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AUTHOR Wichowski, Chester P.; And Others
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ABSTRACT

A study was conducted to determine educators' opinions about what students must know and/or be able to do to graduate from high school and the blend of academic and vocational education courses that should be used for the achievement of the learning outcomes. Using a survey form developed for the project, data were collected from administrators, counselors, and teachers in Area Vocational Technical Schools (AVTSs) in eastern Pennsylvania and from a similar population of educators who send students to the AVTSs. A total of 2,138 educators were surveyed, with 1,089 usable returns. Data were subjected to factor analysis, Mann-Whitney U, and Chi Square tests. Results of the factor analysis yielded 9 factor groupings from the 66 educational outcome statements included on the survey instrument: general academic skills, technical skills, occupational survival skills, job search skills, affective job skills, basic skills, higher order skills, entrepreneurial skills, and "not named." Results of the Mann-Whitney U analysis identified patterns unique to the school setting of the respondents. The degree of emphasis ratings given to vocational or career-related outcome statements by AVTS respondents were higher than the ratings given to the same outcome statements by comprehensive high school respondents, and the degree of emphasis ratings given to the more academic outcome statements were higher for the comprehensive high school educators than the AVTS respondents. Chi square analysis identified most frequently a configuration that emphasized equal vocational and academic involvement. The study recommended that the skills groupings and emphases be used in formulating statements of academic and vocational goals and instructional strategies. (The report includes the following appendixes: quality goals, correspondence, and survey instrument. Contains 17 references.) (KS)

The Center for Vocational Education
Professional Personnel Development

An Investigation of Opinions Toward Selected Educational Outcomes

Part 1: Educators in Eastern Pennsylvania

by

Chester P. Wichowski
Senior Research Associate

Thomas J. Walker
Associate Professor

Richard A. Adamsky
Professor

TEMPLE UNIVERSITY

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Chester P. Wichowski, Senior Research Associate
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Chester P. Wichowski, Senior Research Associate
Thomas J. Walker, Associate Professor
Richard A. Adamsky, Professor

Temple University
Center for Vocational Education
Professional Personnel Development
Philadelphia, Pennsylvania

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The purpose of this investigation was to gain knowledge about student learning outcomes at the high school level in Pennsylvania. A survey instrument was developed to study educators' opinions about (a) the learning outcomes students must know and/or be able to do to graduate from high school, and (b) the blend of academic and vocational education courses/programs that should be used for the achievement of the learning outcomes. The survey was conducted in two stages. In the first stage data were collected from a population of administrators, counselors, and teachers from Area Vocational Technical Schools (AVTSs) in eastern Pennsylvania. In stage two, information was collected from a similar population

of educators located at the Comprehensive High Schools (CHSs) that send students to the AVTSs. The combined population for the stages was 2,138. The number of usable returns was 1,089 with an average return rate of 51%.

Data were subjected to a factor analysis, Mann-Whitney U and Chi Square tests to answer the research questions of the study. The factor analysis yielded 9 factor groupings from the 66 student learning outcome statements that comprised the instrument. The following titles were assigned to the factors: Factor 1--General Academic Skills, Factor 2--Technical Skills, Factor 3--Occupational Survival Skills, Factor 4--Job Search Skills, Factor 5--Affective Job Skills, Factor 6--Basic Skills, Factor 7--Higher Order Skills, Factor 8--Entrepreneurial Skills, Factor 9--Not Named.

Mean ratings of the respondents and a Mann Whitney U test were used to analyze the educators' opinions of the degree to which the learning outcomes should be emphasized. The mean ratings for both groups combined for all outcomes were quite high (3.6 on a 4.0 scale) illustrating the educators' belief that all 66 outcomes should be emphasized in secondary programs. The ratings given to vocational or career related outcome statements by the AVTS respondents, however, were higher than the ratings to the same outcome statements by CHS respondents. Conversely, the ratings given to the more academic related outcome statements by the CHS respondents were higher than the ratings of the same outcome statements by AVTS respondents. This pattern was most dramatically noted in the Technical Skills factor grouping.

The program and course configurations (i.e., blends of academic and vocational education courses/programs) selected by the educators were analyzed through the use of a Chi Square test. Although statistically significant differences were found between the delivery configuration patterns of the AVTS and CHS respondents, it was determined that these differences were of no practical significance due to the high similarities of patterns of selections by both groups. The pattern identified most frequently was a configuration in which vocational and academic offerings were emphasized equally. When other configurations were selected, they tended to be more directional and reflected a blend or emphasis that was consistent with the subject matter composition of the factor grouping.

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INTRODUCTION

School Improvement

The last decade of the 20th century is likely to herald the restructuring of public education in the United States. According to the findings of Patterson and Kim (1991), the American public's concern over the quality of education in recent years has grown to a point where its urgent improvement is their number one priority. The finding is not surprising. As Barton and Kirsch (1990) have pointed out, legislators, policy makers, and business and industry have argued for some time now that "...schools cannot be left to operate unaltered and that the need for reform is widespread and immediate" (p.III).

The conditions contributing to education's designation as the nation's top priority for the 1990s have their roots in earlier years. The conditions have been chronicled in several reports (e.g., National Center for Education and the Economy, 1990; Carnevale, Gainer, & Meltzer, 1988) but, perhaps, most graphically expressed in the 1983 landmark study of the National Commission on Excellence in Education entitled, A Nation at Risk. The report began by stating that, "The educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people" (p. 1). Despite the alarm sounded by the reports, progress in implementing their ideas for solving the problems of our schools has been slow. In fact, Terrel H. Bell, the U.S. Commissioner of Education in

office at the time A Nation At Risk was published, indicated upon leaving the Reagan Cabinet in 1988, "... that there is reason to remain deeply concerned about serious continuing deficiencies in education across the country" (p. 400). Apparently, those surveyed by Patterson and Kim (1991) felt that not much had changed by the end of the decade either.

