shown, many researchers agree that individuals possess many self-concepts rather than one overall self-concept. A comparison of the performance of the two main self-concept measures, self-concept of academic ability (SCAA) and self-concept of vocational ability (SCVA), supported this contention. These measures behaved quite differently with several statistical analyses.

When vocational and non-vocational students were compared, the vocational group registered a significantly higher self-concept of vocational ability value than their non-vocational peers, but registered no difference on self-concept of academic ability (Table 14, page 90).

TABLE 60

THE INFLUENCE OF THE VARIABLES INTELLIGENCE, GRADE POINT AVERAGE, AND SOCIO-ECONOMIC STATUS WHEN CONTROLLED AS PRESENTED IN EACH SECTION OF CHAPTER IV

VARIABLE	QUESTION	TABLE	WHEN CONTROLLING INT, GPA, SES
SCAA	Voc vs Non-Voc	#12.p. 87	no change
	Across Voc Spec	#24 p. 99	no change
	DE Across Schools	#33 p. 108	no change
	OE Across Schools	#36 p. 111	no change
	AGR Across Schools	#39 p. 114	from s to ns
	HO EC Across Schools	#42 p. 117	no change
	T&I Across Schools	#45 p. 120	from s to ns
SCVA	Voc vs Non-Voc	#14 p. 90	from ns to s
	Across Voc Spec	#26 p. 101	from ns to s
	DE Across Schools	#33 p. 108	from ns to s
	OE Across Schools	#36 p. 111	no change
	AGR Across Schools	#39 p. 114	from ns to s
	HO EC Across Schools	#42 p. 117	no change
	T&I Across Schools	#45 p. 120	from s to ns
PPAA	Voc vs Non-Voc	#15 p. 91	no change
PFAA	Across Voc Spec	#29 p. 103	from s to ns
PTAA	DE Across Schools	#33 p. 108	no change
	OE Across Schools	#36 p. 111	no change
	AGR Across Schools	#39 p. 114	no change
	HO EC Across Schools	#42 p. 117	no change
	T&I Across Schools	#45 p. 120	from s to ns

This table is to read as follows: (example top line) For the variable SCAA, Table 12, page 87, where vocational students were compared with non-vocational students, there was no change in the significance of the question when the variables intelligence, academic achievement, and socio-economic status were controlled.

When the homogeneity of the vocational group was tested, both self-concept variables tested significant.

The self-concept variables performed differently when each vocational specialty was compared with the control group. Distributive and agriculture classes reported significantly higher self-concept of vocational ability values, while agriculture reported significantly lower self-concept of academic ability mean scores with distributive education showing no difference (Table 46, page 121).

If internal consistency of student characteristics is also measured for each vocational specialty, these self-concept variables behave differently. For example, the office education class across schools was significantly different on self-concept of academic ability values, but the result was not true for self-concept of vocational ability. The home economics classes reported significantly different values for both measures (Table 52, page 128).

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

This chapter summarizes the purposes and findings of the first, third, and fourth chapters and presents the conclusions of the investigation, with recommendations for further research and implications drawn from the data.

SUMMARY

The Problem

The background focus of the study related to a broadly based educational trend toward recognizing unique student characteristics as functional determiners of academic programs. Contemporary pressures of student demands, racial conflicts, legal challenges, educational theorists' models, curriculum specialists' plans, and administrator actions have spurred the movement. Educational philosophers and theorists have advocated studying student characteristics as a necessary step before curricula formulation. Also, educational practitioners have modified teaching within the classroom to accommodate a variety of student characteristics.

The specific purpose of this study was to investigate unique characteristics of those students enrolled in vocational classes.

Particular emphasis was given to ways that students enrolled in vocational classes were alike or different when compared to non-vocational students on the characteristics of intelligence, academic achievement, socio-economic status, self-concept of academic ability, self-concept of vocational ability, perceived parents' evaluations of academic ability, perceived friends' evaluations of academic ability, perceived teachers' evaluations of academic ability, sex, and place of residence.

The broad objectives of this study were: (1) To gain information regarding the characteristics of students enrolled in Utah vocational classes, and (2) to supply research data to an emerging theory of self-concept.

The following relationship questions were specific problems that were researched: (1) Does a statistical relationship exist between vocational and non-vocational students with respect to the variables intelligence, academic achievement, and socio-economic status? (2) Does a statistical relationship exist between vocational and non-vocational students with respect to the variables self-concept of academic ability, self-concept of vocational ability, perceived parents' evaluations of academic ability, perceived friends' evaluations of academic ability, and perceived teachers' evaluations of academic ability? Do the variables place of residence, sex, socio-economic status, and intelligence enhance this relationship? If there is a difference between vocational and non-vocational students with regard to the self-concept variables, do the background variables explain the difference? (3) Does a statistical relationship exist between

the variables self-concept of academic ability and self-concept of vocational ability?

Since several major questions considered in this study required different statistical treatments, each hypothesis and the variables tested in each hypothesis follow.

First Hypothesis. The first hypothesis states:

> There will be a significant difference between vocational and non-vocational students' mean scores of intelligence, academic achievement, and socio-economic status.

The factors of intelligence, academic achievement, and socio-economic status were handled as independent variables. Each was considered a different treatment to the same group. The vocational and non-vocational groups were the dependent variables or treatment effects.

Second Hypothesis. The second hypothesis states:

> There will be a significant difference between vocational and non-vocational students' mean scores of academic ability, self-concept of vocational ability, perceived parental evaluation of academic ability, perceived friends' evaluation of academic ability, and perceived teachers' evaluation of academic ability. This significant difference will hold firm when the variables of intelligence, academic achievement, and socio-economic status are controlled.