As we enter the 1990s, however, we are beginning to see that many of the antecedents to the educational problems identified during the early and mid-1980s are becoming focused into a systematic strategy for school reform. Among the most prominent and far reaching proposals comes in the form of "National Goals for Education." The goals, which are summarized below, grew out of the Governors' Conference on Education convened by President Bush in July 1990 and are prefaced for achievement by the year 2,000:

1. Increase the Readiness for School; through high quality developmental preschool programs for the disadvantaged and disabled, parent education to aid in preschool development, and nutrition and health care for prenatal and early childhood development.
2. Achieve a High School Graduation Rate to 90%; increase the GED completion rate to 75% for those who have left school and reduce the gap in high school graduation rates between minority and non-minorities.
3. Increase Student Achievement and Citizenship; through competencies demonstrated at grades four, eight and twelve in

English, mathematics, science, history, geography as well as the provision of an assurance that students will be prepared for responsible citizenship, future learning and productive employment.

4. Become a World Leader in Student Achievement Scores in Science and Mathematics; through an early grade emphasis, doubling the number of teachers in these disciplines and increase collegiate level study in mathematics, science and engineering.
5. Develop Adult Literacy and Lifelong Learning; through strengthening the connection between education and work, increasing the opportunities for educational programs to workers, and the promotion of critical thinking, problem solving and communication skills.
6. Provide Safe, Disciplined, and Drug-Free Schools; through the development and implementation of school policies, the involvement of parents, business and community organizations and the development of effective prevention programs.

A second and equally comprehensive source advocating educational change is The American Society for Training and Development and the U.S. Department of Labor's report, Workplace Basics: The Skills Employers Want (Carnevale, Gainer, & Meltzer, 1988). According to the authors, employers expect high school graduates to have a firm grounding in basic reading, writing, and computation, and to possess operational competencies in creative

thinking, personal management, interpersonal relations, and conflict resolution. Also high on their list are skills in the organization and verbalization of thoughts. Schools, they argue, are in deep trouble and must restructure if students are to be successful for life after high school.

Both of the above initiatives, as well as others like Theodore Sizer's (1984) "Coalition of Essential Schools," William Glasser's (1990) "The Quality School," and the federal government's "Carl D. Perkins Vocational and Applied Technology Education Act of 1990, P.L. 101-392" are helping to focus the strategy for school reform in the 1990s. Central to their beliefs is the notion that schools can and must improve, and that all students--advantaged and disadvantaged--can be educated effectively. Their promise is to secure America's position of world leadership. As Ernest Boyer (1991) has noted,

> Without good schools, none of America's hopes can be fulfilled. The quality of our education will determine the strength of our democracy, the vitality of our economy, and the promise of our ideals. It is through the schools that this nation has chosen to pursue enlightened ends for all its people. And it is here that the battle for the future of America will be won or lost. (p. 191)

Improving Vocational Education

The Carl D. Perkins Vocational and Applied Technology Act of 1990, which became effective on June 30, 1991 and will remain in effect for 5 years, is directed primarily at improving the nation's

system of secondary, post-secondary, and adult vocational education. According to John F. Jennings (1991), former General Counsel for Education to the U.S. House of Representatives Committee on Education, the Perkins Act will place vocational education in a leadership position and will help correct some of the educational problems of the 1980s by (a) integrating academic and vocational education programs, (b) identifying and funding programs that produce desired results, (c) developing "2 plus 2" linkage programs and related technical programs at the post-secondary level, and (d) emphasizing programs that serve the poor and disadvantaged.

The changes to vocational education envisioned in the Perkins legislation reinforce, in many instances, improvements already underway in many reform-minded states. For example, a significant regional effort at directing change in vocational education began in 1987 with the formation of the Southern Regional Education Board (SREB) Consortium (Bottoms, 1987). Originally formed with 13 states, the consortium has grown to 16 with Pennsylvania being the most recent addition. The goals of the SREB are to (a) close the achievement gap between students enrolled in vocational education programs and those in college preparatory programs, (b) improve the communications, mathematics, and science competencies of students pursuing vocational studies, and (c) add purpose and rigor to the experiences of those students who pursue vocational studies at the secondary level by improving the quality of both vocational and academic instruction. According to Gene Bottoms, the Consortium

Director, the SREB's mission has been consistently maintained since it's inception. And, as a result, the communications, mathematics, and science test scores of vocational education students have improved significantly at each of the 30-plus program pilot sites that have embraced the consortium's guiding principles (Bottoms 1989; personal communication, July 25, 1991).

Pennsylvania's membership in the SREB consortium is consistent with its intention to provide quality education for all of the Commonwealth's youth, both college and non-college bound. In fact, the Commonwealth demonstrated a statutory interest in the equality of student learning outcomes for public school students by introducing the "Goals of Quality Education" into the Pennsylvania School Code more than 25 years ago. Change, however, takes time. The Goals and their concomitant learning outcomes, even though included in revisions to the School Code since 1965, never really became the influence on either academic or vocational programs that they were expected to be. A likely reason was because graduation from a high school or Area Vocational-Technical School (AVTS) in Pennsylvania was more a condition of courses completed and credits earned (i.e., time spent in class), than of specific learning outcomes achieved. In the reform oriented 1980s and 1990s, however, the Goals (see Figure 2) gained new prominence and became the driving force behind sweeping changes in Chapters 3, 5, and 6 of the Code. In fact, the latest changes by the State Board of Education eliminated carnegie units (i.e., credits earned) and courses completed all together as the basis for earning a high

school diploma. In their place the Board adopted a curriculum framework and assessment process that requires schools, both high schools and AVTSs, to document students' achievement of specific learning outcomes. According to the State Board (1991),

> State regulations should facilitate a restructuring of the public schools so that all involved focus our principal efforts on establishing and achieving learning outcomes for children, based on the Goals of Quality Education, that will prepare them for successful adulthood in the twenty-first century. (Principles Guiding the Development of Regulations on Curriculum, Vocational Education, and Student Assessment, p. 5)

The new regulations will have the potential to extend the level of influence of the 1965 and 1979 Quality Goals into the 21st century. The 1979 12 Quality Goals of Education that were in effect during the most current revision of the PA School Code are listed in Figure 1. Listings for the 1965 Quality Goals and an expanded version of the 1979 Goals are included in Appendix A.