The independent or background control variables selected were: socio-economic status, academic achievement, and intelligence. The dependent or prediction variables were those of self-concept.

Third Hypothesis. The third hypothesis states:

> Significant differences exist among vocational students' measures of self-concepts when using sex, intelligence, socio-economic status, place of residence, and grade point average as treatment effects.

The self-concept variables were the dependent factors, with intelligence, socio-economic status, place of residence, and academic achievement as the independent variables.

Fourth Hypothesis. The fourth hypothesis states:

> Students participating in a vocational class exhibit an enhanced self-concept of vocational ability.

The self-concept variables acted as the dependent factors, but this time, vocational and non-vocational factors were the independent variables.

Fifth Hypothesis. The fifth hypothesis states:

> Significant differences in self-concept, intelligence, school achievement, and socio-economic status scores will exist when comparing students in each vocational specialty (distributive education, office education, agriculture education, home economics, and trade and industry) with non-vocational students under circumstances where intelligence, grade point average, and socio-economic status variables are controlled.

The factors of intelligence, academic achievement, and socio-economic status were independent variables while the vocational specialties (D.E., O.E., Agr., Ho Ec., and T&I) and the non-vocational group were the dependent variables.

Sixth Hypothesis. The sixth hypothesis states:

> Significant differences in all variable scores (intelligence, academic achievement, socio- economic status, self-concept of academic ability, self-concept of vocational ability, perceived parents' evaluation of academic ability, perceived friends' evaluation of academic ability, perceived teachers' evaluation of academic ability) exist when comparing vocational specialties across each of the sample schools.

The school factor was the dependent variable, while intelligence,

academic achievement, socio-economic status, and the self-concept measures were the independent variables.

Seventh Hypothesis. The seventh hypothesis states:

> The measures of self-concept of academic ability and self-concept of vocational ability measure separate dimensions of self-concept.

The factor self-concept of academic ability was the dependent variable, and self-concept of vocational ability became the independent variable.

The study could be important in the following four aspects: (1) It applies a social science theory (self-concept) to the field of education, (2) It studies a dimension of vocational education from a macro (across the board) view rather than a micro (specialty) approach, (3) It provides knowledge about the clientele of vocational education with implications for educational curricula and administrative practice, and (4) It expands the theory and practice of the construct self-concept.

The basic assumptions underlying the study were: (1) Student performance on the dependent variables represented a valid index of the important components to learning and to choosing a career, but the important components to learning and choosing a career were not limited to the dependent variables. (2) Self-concept of ability is phenomenological, i.e., known to the subject. This assumption made possible the use of a self-report instrument rather than projective techniques. Wylie supported this assumption. (3) The student has been truthful and accurate in his reponses to the self-concept questions. (4) A self-concept of ability is a functionally limiting factor exhibited by the student--that is, a positive or high self-concept is necessary but not

sufficient for a corresponding behavior. This is the same assumption made in the Brookover studies and applies to this study.

The limitations and delimitations that were important to the interpretation of the study included: (1) Student's may exhibit mixed motives for enrolling in vocational classes. (2) Measures of prior academic achievement of students were limited to the student's grade point average. (3) In retrospect, the Duncan Index Measure of Socio-Economic Status was not sensitive enough to differentiate between occupational positions within the agriculture industry. (4) High school seniors within the State of Utah were studied.

Procedures

The population of students under investigation consisted of students enrolled in the senior year of the Utah public high schools, 1971-72, most of whom lived in urban areas. The total high school population was divided into two main sub-groups: (1) Vocational Students. A vocational student was one enrolled in a public school class designated as office education (O.E.), distributive education (D.E.), technical and industrial (T&I), home economics (Ho. Ec.), or agriculture (Agr.). (2) Non-Vocational Students. A non-vocational student was one enrolled in a regular academic program and not associated with a vocational class.

Seven Utah high schools were selected as the sample for this study. In choosing specific high schools and students, four recognized sampling procedures were employed: (1) Cluster Sampling Technique. A cluster sampling technique was used as the first sampling procedure at two stages of the study. (a) School selection. All senior high schools in

Utah were categorized by number of vocational specialties offered. Those offering at least four vocational specialties were identified; then specific schools were selected. (b) Student selection. Classes of students were used rather than individuals. Since the study population was so large, the cluster procedure was invoked to save the researcher time, expense, travel, administrative effort, and to minimize disruption to school classes. (2) The Stratified Sampling Technique. Students were stratified on the basis of (a) curriculum specialty, i.e., five vocational specialties and control classes, and (b) place of residence. This technique was employed to enable inference to be made to the general student population and its sub-populations. (3) Random Sampling Technique. A random sampling procedure was used to select specific schools from those offering four or more vocational programs. Each school was assigned a number, then with a table of random numbers, seven schools were identified. (4) Non-Random Sampling. The study required at least one school to be classified as rural, so a jury technique was adopted. The jury, comprised of vocational teacher-educators and state department specialists, reviewed all schools selected and classifieid them rural or urban. Two schools were designated rural; five urban. Subsequent interviews with principals of the seven selected schools proved that only one could accurately be classified rural. This school supplied the data for the statistical purposes of this study.

The schools selected were representative of all geographic areas in the Utah public school system. One school, sampling 115 students, was a large city school; four schools, sampling 440 students, were medium sized schools--two located in small towns (consolidated schools) and two located in cities; two schools, sampling 139 students, were

from small communities located in sparsely populated areas of the state.

Selected were seven high schools offering four or more vocational classes, with a total of 674 students being tested. Of the 674 students, 121 were distributive education enrollees, 159 were office education shorthand-transcription enrollees, 95 were agriculture education enrollees, 121 were home economics enrollees, 86 were trade and industry automotives enrollees, and 92 were English or social studies enrollees.

The instruments used to collect the data for this study were: The Michigan State General Self-Concept of Academic Ability Scale, the Wamhoff Self-Concept of Vocational Ability Scale, the Duncan Socio-Economic Index, The Army General Classification Test (First Civilian Edition), and A Self-Report Questionnaire.

The statistical model used to analyze the data collected was an analysis of variance randomized block design, utilizing treatment effects, i.e., vocational and non-vocational groups. The basic assumption of this design was that all variations within treatments were due to random variations within the groups. The main task was to test to see if the variable scores were similar in each group. If they proved similar then there was no significant difference between groups. An analysis of covariance was used to adjust the mean scores to control for variables that may have an influence upon the dependent variables. A correlation matrix was used to identify relationships between all variables.

Findings

The findings of the study are listed here according to results obtained by testing the seven hypotheses. One major aspect of the

study was the determination of characteristics of vocational seniors in the State of Utah. Data gathered from four hypotheses (H_1, H_2, H_5, and H_6) supply findings relative to it.

1. H_1 and H_2, following, were rejected.

> H_1: There will be a significant difference between vocational and non-vocational students' mean scores of intelligence, academic achievement, and socio-economic status.
>
> H_2: There will be a significant difference between vocational and non-vocational students' mean scores of self-concept of academic ability, self-concept of vocational ability, perceived parental evaluation of academic ability, perceived friends' evaluation of academic ability, and perceived teachers' evaluation of academic ability. This significant difference will hold firm when the variables of intelligence, academic achievement, and socio-economic status are controlled.

When vocational and non-vocational students were compared, from a macro perspective, the anticipated differences between the two groups did not materialize; therefore, H_1 and H_2 were rejected. These two treatment groups were similar on all variables tested except academic achievement, where the non-vocational group was significantly higher, and self-concept of vocational ability, where the vocational group was significantly superior.

2. H_5, following, was rejected.

> H_5: Significant differences in self-concept, intelligence, school achievement, and socio-economic status scores will exist when comparing students in each vocational specialty (DE, OE, AGR, HO EC, T&I) with the non-vocational students under circumstances where intelligence, grade point average, and socio-economic status variables are controlled.

When the vocational specialties' mean scores were statistically compared, significant differences between groups were registered for every variable. The source and direction of this difference was

found by comparing each specialty area's mean scores for each variable with the non-vocational control group's mean scores, reporting only statistically significant results. The mean scores for distributive education enrollees were significantly lower than the non-vocational student scores on the variables intelligence and academic achievement, but at the same time, were significantly higher for self-concept of vocational ability. The mean scores for office education enrollees (shorthand-transcription) were significantly superior when compared to the non-vocational group on the intelligence and academic achievement variables. Agriculture enrollees' mean scores were significantly lower when compared to non-vocational students on the variables intelligence, academic achievement, socio-economic status, and self-concept of academic ability; but significantly higher on the variable self-concept of vocational ability. Home economics enrollees' mean scores could not be distinguished from the control group on any variable studied. Trade and industry enrollees' (automotives) mean scores were significantly higher on intelligence, but lower on academic achievement.

3. H_6, following, was rejected.

> H_6: Significant differences in all variable scores (intelligence, academic achievement, socio-economic status, self-concept of academic ability, self-concept of vocational ability, perceived parental evaluation of academic ability, perceived friends' evaluation of academic ability, and perceived teachers' evaluation of academic ability) exist when comparing vocational specialties across each of the sample schools.

The degree of homogeneity within each vocational specialty was determined, in part, by comparing specialties across schools. The vocational classes enrolling males (D.E., Agr., T&I) were consistent

in student types enrolled from school to school. The distributive and agriculture classes consistently enrolled students having significantly lower mean scores on intelligence than the non-vocational classes since no school was significantly different. These two vocational classes, joined by trade and industry automotives classes, also enrolled students who were significantly lower than the non-vocational classes on the variable academic achievement since no school reported a significant difference. The vocational classes enrolling most females (O.E., Ho. Ec) did not report consistent student characteristics across schools since there was a significant difference between schools. Some schools enrolled female students with high scores; others with low. However, since the results for males were consistent across schools, H_6 was rejected.

The second major aspect of the study was the determination of the influence of each independent variable. Data gathered from the statistical analysis of three hypotheses (H_4, H_3, and H_7) supplied pertinent information relative to this aspect.

1. H_4, following, was rejected.

> H_4: Students participating in a vocational class exhibit an enhanced self-concept of vocational ability.

The data showed that students enrolled in vocational classes possessed significantly higher self-concepts of vocational ability. Detailed analysis, however, determined specifically that only distributive education and agriculture students of the five vocational specialties tested, possessed significantly higher self-concepts of vocational ability, but that office education (shorthand-transcription), home economics, and trade and industry (automotives)

students did not have significantly higher scores than those in non-vocational classes.

2. H_3, following, was accepted.

> H_3: Significant differences exist among vocational students' measures of self-concepts when using sex, intelligence, socio-economic status, place of residence, and grade point average as treatment effects.

While H_3 was accepted, it must be recognized that the variable place of residence did not influence self-concept scores. All other variables--sex, intelligence, grade point average, and socio-economic status--significantly influenced self-concept values.

3. H_7, following, was accepted.

> H_7: The measures of self-concept of academic ability and self-concept of vocational ability measure separate dimensions of self-concept.

The data gave evidence that the two main self-concept measures behaved differently for each statistical analysis.