Figure 1. 1979 Goals of Quality Education.

Preamble

The constitution of the Commonwealth of Pennsylvania states, "The General Assembly shall provide for the maintenance and support of a thorough and efficient system of public education to serve the needs of the Commonwealth." This provision mandates a quality education for each child in the Commonwealth.

The schools have the primary responsibility for the achievement of the goals of quality education as

established by the State Board of Education, but they must work in close and continuous cooperation with the family, community and other appropriate social, religious and government institutions to insure the highest possible achievement of the goals.

To foster achievement of a quality education, the school environment should be safe, attractive and orderly, promote a willingness to work for objectives, stimulate a readiness to continue learning throughout life and encourage the fullest possible educational development of each student.

To foster achievement of a quality education, the school program should reflect the following goals.

COMMUNICATION SKILLS - Quality education should help every student acquire communication skills of understanding, speaking, reading and writing.

MATHEMATICS - Quality education should help every student acquire skills in mathematics.

SELF-ESTEEM - Quality education should help every student develop self-understanding and a feeling of self-worth.

ANALYTICAL THINKING - Quality education should help every student develop analytical thinking skills.

UNDERSTANDING OTHERS - Quality education should help every student acquire knowledge of different cultures and an appreciation of the worth of all people.

CITIZENSHIP - Quality education should help every student learn the history of the nation, understand its systems of government and economics and acquire the values and attitudes necessary for responsible citizenship.

ARTS AND THE HUMANITIES - Quality education should help every student acquire knowledge, appreciation and skills in the arts and the humanities.

SCIENCE AND TECHNOLOGY - Quality education should help every student acquire knowledge, appreciation of science and technology.

WORK - Quality education should help every student acquire the knowledge, skills and attitudes necessary to become a self-supporting member of society.

FAMILY LIVING - Quality education should help every student acquire the knowledge, skills and attitudes necessary for successful personal and family living.

HEALTH - Quality education should help every student acquire the knowledge and develop practices necessary to maintain physical and emotional well-being.

ENVIRONMENT - Quality education should help every student acquire the knowledge and attitudes necessary to maintain the quality of life in a balanced environment.

Statement of the Problem

The utility of the Quality Goals and their associated learning outcomes to serve the educational needs of the Commonwealth during the 1990s and beyond has not come without debate. Because the Goals were rooted in thinking that began in the 1960s and continued through the 1970s and 1980s, some policy makers questioned their appropriateness believing that the goals might be interpreted as icons of the "status quo." As a result, during the summer of 1989 the State Board of Education undertook a survey of the state's educators to examine the value of the goals. The survey showed that over 80% of the 32,627 respondents felt that the Twelve Goals were appropriate for the 1990s (Feir, 1990).

Even with this information, though, concerns about the validity of the goals, and the appropriateness of their associated learning outcomes for all students in the Commonwealth continued. More information was needed. As a result, the Secretary of Education presented a work list for educational change in the 1991 State Education Plan (Carroll, 1991) that recommended the following:

1. Re-evaluate the Twelve Goals of Quality Education and National Goals to establish clear guidance for Pennsylvania's schools. Merge the two lists where possible.

2. Provide an outcome-based curriculum plan.

3. Replace the Carnegie Unit to emphasize what a student has learned rather than time spent in class.

In September of 1991, the first draft of the Commonwealth's new K-12 curriculum requirements (i.e., Chapter 5 Regulations of the School Code) was made public. The new regulations addressed the changes reported above and included a list of Quality Goals and student learning outcomes that expanded those from earlier years (see Figure 2). Public hearings followed and, subsequently, a more streamlined version of the Goals and outcomes was presented by the State Board in early 1992 (see Figure 3). Still, concerns about the new regulations persisted, especially in the area of student learning outcomes.

We at the Temple University Center for Vocational Education Professional Personnel Development, for example, felt that the proposed framework of goals/outcomes was insufficient for preparing young people for careers and work. Our concern was for students who were non-college bound: those who enter the work force directly after high school graduation. Given what was being proposed as required learning outcomes, we doubted seriously whether a high school graduate would be proficient in the technical skills needed to compete for employment, or advance in an occupation of his or her choice. The concern prompted us to design and conduct our own study on student learning outcomes. Our hope was to collect information that would shape educational policy at the highest levels of the Commonwealth.

Figure 2. **A Comparison of the 1979 and 1991 Goals of Quality Education.**

1979 Goal Number and Title	1991 Goal Number and Title
	Common Core Goals:
11 Self-Esteem (5)*	CC-1 Self-Worth (10)*
6 Analytical Thinking (4)	CC-2 Higher Order Thought (4)
_____ __	CC-3 Learning Independently and Collaboratively (9)
_____ __	CC-4 Adaptability to Change (6)
_____ __	CC-5 Ethical Judgement (6)
1 Communications Skills (5)	1 Communications (61)
2 Mathematics (5)	2 Mathematics (91)
3 Science and Technology (5)	3 Science and Technology (48)
10 Environment (6)	4 Environment and Ecology (47)
4 Citizenship (5)	5 Citizenship (44)
12 Understanding Others (5)	6 Appreciating and Understanding Others (71)
5 Arts and Humanities (5)	7 Arts and Humanities (33)
8 Work and Work (6)	8 Career Education (61)
9 Health (6)	9 Wellness and Fitness (44)
7 Family Living (4) Community Living	10 Personal, Family, and (40)
Total Number of Learning Objectives: 61	Total Number of Learning Objectives: 575

*NOTE: The number of component learning objectives are included within the parenthesis to the right of each goal.