CONCLUSIONS

The following major conclusions have been formulated on the basis of the statistically significant findings:

1. Based on the finding that vocational students, as a group, scored significantly lower on grade point average values than their non-vocational peers, it is concluded that vocational education classes enrolled less academically capable students than the non-vocational classes.
2. Based on the finding that vocational students, as a group, scored significantly higher on self-concept of vocational ability, it is

concluded that vocational students have acquired an enhanced perception of their abilities to perform in an occupation. More detailed findings showed that only agriculture and distributive students possessed this enhanced perception whereas home economics, office education (shorthand-transcription), and trade and industry (automotives) students did not. Further, since the independent variables did not account for this enhanced self-concept, perhaps there is some justification, after the fact, to hypothesize that the vocational classes did have some influence on this enhanced level.

3. Based on the finding that on most variables (intelligence, socio-economic status, self-concept of academic ability, perceived parents', teachers', and friends' evaluations of academic ability) vocational students, as a group, did not differ significantly from their non-vocational peers, it is concluded that these two groups were more similar than they were different, but as shown in 1 and 2 above, the differences exhibited were important differences.
4. Based on the finding that when each of the vocational specialty's mean scores were compared to each other, these scores were significantly different on all variables tested, it is concluded that the vocational specialties are not homogeneous in the characteristics studied.
5. Based on the finding that agriculture education enrollees and distributive education enrollees were significantly lower on mean scores for intelligence and grade point average, it is concluded that the image of "dumping ground" for these classes was supported, if "dumping ground" was interpreted to mean the higher enrollments of

of students possessing low intellectual ability and exhibiting lower grade point averages.

6. Based on the finding that trade and industyr (atuomotives) students were significantly higher on intelligence scores but significantly lower on grade point average scores, it is concluded that these students were typical of the underachievers of the public school, if by underachiever was interpreted students with better than average intellectual capacity but achieving poorly in academic endeavors. It is also concluded that the "dumping ground" image also applies to this group of students since they, along with distributive education and agriculture education students, exhibited lower academic achievement scores when compared to the non-vocational students.
7. Based on the three findings that (1) students enrolling in agriculture, distributive and trade and industry (automotives) classes were significantly lower on intelligence mean scores than the non-vocational group, that (2) these three specialties were the only ones enrolling a high proportion of males, and that (3) these characteristics were consistent from school to school with no significant difference across schools, it is concluded that vocational classes for males in Utah reinforced a "dumping ground" stereotype commonly held for vocational education.
8. Based on the finding that home economics students did not depart significantly from the non-vocational students on any variable score and that office education (shorthand-transcription) students were significantly higher than their non-vocational peers on intelligence and grade point average scores, it is concluded that each vocational class enrolling a high proportion of females served, in the main,

students possessing an intelligence and academic achievement profile equal to or significantly greater than the non-vocational students. This profile of characteristics was not consistent across schools.

9. Based on the finding that the independent variables sex, intelligence, academic achievement, and socio-economic status did significantly influence the self-concept measures, it is concluded that these variables did influence this self-concept study.
10. Based on the finding that the place of residence (R-U) variable did not significantly affect the self-concept measures, it is concluded that this variable did not influence this self-concept study.
11. Based on the finding that the measures self-concept of academic ability and self-concept of vocational ability behaved differently for several statistical analyses in this project, it is concluded that they did measure separate and distinct self-concept dimensions.
12. Based on the finding that the variable self-concept of academic ability did not prove significantly different when comparing vocational and non-vocational students, it is concluded that these two groups do not perceive their academic abilities differently even though their achievement levels are significantly different.

RECOMMENDATIONS

This study suggests several recommendations for either practical use or for additional research:

1. Replicative studies should be made comparing vocational and non-vocational students on the same criteria as examined in this study, but using populations in states other than Utah.

2. Replicative studies should be made comparing only vocational students enrolled in what vocational experts would evaluate as a "program," i.e., a vocational program with certain consistent qualitative dimensions.
3. Replicative studies should be made using the same criteria as this study, but using only female students enrolled in classes with a strong vocational emphasis.
4. Experimental studies should be made using the same criteria as this study, but also employing a pretest-posttest design so that a more sensitive measure of the class influence upon self-concept values could be gained.
5. Replicative studies should be made using the same criteria as this study, but utilizing a different measure of socio-economic status--one that is better able to distinguish between various agricultural job positions in the labor market.
6. Replicative studies should be made using the same criteria as this study, but controlling also for classes using different structural arrangements, i.e., block time classes, extensive laboratory facilities, or area vocational schools.
7. A longitudinal study should be made to determine the permanence of an individual's self-concept of vocational ability in the labor market.
8. It is recommended that in studies of self-concept, males and females be studied separately, if possible, and that the independent variables intelligence, academic achievement, and socio-economic status be statistically controlled.

9. It is recommended that Utah school administrative and State Department personnel examine the philosophic posture and enrollment procedures currently followed by local schools. Specifically, judgments should be made about: (1) the desirability of the vocational specialties serving students possessing the characteristics herein described, (2) the educational problems that are inherent in maintaining the current student characteristic mix within the vocational specialties, (3) the current recruitment and selection procedures employed by the schools, and (4) the end goals of vocational classes in light of the student characteristics of those enrolled.
10. It is recommended that school administrators and teachers assess the educational problem inherent in teaching male students with the profile of characteristics previously described in light of educational resources needed to achieve class goals. It is plausible that classes serving students with a preponderance of achievement difficulties need a greater input of educational resources to bring about desired learning.
11. It is recommended that teacher education programs preparing teachers for the male dominant vocational classes include a strong element of teaching strategies for working with achievement-problem students.
12. It is recommended that office education, home economics, and trade and industry administrative and teaching personnel seek ways to relate their course work more strongly to the work world so that their students will, in turn, see themselves in a stronger occupational role.

IMPLICATIONS

There are several specific educational implications for administrators, counselors, and teachers that can be derived from this study. The implications drawn here are from the philosophic and experience base of the researcher. It is possible, of course, to formulate different kinds of implications from the same study data prepared from a different philosophic experience base. The implications presented are the personal interpretations of the researcher.

1. It appears that Utah is sponsoring an educational "track" procedure under the current enrollment practices in vocational education. The vocational system tends to serve, on the average, male students of comparatively low intellectual ability and low academic achievement, but at the same time, serves the average or above average female. A total array of student characteristics is lacking for both the male and female vocational education areas in the state.

   This enrollment practice violates a number of important beliefs and principles held by Americans generally and vocational educators specifically, namely: (1) Equality of educational opportunity. The courts have ruled that a separate system cannot be an equal system (refer to the Judge Skelly Wright case quoted in Chapter I), i.e., all students cannot have an equal opportunity for education if educational practices deny them access to parts of the system. Why have low ability girls in Utah not enrolled in as equal numbers as high ability girls in vocational education? Why have high ability males in Utah not enrolled in as equal numbers as low ability males

in vocational education? There is some suspicion that counselors and administrators have deliberately structured and administered the programs so that vocational classes do not serve these students. If the fault rests not directly with administrators and counselors, then indirectly, blame can be advanced since the enrollment procedure has been allowed to become standard practice. (2) Role of the schools in career preparation. Each of the main national statements of educational purpose, e.g., Committee of Ten, has included a strong endorsement for a career preparation role for the schools. The statements have inferred a career preparation for all students, certainly not one designed exclusively for students of the stated characteristics enrolled in vocational education. The spirit of the purpose and intent of these statements has been violated by vocational enrollment practices in the state. (3) Businessmen's expectations. One premise of vocational education is that the schools should train students in the quantity and quality needed by the business world. Businessmen, however, have hardly even been satisfied with the quantity aspect and have long been suspicious about the qualitative nature of vocational classes for males. Despite public relations efforts by vocational education to convince businessmen of the validity of vocational programs, somehow vocational education has never, on a macro basis, made the impact with the business community that was expected. One can only hypothesize, then, what the results would be, in terms of hiring policies and cooperation with the schools, if the businessman knew explicitly the characteristics of male students enrolled in vocational

education in Utah, especially as they are compared to the stated and pretended characteristics advanced by the vocational educator. It is certain he would wonder why the "good" students were not being trained for his complex world. He would have a difficult time supporting a public system of taxes that would work counter to his vested interests. It is plain that a "credibility gap" exists, with vocational educators and school officials guilty of practices hidden or partially hidden from the businessman. (4) Vocational Advisory Committee. The State Vocational Advisory Committee of Utah has recently published a booklet entitled Career Education. The purpose of the booklet was to promote the career education concept and persuade parents, businessmen, students, and school personnel of the worth of career education. In this public relations effort, the booklet attemped to dispel the typical "vocational" image. The basic problem of their efforts, however, is that unless the facts are changed, the image can never change for under the current setup, vocational education for males is a program that reinforces the stereotype, rather than eliminates it..

If vocational education is ever to gain the confidence of the community at large (parents, businessmen, students), it must change its highly controversial selection process and recruit a wide range of student characteristics to each specialty area.

2. Utah's educational system has been concerned but has not taken any constructive action about the level and magnitude of student's self-concepts. This study demonstrates that self-concept data can be gathered and processed relatively easily. In view of the importance of this concept to a student's success in the classroom

or on the job, a concerted program is required to identify each student whose self-concept would hinder his success.

3. There is some evidence to support the notion that vocational education is doing little in this state to persuade senior high school girls that interest in a career and family role goals are compatible. Neither the office education nor the home economics programs seem to make a significant contribution to girls' perceptions about a career since their self-concept of vocational ability scores were insignificant when compared to the non-vocational group. This circumstance could be the result of at least two factors: (a) lack of vocational emphasis in the classroom, and (b) strong societal norms against vocational preparation roles for the female. It appears that whatever the cause, not enough is being done to acquaint the high school female with vocational options in life. This statement is not condemning the traditional "homemaker" role, but from a vocational educator's point of view, the "gainful" preparation goals and procedures are inadequate at present.
4. An across the board approach to vocational education has been promoted as the direction of the future. This direction has a number of important educational implications in view of the heterogeneous nature of the vocational field as displayed by the data of this study. When the field organizes around functions, there is a concern that educators may soon begin to view the field as a homogeneous group. The fear is that the great differences in student characteristics will be ignored or forgotten. The data speak against this practice. Educational problems would certainly accelerate if administrators and counselors were to view the office education student, for example,

in the same way they view the agricultural student. Whatever also happens, vocational education must remember that there are basic differences in student characteristics and that identical programs, materials, teaching techniques, or administrative procedures will not meet this heterogeneous array of characteristics. Consistent with current educational theory, every effort should be made to exploit individual differences by individualizing instruction to these differences.

5. Utah's trade and industry automotives course needs a change in emphasis. Students of the trade and industry major possess significantly superior intellects, but at the same time are significantly lower in academic achievement and do not identify the program with a career. Possibly these underachievers want to escape the regular academic course work by enrolling in automotives, since their grade point average is so low in relation to their ability. Perhaps they selected the course because of the adolescent's fascination with the automobile. At any rate, they do not perceive themselves in a career as an auto mechanic as is evidenced by their self-concept of vocational ability scores. Perhaps some hobby short-term courses could be added so that a true career course could be undertaken for students desiring a mechanics career.