Figure 3. The Revised Quality Goals of Education

Goal Area	No. of Outcomes
1. Communications	7
2. Mathematics	7
3. Science and Technology	7
4. Environment and Ecology	7
5. Citizenship	5
6. Appreciating and Understanding Others	7
7. Arts and Humanities	4
8. Career Education and Work	5
9. Wellness and Fitness	6
10. Personal, Family, and Community Living	5
TOTAL	57

Purpose of the Study

The purpose of this study was to gain more information on what Pennsylvania's youth should be expected to know to be awarded a high school diploma. Specifically, we investigated the opinions of both general and vocational educators toward the student learning outcomes that students should know and be able to do to graduate from high school. We also investigated the educators' opinions of the blend of academic and vocational education courses/programs they felt should be used for the achievement of the learning outcomes. Four research questions were framed for study:

1. What is the educational role and subject specialization of the respondents who have completed the educational outcome survey?
2. What is the difference between the degree of emphasis ratings given to the 66 educational outcome statements and the educational role and subject specialization of the respondents?
3. What is the difference between the course/program delivery configurations chosen for each of the 66 educational outcome statements and the educational role and subject specialization of the respondents?
4. To what degree will the ratings given to the 66 educational outcome statements load in the factors derived from the 12 Quality Goals of Education? How will this vary due to educational role and subject specialization of the respondents?

Scope and Limitations

This study investigated the opinions of educators in the eastern region of Pennsylvania. The population consisted of educators from Area Vocational-Technical Schools (AVTSs) in the region, and a geographically representative sample of educators at Comprehensive High Schools (CHS) that send students to AVTSs on a shared-time basis.

The findings are based on an instrument specifically designed for the study. The 66 educational outcome statements included on the instrument were derived, in part, from an educational outcomes study conducted in Illinois (Barnard and Wentling, 1987), and from a representative selection of component elements associated with the 1979 Twelve Goals of Quality Education.

The regional focus of the study, limits its generalizability to other regions of Pennsylvania and to other states. And, because the findings represent the opinions of the administrators, counselors, and teachers of the Area Vocational-Technical Schools and Comprehensive High Schools who responded to the survey, they may not represent the opinions of other educators.

It should also be pointed out that this study was conducted at a specific time which, due to conditions and events unique to the time of data collection, may have affected the opinions expressed by the respondents surveyed. Application of findings from this study to future or past time periods, therefore, may not be appropriate due to different conditions or events. Also, it should

be noted that the strength of the findings rests on the construct validity of the data collection instrument and the statistical treatment applied to data collected.

CHAPTER 2

PROCEDURE

INTRODUCTION

The procedures used for each phase of the Educational Outcomes Study are reported in this chapter. Detailed information is provided on the design of the study, the population and sample surveyed, the design and development of the research instrument, the procedures used for the transformation of data for optical scanning, and the statistical methods used to answer the research questions.

Design of the Study

The research protocol is outlined below. Specific information relating to the protocol, however, is presented in subsequent sections of this chapter.

Protocol

A. Conceptualization and refinement of the problem.
   1. Review literature.
   2. Meetings and discussion.

B. Identification of the population and sample.
   1. Establish preliminary contact with AVTSs (phase 1).
   2. Establish preliminary contact with comprehensive high schools (phase 2).

C. Develop the research instrument.

1. Review literature.

2. Identify educational outcomes.

3. Conduct a Q-Sort activity.

4. Develop and edit draft versions of the instrument.

5. Pilot test the instrument.

D. Collect data (phase 1 and phase 2).

1. Make arrangements for instrument distributior

2. Distribute and collect instruments.

E. Convert raw data to optical format.

1. Train and supervise data conversion teams.

2. Validate converted data.

F. Conduct analysis of data.

G. Interpret data, formulate conclusions, make recommendation and write final report.

Population and Sample

Two related population sets were used for the study. Both sets included educators within the geographic service area (eastern Pennsylvania) of the Center for Vocational Education Professional Personnel Development, Temple University. The first set included educators from the Area Vocational Technical Schools (AVTSs). The second set included educators from the Comprehensive High Schools (CHSs) that send students on a shared time basis to selected AVTSs.

The educators in both population sets consisted of administrators, counselors and teachers.

Initial contact with the twenty-five AVTSs in the region was made by way of a letter of introduction, with an accompanying Outcome Survey Research Abstract that was mailed to all of the schools' directors (see Appendix B). Approximately two weeks after the mailing, the AVTS directors were contacted by telephone to discuss participation in the study, the number of potential respondents, and the arrangements needed for collecting data.

A more formalized procedure was used with the School District of Philadelphia. A proposal was prepared and submitted to the Educational Research Committee in accordance with the guidelines set forth in the Procedures for Applying to the School District of Philadelphia for Cooperation with a Research Project (1990). Copies of these guidelines, the proposal and the letter of authorization to conduct this research in Philadelphia are included in Appendix B.

Due to the large size of the second population set (i.e., CHS educators), a geographically representative sample of 18 schools was identified for data collection. Direct telephone calls were made to CHS principals to provide an overview of the research effort, determine their interest in participation, and ascertain the number of potential respondents at their schools.

Twelve of the eighteen CHS principals agreed to have their faculty and staff participate in the study (N = 878), and 25 AVTS directors agreed to have their faculty and staff participate (N =

950). Research instruments were distributed and collected by Field Resource Associates from the Vocational Education Professional Personnel Development Center during a 3 week period. In a limited number of instances, due to the preference of the participating principals or directors, the completed surveys were mailed back. Unfortunately, and due to unforeseen complexities and time limitations at the end of the school year, 4 CHS principals changed their minds about participating in the study. The survey distribution and response rate with adjustments for both phases of data collection are presented in Table 1.

TABLE 1

SURVEY DISTRIBUTION AND RESPONSE RATE

	Number Distributed	Adjusted Number Distributed*	Adjusted Number Returned+	Usable Returns	Percent Returned+
AVTS	1,205	1,205	853	822	68.7%
CHS	1,018	721	273	264	36.9%
TOTAL	2,223	1,926	1,126	1,086	56.8%

* Although 1,018 instruments were distributed to principals of CHS who agreed to participation in this study, unforeseen complications and time limitations at the end of the school year reduced the number of potential CHS respondents to 721.

+ The percent returned was calculated using the number of usable returns and the adjusted number distributed.

The Research Instrument

A two part instrument referred to as the Educational Outcomes Survey was designed to collect data. The first part of the instrument sought demographic information from the respondents. Questions were designed to sort respondents data by type of school, educational role, and, if they were a teacher, by subject area of specialization.