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APPENDICES

APPENDIX A

DOCUMENTS RELATING TO ESTABLISHMENT OF THE STUDY

(Sample)

October 15, 1971

Mr. John C. Haws
Superintendent
Box Elder School District
County Courthouse
Brigham City, UT 84302

Dear Superintendent Haws:

Last April we petitioned for approval to conduct a research study at Bear River High School. In response, you indicated that due to the pressures of the school year-end, it was impossible to complete the project at that time. Of course, we knew it was late and were sympathetic to your policy. Your letter did not discourage us from approaching you again and, therefore, we now formally request your cooperation in completing this project.

As was mentioned last spring, an expenditure of finances or extra labor from any of your faculty is not required. Some projects burden the faculty of the school, but the nature of this project is very much different. All that is needed is access to selected classes of students. Specifically, permission is requested to test one class of Home Economics, Trade and Industry, Agriculture, Business Education, Distributive Education, and two classes of basic English or American History. The total testing time needed is approximately 80 minutes or 1½ class periods. Our staff will distribute the questionnaire and the standardized instrument to your teachers. The teachers, then, in a regular class will dispense the tests to the students, monitor the exam, and collect the papers when they are completed. Our staff will call at the school to pick up the completed examinations. No grading of papers or any other special assignments will be required of your teachers or administrators.

We are enthusiastic about this study in that it requires a minimum of resources on your part and yet yields a return that is sizable. Student motivational problems are at the central focus of the study. Data from this study will be helpful to the administration and teachers of your school in diagnosing student motivational problems. Self-concept studies have proven to be a strong predictor of academic achievement.

I want to assure you again that no attempt will be made to isolate or identify specific schools or districts in the study. Data will be reported in "total" rather than by each of the specific ten schools in the sample. Your school will receive specific data as a courtesy, but the school will not be singled out in the study. A copy of the final report of the study will be forwarded to you.

It is anticipated that as soon as approval is given, we will immediately contact the necessary personnel so that the testing program can be completed sometime during the month of November.

A copy of the questionnaire, standardized instruments, and an abstract of the study was sent to you last spring. If there is any other information needed, feel free to phone collect, 752-4100, ext. 7980.

I look forward to meeting you and appreciate your cooperation.

Sincerely,

William D. Woolf
Teacher Educator

mc

(Sample)

November 12, 1971

Mr. John C. Haws
Superintendent
Box Elder School District
County Courthouse
Brigham City, UT 84302

Dear Superintendent Haws:

Your cooperation in completing the study of student characteristics at Bear River High School has been exemplary. The Principal and faculty were most helpful in administering, monitoring, and collecting the completed test instruments. Their support and interest in initiating the project was particularly appreciated by the project director. Each faculty member was sympathetic to the idea and did everything required of them.

This support has enabled an important study to be completed, and I only hope the data generated will be worthy of the time and energy expended by your faculty members.

The completed report will be forwarded to you some time in the month of January.

I hope that I can work with you again in the future on a similar project.

Sincerely,

William D. Woolf
Project Director

mc

APPENDIX B

DOCUMENTS USED TO SECURE DATA

DEPARTMENT OF BUSINESS EDUCATION

Utah State University

Everyone has ability to accomplish certain things. You, for example, are engaged in a wide range of activities such as school work, athletics, dancing, driving a car, working at a job, and so on. Usually we think of our abilities to accomplish these things as being very good, average, or even not so good. And, we probably know more about our ability to do these things than anyone else.

Two important problems facing everyone at some time in life are (1) school performance and (2) choice of occupation or career. We believe that quality of school performance and an individual's choice of occupation will likely be made based on the view the person has of his or her personal ability to do school work or perform in the occupation.

In order to find out if this is so, we need your help. The following questionnaire asks you to give us your views about your school ability and your occupational ability. To be useful, your answers must be personal and honest.

Please read carefully and answer each question. Work at your own pace. All completed questionnaires will be shown to no one except the research staff at Utah State University. The results are to be used to develop an instrument to measure a person's concept of occupational ability. Your answers will in no way affect your grades.

THANKS!

STUDENT INFORMATION SHEET

Please answer the following questions as honestly and accurately as possible.

A. PERSONAL DATA

Name_____
Last First Initial

Age_____ Date of Birth_____
month day year

Sex M F (circle one) Place of Birth_____
city state country

B. EDUCATIONAL DATA

Name of School_____

Class Year Freshman Sophomore Junior Senior
(circle one)

Name of Teacher_____

Name of this class_____

Grade Received in this class
Last report card _____

Number of years you have attended this school_____
years months

Name of the last school you attended_____

Was this school a High School Jr. High School
(circle one)

In what town or city and state was the above school located

_____
City (Town) State

Length of time you attended that school _____
years months

WHAT COURSES OR CLASSES ARE YOU NOW TAKING OR HAVE TAKEN DURING THIS CURRENT SCHOOL YEAR 1971-72. WHAT GRADE DID YOU RECEIVE IN THESE COURSES THE LAST GRADING PERIOD.