The second part of the instrument listed 66 educational outcome statements students must know and/or be able to do to graduate from high school. Each of the statements was responded to in two ways.

First, each statement was rated in terms of the degree of emphasis it should receive in secondary school subjects or courses. A four point Likert-type scale, with 1 representing none, 2 representing little, 3 representing some, and 4 representing great, was used to collect degree of emphasis ratings. Provision was also made for an uncertain rating.

Each outcome statement was also rated according to the course or program delivery configuration that a respondent believed would be most appropriate for helping secondary students achieve the outcome. Five configurations were used: V for vocational, VA for vocational with some academic, E for an equal degree of vocational and academic, AV for academic with some vocational, and A for academic.

The educational outcome statements were selected from two sources. One was from a statewide vocational education outcome study conducted in Illinois by Barnard and Wentling (1987). The other was from the 1979 Pennsylvania Twelve Quality Goals of Education and a selected representation of their component elements. To ensure a level of construct validity of the two sets of outcome statements with the Twelve Quality Goals of Education, a modified Q-Sort activity was conducted by senior faculty members of the Temple Center. During this activity, each participant independently sorted outcome statements written on index cards among twelve category areas representing the quality goals. The results of the Q-Sort supported the construct validity of the

outcome statements to the 12 quality goals, and served as an indicator of possible future factor loading patterns.

The outcome statements were later randomly mixed so no particular listing order would be represented, thus eliminating any level of importance which might be implied by the relative positioning of items on the survey instrument. To further aid in the elimination of any rank order importance which a respondent might attach to an outcome statement, random number designations from 1 through 99 were selected and assigned to each instrument item. Also, four versions of the instrument each with different page orders were developed to reduce the possibility that responses might be affected by fatigue or loss of interest by the respondent completing the five page survey.

A pilot test of the survey instrument and cover letter was successfully conducted using 14 graduate students enrolled in a graduate level course in vocational and industrial education at Trenton State College. A copy of the final version of the survey instrument and accompanying transmittal letter are included in Appendix C.

Data Transformation and Statistical Analysis

The information collected in the study was transferred from the survey instruments to optical scan sheets by conversion teams specifically trained for this activity. The team approach was chosen to reduce fatigue by individuals doing the conversion

and to increase the accuracy of the transformation. Further, another degree of quality control was maintained through a validation effort involving a review of 10% percent of all optical scan sheet transformations. All data analysis and statistical testing were done through the use of the Release 4 version of SPSS on an IBM 3081K mainframe computer, the Computer Services Section, Temple University.

The research questions of the study and the statistical method used to answer each question are listed below:

1. What is the educational role and subject specialization of the respondents who have completed the educational outcome survey? Descriptive statistics were used to answer this research question.

2. What is the difference between the degree of emphasis ratings given to the 66 educational outcome statements and the educational role and subject specialization of the respondents? A Mann-Whitney U test was used to answer this research question.

3. What is the difference between the course/program delivery configurations chosen for each of the 66 educational outcome statements and the educational role and subject specialization of the respondents? A Chi Square test was used to answer this research question.

4. To what degree will the ratings given to the 66 educational outcome statements load in the factors derived from the 12 Quality Goals of Education? How will this vary due to educational role and subject specialization of the respondents? Factor Analysis was used to answer this research question.

CHAPTER 3

FINDINGS

INTRODUCTION

The findings of this study are not presented in the same order that the research questions are listed. The change was made to take advantage of the organizational influence derived from the factor analysis of the variables (educational outcomes) in the study. To facilitate the presentation and aid in the organization of this information, each research question will be re-stated in the revised order.

Research Question 1: What is the educational role and subject specialization of the respondents who completed the educational outcome survey?

Descriptive statistics were used to answer this research question. The respondents (N = 1,086) to this study were secondary school academic and vocational educators from 17 counties in eastern PA that constitute the service area of the Center for Vocational Education Professional Personnel Development, Temple University. The respondents were employed in 25 AVTSs (n = 822) and 12 comprehensive high schools (n = 264). Three respondents were unclassified. The educational role of the respondents included 982 teachers, (633 vocational, 341 academic, 8 unclassified), 37 administrators, 46 counselors, 19 classified as "other," and 2 who were unclassified.

Research Question 2: To what degree will the ratings given to the 66 educational outcomes load in factors related to the 12 Quality Goals of Education? How will this vary due to educational role and subject specialization of the respondents?

A principal components factor analysis with a varimax rotation was used to answer these questions. The criteria used to identify factors were (a) that there be at least two items included in the factor and (b) that each item must load at a .35 level or higher.

Nine factors were identified through an analysis of all respondents (N = 1,089). Although a .35 minimum loading level criteria was used, it should be noted that 94% of the 66 items loaded above a .40 level. Names used to describe each factor were based on an inspection of the aggregate context of the component outcome statements. Factor nine, consisting of only two items was un-named. A complete listing of this information is provided in Table 2.

TABLE 2

FACTORS IDENTIFIED: ALL RESPONDENTS

Origin of Item*	Item No.	Factor Title and Outcome Statements	Loading Level
		Factor 1 - General Academic Skills	
P	27.	An understanding of the ecology problems facing our society.	.703
P	64.	An understanding of the environment at the local, regional and global levels.	.693
P	57.	Positive values and attitudes toward the protection of the environment.	.660
P	51.	Knowledge of human growth and development of good nutrition.	.638
P	48.	A respect for the equal rights and worth of all men and women in our society.	.614
P	37.	An understanding of family life.	.609
P	56.	An awareness of the participatory nature of the democratic process.	.576
P	26.	A positive attitude toward persons from different ethnic and racial backgrounds.	.573
P	5.	An awareness of the dangers of tobacco, alcohol and drugs.	.562
P	25.	A positive attitude toward personal and physical health.	.555
P	46.	A proficiency in consumer decision making skills.	.528
P	15.	An understanding of the influence that art and literature have on our society.	.523

TABLE 2 (Cont.)