GRADES

_____ ( )
_____ ( )
_____ ( )
_____ ( )
_____ ( )
_____ ( )
_____ ( )
_____ ( )

WHAT WAS YOUR GRADE POINT AVERAGE AT THE END OF THE LAST SCHOOL YEAR? _____

C. DATA ABOUT PARENTS OR GUARDIAN

	yes	no
Is your father (or person who support you) working?	_____	_____
	Check one	
Do both your mother and father work?	_____	_____

What is your father's occupation? _____
(or person who supports you) _____

Describe his main responsibilities while on the job. Who does he do? What does he perform? _____

If your mother works, what is her occupation? _____

Describe her main responsiblities while on the job. _____

D. CONCEPT OF ABILITIES

Below are eight questions which ask you directly about how you think of yourself in terms of school ability. Please circle the letter in front of the statement which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?

   a. I am the best
   b. I am above average
   c. I am average
   d. I am below average
   e. I am the poorest

2. How do you rate yourself in school ability compared with those in your class in school?

   a. I am among the best
   b. I am above average
   c. I am average
   d. I am below average
   e. I am among the poorest

3. Where do you think you would rank in your class in high school?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

4. Do you think you have the ability to complete college?

   a. yes, definitely
   b. yes, probably
   c. not sure either way
   d. probably not
   e. no

5. Where do you think you would rank in your class in college?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

6. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think it is that you could complete such advanced work?

   a. very likely
   b. somewhat likely
   c. not sure either way
   d. unlikely
   e. most unlikely

7. Forget for a moment how others grade your work. In your own opinion how good do you think your work is?

   a. my work is excellent
   b. my work is good
   c. my work is average
   d. my work is below average
   e. my work is much below average

8. What kind of grades do you think you are capable of getting?

   a. mostly A's
   b. mostly B's
   c. mostly C's
   d. mostly D's
   e. mostly E's

E. CONCEPT OF VOCATIONAL ABILITY

Below are eight questions which ask you directly about how you think of yourself in terms of occupational ability. Please circle the letter in front of the statement which BEST answers each question.

1. Do you think you have the ability to do any job you desire?

   a. yes, definitely
   b. yes, probably
   c. not sure either way
   d. no, probably not
   e. no, definitely not

2. How do you rate yourself in your ability to do a job you would want in comparison to your classmates who have similar interests?

   a. I am among the best
   b. I am above average
   c. I am average
   d. I am below average
   e. I am the poorest

3. Where do you think you would rank in your ability to do your favorite job?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

4. Do you feel you have the ability to complete training necessary in the occupation of your greatest interest?

   a. yes, definitely
   b. yes, probably
   c. uncertain
   d. no, probably not
   e. no, definitely not

5. In your opinion how good do you think your work will be in the occupation you might choose?

   a. my work would be very good
   b. my work would be above average
   c. my work would be average
   d. my work would be below average
   e. my work would be rather poor

6. After 5 years of working in the job of your greatest interest, where do you think you will rank in comparison with others who have held the same job for 5 years?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the lowest

7. If you were interested in one of these occupations: barber, beautician, taxicab driver, carpenter, or farm laborer, how well do you feel you could do?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

8. Given that you were elected president of the United States, how well do you think you could carry out the duties of that office?

   a. I would be among the best
   b. I would be above average
   c. average
   d. I would be below average
   e. I couldn't do it

F. PERCEIVED PARENTS' RATING

Below are 5 questions which ask you directly how you think your Parents would rate your school ability. Please circle the letter in front of the statement which BEST answers each question.

1. How do you think your PARENTS would rate your school ability compared with other students your age?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

2. Where do you think your PARENTS would say you would rank in your high school graduating class?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

3. Do you think that your PARENTS would say you have the ability to complete college?

   a. yes, definitely
   b. yes, probably
   c. not sure either way
   d. probably not
   e. definitely not

4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think your PARENTS would say it is that you could complete such advanced work?

   a. very likely
   b. somewhat likely
   c. not sure either way
   d. somewhat unlikely
   e. very unlikely

5. What kind of grades do you think your PARENTS would say you are capable of getting in general?

   a. mostly A's
   b. mostly B's
   c. mostly C's
   d. mostly D's
   e. mostly E's

G. PERCEIVED FRIENDS' RATING

Below are 5 questions which ask you directly how you think your closest Friends would rate your school ability. Please circle the letter in front of the statement which BEST answers each question.

1. How do you think this FRIEND would rate your school ability compared with other students your age?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

2. Where do you think this FRIEND would say you would rank in your high school graduating class?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

3. Do you think that this FRIEND would say you have the ability to complete college?

   a. yes, definitely
   b. yes, probably
   c. not sure either way
   d. probably not
   e. definitely not

4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think this FRIEND would say it is that you could complete such advanced work.

   a. very likely
   b. somewhat likely
   c. not sure either way
   d. somewhat unlikely
   e. very unlikely

5. What kind of grades do you think this FRIEND would say you are capable of getting in general?

   a. mostly A's
   b. mostly B's
   c. mostly C's
   d. mostly D's
   e. most E's

H. PERCEIVED TEACHERS' RATING

Below are 5 questions which ask you directly how you think your Teacher would rate your school ability. Please circle the letter in front of the statement which BEST answers each question.

1. How do you think this TEACHER would rate your school ability compared with other students your age?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

2. Where do you think this TEACHER would say you would rank in your high school graduating class?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

3. Do you think that this TEACHER would say you have the ability to complete college?

   a. yes, definitely
   b. yes, probably
   c. not sure either way
   d. probably not
   e. definitely not

4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think this TEACHER would say it is that you could complete such advanced work?

   a. very likely
   b. somewhat likely
   c. not sure either way
   d. somewhat unlikely
   e. very unlikely

5. What kind of grades do you think this TEACHER would say you are capably of getting in general?

   a. mostly A's
   b. mostly B's
   c. mostly C's
   d. mostly D's
   e. mostly E's