Factors Identified: All Respondents

Origin of Item	Item No.	Factor Title and Outcome Statements	Loading Level
		Factor 1 - General Academic Skills (Cont.)	
P	6.	Be able to select, manage and maintain personal and family resources.	.517
P	7.	An understanding of personal abilities and interests.	.446
I	29.	An understanding of labor unions and how the affect the worker or job.	.445
I	65.	An awareness of the need for lifelong learning.	.370
		Factor 2- Technical Skills	
I	23.	An awareness of the special tools and equipment needed for a job.	.697
I	49.	A proficiency in operating tools and equipment needed for a job.	.658
I	10.	An understanding of terminology related to a job.	.656
P	9.	An understanding of the principals and concepts of craftsmanship.	.619
I	45.	An understanding of technical information related to a job.	.585
I	43.	An understanding of the steps required to do a job.	.582
I	18.	An ability to perform a job safely.	.563
I	22.	An understanding of rights and duties as a worker.	.404
I	30.	An ability to present a good image to an employer.	.364

TABLE 2 (Cont.)

Origin of Item	Item No.	Factor Title and Outcome Statements	Loading Level
		Factor 3 - Occupational Survival Skills	
I	53.	A respect for authority.	.656
I	50.	An ability to be dependable on the job.	.653
I	55.	The desire to work hard.	.622
I	38.	An ability to follow directions.	.617
I	59.	A positive attitude toward learning.	.581
I	35.	A positive attitude toward work.	.562
I	58.	A feeling of self-confidence.	.558
I	60.	An understanding of employer's expectations.	.487
I	54.	An ability to meet an identified standard when performing a job.	.454
I	2.	An ability to be on time.	.447
		Factor 4- Job Search Skills	
I	44.	An ability to prepare a resume.	.630
I	34.	A knowledge of how to approach an employer for potential employment.	.594
I	66.	A knowledge of how to look for a job.	.562
I	11.	An ability to interview effectively for a job.	.545
I	63.	An ability to fill out a job application.	.535
I	36.	An awareness of current and projected job opportunities.	.465

TABLE 2 (Cont.)

Origin of Item	Item No.	Factor Title and Outcome Statements	Loading Level
		Factor 4- Job Search Skills (Cont.)	
I	40.	A desire to seek out job opportunities.	.447
I	42.	An identified career goal.	.401
		Factor 5- Affective Job Skills	
I	17.	An ability to work as a team member.	.593
I	4.	A positive attitude toward co-workers.	.513
I	19.	An understanding of the need to upgrade job skills.	.510
I	24.	An ability to be creative and make suggestions to improve the job.	.503
I	21.	A knowledge of training required for advancement in the job.	.464
I	47.	An ability to get along with a variety of people.	.434
I	31.	A proficiency in decision-making skills.	.395
		Factor 6- Basic Skills	
I	1.	An ability to effectively communicate verbally and in writing.	.701
I	16.	A proficiency in applying reading skills.	.699
I	39.	A proficiency in applying writing skills.	.490
I/P	20.	A proficiency in arithmetic.	.486
I	3.	A proficiency in a core of basic skills designed to prepare students for advanced study.	.459
I	32.	A proficiency in using a computer.	.371

TABLE 2 (Cont.)

Origin of Item	Item No.	Factor Title and Outcome Statements	Loading Level
		Factor 7- Higher Order Skills	
P	61.	A proficiency in measurement and geometry.	.699
P	41.	A proficiency in basic algebra.	.627
P	62.	Knowledge of basic economic principles.	.513
P	28.	An understanding of basic scientific concepts and processes.	.465
		Factor 8- Entrepreneurial Skills	
I	12.	An understanding of risk taking and its consequences.	.594
P	14.	An awareness of aesthetic criteria and concepts of design as they may be applied to decision making.	.532
I	8.	An ability to work without close supervision.	.439
I	13.	An ability to efficiently manage time and materials.	.424
		Factor 9- Not Named	
P	52.	Be able to use information sources and research techniques.	.499
I	33.	An awareness of one's personal strengths and limitations.	.391

*The origin of the items (outcome statements) are from two primary sources. Those items with an "I" designation are derived from a statewide study conducted by Barnard and Wentling in Illinois (1985). Those items with a "P" designation are items developed specifically for this study to supplement those from the Illinois study and represent the PA Quality Goals of Education.

TABLE 2 (Cont.)

In one instance an outcome statement which was used in Illinois was slightly modified to permit compatibility with the PA Quality Goals. This item has a "I/P" designation; the original item used the term mathematics and was changed to arithmetic.

It is interesting to note that 15 of the 16 educational outcome statements that loaded in Factor One and all four of the educational outcome statements that loaded in Factor Seven were derived from the PA Quality Goals of Education. In contrast, 38 of the 40 educational outcome statements that loaded in Factors Two, Three, Four, Five, and Six, were derived from the educational outcomes study conducted in Illinois by Barnard and Wentling (1987).

On further examination, another interesting point was noted. An extremely high level of similarity occurred between the findings of this study and the one conducted in Illinois. Both studies had 29 out of 30 educational outcome statements load into exactly the same five factors. Although there were sequence differences in the rank order loading levels of the items in each factor, the point of congruence of the same outcome statements loading in the same five factors remains. These five factor loadings in the order of their factor identification in each study are listed below:

Factors Found in Illinois	**Factors Found in Pennsylvania**
1- Job Search Skills	2- Technical Skills
2- Technical Skills	3- Occupational Survival Skills
3- Affective Job Skills	4- Job Search Skills
4- Basic Skills	5- Affective Job Skills
5- Occupational Survival Skills	6- Basic Skills

Of significance is that two separate studies involving educational outcome data collected from over 2,000 respondents resulted in the identification of the same constructs providing a

confirmatory definition of career and vocational education at the secondary level.

Similar conceptual groupings of education outcome statements were also observed through review of factor loading patterns when separate factor analyses were conducted using the same data reorganized by different sub-population groupings. These included sub-populations of all teachers, all vocational teachers, all academic teachers, all AVTS respondents, and all comprehensive high school respondents.

The patterns of conceptual similarity identified through the factor analysis procedure appear to relate to the broad areas traditionally used to define programs classified as either academic, or career or vocational. They may also be viewed, however, as patterns which serve to identify outcome clusters that can provide an organizational framework for curriculum and program reform.