APPENDIX C

SUPPORTING DATA

SUMMARY OF GUTTMAN SCALE DATA FOR WAMHOFF

SELF-CONCEPT OF VOCATIONAL ABILITY

QUES. SELECTED	NO. OF ERRORS PER QUES.
2	1
3	1
4	0
7	0
9	1
11	0
18	2
20	4
Total	9

Total Possible Responses

20 X 23 = 460 (20 Questions X 23 People)

Total Possible Responses to Ratio of Errors

$$\frac{9}{460} = 1.99$$

GUTTMAN ANALYSIS FOR SELECTED VOCATIONAL
SELF-CONCEPT QUESTIONS

SCORE	# 2	# 3	# 4	# 7	# 9	# 11	# 18	# 20
	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1
107	2 x	2 x	2 x	2 x	2 x	2 x	2 x	2 x
104	2 x	2 x	2 x	2 x	2 x	2 x	0 x	2 x
102	2 x	2 x	2 x	2 x	2 x	2 x	2 x	2 x
101	2 x	2 x	2 x	2 x	2 x	2 x	2 x	2 x
100	2 x	2 x	2 x	2 x	2 x	2 x	0 x	2 x
100	2 x	2 x	2 x	2 x	2 x	2 x	0 x	2 x
98	2 x	2 x	2 x	2 x	2 x	2 x	0 x	2 x
97	2 x	2 x	2 x	0 x	2 x	2 x	0 x	2 x
96	2 x	2 x	2 x	0 x	2 x	2 x	0 x	2 x
95	2 x	2 x	2 x	0 x	2 x	2 x	2 x	2 x
94	2 x	2 x	2 x	0 x	2 x	2 x	0 x	2 x
93	2 x	2 x	2 x	0 x	2 x	2 x	0 x	2 x
93	2 x	2 x	2 x	0 x	2 x	2 x	0 x	0 x
91	2 x	2 x	2 x	0 x	2 x	2 x	0 x	2 x
88	2 x	2 x	2 x	0 x	0 x	2 x	0 x	2 x
87	2 x	2 x	2 x	0 x	2 x	2 x	0 x	2 x
84	2 x	2 x	2 x	0 x	2 x	2 x	0 x	0 x
84	2 x	0 x	2 x	0 x	2 x	2 x	0 x	2 x
81	2 x	0 x	2 x	0 x	2 x	2 x	0 x	2 x
79	0 x	0 x	2 x	0 x	2 x	2 x	0 x	0 x
78	2 x	0 x	2 x	0 x	2 x	2 x	0 x	2 x
78	0 x	0 x	2 x	0 x	2 x	2 x	0 x	0 x
69	0 x	0 x	0 x	0 x	0 x	0 x	0 x	0 x
TOTAL	6 14 2 1	2 15 6	10 12 1	8 15	8 13 2	10 12 1	4 15 3 1	8 10 5

GUTTMAN ANALYSIS FOR SELECTED VOCATIONAL SELF-CONCEPT QUESTIONS

	Q	#2		#3		#4		#7		#9		#11		#18		#20	
		2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0
1	40	X		X		X		X		X		X		X		X	
2	40	X		X		X		X		X		X		X		X	
3	36	X		X		X		X		X		X			X	X	
4	36	X		X		X		X		X		X			X	X	
5	34	X		X		X		X		X		X			X	X	
6	33	X		X		X		X		X		X		X		X	
7	33	X		X		X		X		X		X			X	X	
8	32	X		X		X		X		X		X			X		X
9	30	X		X		X			X	X		X			X	X	
10	29	X		X		X			X	X		X		X		X	
11	27	X		X		X			X	X		X			X	X	
12	26	X		X		X			X	X		X			X	X	
13	25	X		X		X			X	X		X			X	X	
14	25	X		X		X			X	X		X			X	X	
15	23	X		X		X			X		X	X			X	X	
16	21	X		X		X			X	X		X			X	X	
17	18	X			X	X			X	X		X			X	X	
18	18		X		X	X			X	X		X			X		X
19	17	X		X		X			X	X		X			X		X
20	16	X			X	X			X	X		X			X		X
21	15	X			X	X			X	X		X			X		X
22	8		X		X	X			X	X		X			X		X
23	4		X		X		X		X		X		X		X		X

APPENDIX C

"t" TEST OF SIGNIFICANCE COMPARING SELF-REPORTED AND ACTUAL GRADE POINT AVERAGES

X	Y	D	D^2
2.8	3.1	-0.3	.09
3.2	3.1	-0.1	.01
3.4	3.2	-0.2	.04
2.8	3.0	0.2	.04
2.9	3.0	0.1	.01
2.5	2.8	0.3	.09
2.6	3.0	0.4	.16
2.0	2.0	0	0
3.5	3.5	0	0
3.3	3.0	-0.3	.09
2.7	2.8	0.1	.01
3.6	3.7	0.1	.01
3.3	3.1	-0.2	.04
2.4	2.7	0.3	.09
3.0	3.3	0.2	.09
3.1	2.9	-0.2	.04
1.8	2.0	0.2	.04
3.0	2.9	-0.1	.01
2.2	2.7	0.5	.25
2.5	2.9	0.4	.16
3.4	3.1	-0.3	.09
2.7	2.8	0.1	.01
2.8	3.0	0.2	.04
65.5	67.6	D2.0	$D^2$1.41

X=Actual GPA
Y=Reported GPA

Mean Difference $= \frac{2.0}{2.3} = .043$

Sum of Square $d^2 = D^2 - \frac{(D)^2}{N}$

$= 1.41 - \frac{(2.0)^2}{2.3}$

$= 1.41 - \frac{4}{2.3}$

$= 1.41 - .17$

$= 1.24$

Standard Deviation of Difference

$SD = \sqrt{\frac{d^2}{N}}$

$= \sqrt{\frac{1.24}{2.3}}$

$= .054$

$= .232$

Standard Error of Mean Difference

$SD = \frac{SD}{N-1}$

$= \frac{.232}{22}$

$= .232$
4.69

$= .05$

Z SCORE

$Z = \frac{.043}{.05}$

$Z = .86$ (22df)

Difference is not statistically significant.