This is not meant to suggest that the results of this study provide a delineation of outcome clusters for academically-based educational outcomes, nor does it suggest that the results of this study provide an exhaustive definition of career and vocational-based educational outcomes. It does, however, provide a means which could be used toward the satisfaction of these ends.

Research Question 3: What is the difference between the degree of emphasis ratings given to the 66 educational outcome statements and the educational role and subject specialization of the respondents?

Before answering the question, an overview of the mean ratings given to degree of emphasis ratings by all respondents is presented. Mean scores were calculated for degree of emphasis ratings given to the 66 educational outcomes from respondents who rated outcomes on a 4 point scale with 1 representing no emphasis, and 4 representing great emphasis. The overall mean for all respondents was 3.62, and included means that ranged from 3.91 for outcome statement No. 38, to 3.02 for outcome statement No. 15. A complete listing of the mean degree of emphasis ratings from all respondents to outcome statements in descending rank-order is provided in Table 3.

TABLE 3

RANK ORDER LISTING OF DEGREE OF EMPHASIS RATINGS:

ALL RESPONDENTS

Rank Order	Mean	Item No.	Outcome Statement
1	3.909	38.	An ability to follow directions.
2	3.898	50.	An ability to be dependable on the job.
3	3.890	2.	An ability to be on time.
4	3.870	35.	A positive attitude toward work.
5	3.867	18.	An ability to perform a job safely.
6	3.857	59.	A positive attitude toward learning.
7	3.845	53.	A respect for authority.
8	3.829	16.	A proficiency in applying reading skills.
9	3.818	55.	The desire to work hard.
10	3.812	1.	An ability to effectively communicate verbally and in writing.
11	3.801	58.	A feeling of self-confidence.
12	3.800	54.	An ability to meet an identified standard when performing a job.
13	3.782	49.	A proficiency in operating tools and equipment needed for a job.
14	3.775	63.	An ability to fill out a job application.

TABLE 3 (Cont.)

Rank Order	Mean	Item No.	Outcome Statement
15	3.766	20.	A proficiency in arithmetic.
16	3.765	60.	An understanding of employer's expectations.
17	3.756	4.	A positive attitude toward co-workers.
18	3.744	30.	An ability to present a good image to an employer.
19	3.740	43.	An understanding of the steps required to do a job.
20	3.737	13.	An ability to efficiently manage time and materials.
21	3.731	47.	An ability to get along with a variety of people.
22	3.721	11.	An ability to interview effectively for a job.
23	3.720	8.	An ability to work without close supervision.
24	3.718	10.	An understanding of terminology related to a job.
25	3.718	31.	A proficiency in decision-making skills.
26	3.714	5.	An awareness of the dangers of tobacco, alcohol and drugs.
27	3.709	17.	An ability to work as a team member.
28	3.699	19.	An understanding of the need to upgrade job skills.
29	3.698	66.	A knowledge of how to look for a job.

TABLE 3 (Cont).

Rank Order	Mean	Item No.	Outcome Statement
30	3.693	34.	A knowledge of how to approach an employer for potential employment.
31	3.688	25.	A positive attitude toward personal and physical health.
32	3.671	65.	An awareness of the need for lifelong learning.
33	3.668	23.	An awareness of the special tools and equipment needed for a job.
34	3.667	3.	A proficiency in a core of basic skills designed to prepare students for advanced study.
35	3.672	48.	A respect for the equal rights and worth of all men and women in our society.
36	3.656	39.	A proficiency in applying writing skills.
37	3.641	26.	A positive attitude toward persons from different ethnic and racial backgrounds.
38.5	3.638	9.	An understanding of the principals and concepts of craftsmanship.
38.5	3.638	45.	An understanding of technical information related to a job.
40	3.612	52.	Be able to use information sources and research techniques.
41	3.600	22.	An understanding of rights duties as a worker.

TABLE 3 (Cont).

Rank Order	Mean	Item No.	Outcome Statement
42	3.591	44.	An ability to prepare a resume.
43	3.582	40.	A desire to seek out job opportunities.
44	3.578	33.	An awareness of one's personal strengths and limitations.
45	3.572	36.	An awareness of current and projected job opportunities.
46	3.570	21.	A knowledge of training required for advancement in the job.
47	3.564	57.	Positive values and attitudes the protection of the environment.
48	3.528	7.	An understanding of personal abilities and interests.
49	3.524	42.	An identified career goal.
50	3.517	12.	An understanding of risk taking and its consequences.
51	3.502	6.	Be able to select, manage and maintain personal and family resources.
52	3.490	24.	An ability to be creative and make suggestions to improve the job.
53	3.457	27.	An understanding of the ecology problems facing our society.
54	3.410	32.	A proficiency in using a computer.
55	3.392	37.	An understanding of family life.

TABLE 3 (Cont).

Rank Order	Mean	Item No.	Outcome Statement
56	3.389	28.	An understanding of basic scientific concepts and processes.
57	3.385	46.	A proficiency in consumer decision making skills.
58	3.381	61.	A proficiency in measurement and geometry.
59	3.372	56.	An awareness of the participatory nature of the democratic process.
60	3.352	51.	Knowledge of human growth and development and good nutrition.
61	3.292	64.	A understanding of the environment at the local, regional and global levels.
62	3.282	14.	An awareness of aesthetic criteria and concepts of design as they may be applied to decision making.
63	3.236	62.	Knowledge of basic economic principles.
64	3.209	29.	An understanding of labor unions and how they affect the worker or job.
65	3.181	41.	A proficiency in basic algebra.
66	3.023	15.	An understanding of the influence that art and literature have on our society.

OVERALL $\bar{X}$= 3.620

A Mann-Whitney U Test was used to determine if there were any differences between the degree of emphasis ratings given to the 66 educational outcome statements by AVTS and CHS respondents. Significant differences $p = > .05$ level were found in 43 of the 66 outcome statements. Significant differences $p = > .01$ level were found in 39 of the 66 outcome statements. Significant differences $p = > .001$ level were found in 29 of the 66 outcome statements.

Some patterns reflecting these differences were noted in the ratings given to outcome statements in four factor groupings. Most noteworthy among these were differences in ratings by the AVTS and CHS respondents to the educational outcomes statements in Factor Two: Technical Skills. All significance levels for this set of nine outcomes was $p = > .000$. Factors four and six also had significant differences between ratings given to all outcome statements. Of the eight outcome statements in Factor Four, six were $p = > .000$ level, one was $p = > .001$, and one was $p = >.05$ level. Of the six outcome statements in Factor Six, three were $p = > .001$ level, two were $p = >.01$ and one was $p = > .05$ level.

An examination of the mean rank computations from the Man-Whitney U Test, determined that the AVTS respondents rated the degree of emphasis higher in the outcome statements in Factors Two and Four, while the CHS respondents rated the degree of emphasis higher in Factor Six. A similar pattern prevailed in the majority of significant differences between degree of emphasis ratings given to outcome statements by AVTS and CHS respondents.

The three sets of differences noted among all the outcome statement ratings from the AVTS and CHS respondents in these three factor groupings, served to further identify a pattern of differences among other outcome statement ratings that were significant. The pattern illustrates that the degree of emphasis ratings given to vocational or career related outcome statements by AVTS respondents was higher than ratings to these same outcome statements by CHS respondents, while, conversely, the degree of emphasis ratings given to the more academic related outcome statements by CHS respondents was higher than ratings to these same outcome statements by AVTS respondents. The Mann-Whitney U mean rankings and significance levels for AVTS and CHS respondents to degree of emphasis ratings is provided in Table 4.

TABLE 4

MANN-WHITNEY U MEAN RANKINGS AND SIGNIFICANCE LEVELS: AVTS AND CHS RESPONDENTS ON DEGREE OF EMPHASIS RATINGS

FACTOR 1

General Academic Skills	Mean Rank AVTS	Mean Rank CHS	Level of Significance*
27. An understanding of the problems facing our society.	468	517	.003
64. An understanding of the environment at the local, regional and global levels.	464	513	.003
57. Positive values and attitudes toward the protection of the environment.	474	503	.065
51. Knowledge of human growth and development and good nutrition.	474	499	.145
48. A respect for the equal rights and worth of all men and women in our society.	483	497	.350
37. An understanding of family life.	484	480	.797
56. An awareness of the participatory nature of the democratic process.	466	507	.014
26. A positive attitude toward persons from different ethnic and racial backgrounds.	479	501	.140
5. An awareness of the dangers of tobacco, alcohol, and drugs.	485	486	.955
25. A positive attitude toward personal and physical health.	487	485	.910
46. A proficiency in consumer decision making skills.	468	505	.023
15. An understanding of the influence that art and literature have on our society.	448	539	.000

TABLE 4 (Cont.)

FACTOR 1 (Cont.)

General Academic Skills	Mean Rank AVTS	Mean Rank CHS	Level of Significance*
6. Be able to select, manage and maintain personal and family resources.	489	481	.645
7. An understanding of personal abilities and interests.	496	472	.149
29. An understanding of labor unions and how they affect the worker or job.	500	457	.012
65. An awareness of the need for lifelong learning.	481	500	.204
FACTOR 2- Technical Skills			
23. An awareness of the special tools and equipment needed for a job.	536	412	.000
49. A proficiency in operating tools and equipment needed for a job.	523	424	.000
10. An understanding of the terminology related to a job.	520	434	.000
9. An understanding of the principles and concepts of craftsmanship.	530	408	.000
45. An understanding of technical information related to a job.	524	418	.000
43. An understanding of the steps required to do a job.	522	429	.000
18. An ability to perform a job safely.	517	447	.000
22. An understanding of rights and duties as a worker.	515	442	.000
30. An ability to present a a good image to an employer.	521	430	.000

TABLE 4 (Cont.)

General Academic Skills	Mean Rank AVTS	Mean Rank CHS	Level of Significance*
FACTOR 3- Occupational Survival Skills			
53. A respect for authority.	493	475	.116
50. An ability to be dependable on the job.	498	473	.005
55. The desire to work hard.	494	471	.056
38. An ability to follow directions.	494	485	.285
59. A positive attitude toward learning.	489	478	.321
35. A positive attitude toward work.	508	458	.000
58. A feeling of self-confidence	499	466	.007
60. An understanding of employer's expectations.	517	433	.000
54. An ability to meet an identified standard when performing a job.	512	441	.000
2. An ability to be on time.	498	479	.044
FACTOR 4- Job Search Skills			
44. A ability to prepare a resume.	504	459	.004
34. A knowledge of how to approach an employer for potential employment.	521	436	.000
66. A knowledge of how to look for a job.	519	429	.000
11. An ability to interview effectively for a job.	500	468	.021
63. An ability to fill out a job application.	508	459	.000

TABLE 4 (Cont.)

General Academic Skills	Mean Rank AVTS	Mean Rank CHS	Level of Significance*
FACTOR 4 (Cont.)			
36. An awareness of current and projected job opportunities.	511	445	.000
40. A desire to seek out job opportunities.	518	428	.000
42. An identified career goal.	510	437	.000
FACTOR 5- Affective Job Skills			
17. An ability to work as a team member.	526	428	.000
4. A positive attitude toward co-workers.	508	459	.000
19. An understanding of the need to upgrade job skills.	515	439	.000
24. An ability to be creative and make suggestions to improve the job.	508	453	.001
21. A knowledge of training required for advancement in the job.	517	434	.000
47. An ability to get along with a variety of people.	493	481	.377
31. A proficiency in decision-making skills.	484	496	.404
FACTOR 6- Basic Skills			
1. An ability to effectively communicate verbally and in writing.	475	519	.000
16. A proficiency in applying reading skills.	476	515	.001

TABLE 4 (Cont.)

General Academic Skills	Mean Rank AVTS	Mean Rank CHS	Level of Significance*
FACTOR 6 (Cont.)			
39. A proficiency in applying writing skills.	459	439	.000
20. A proficiency in arithmetic.	478	507	.032
3. A proficiency in a core of basic skills designed to prepare students for advanced study.	476	512	.009
32. A proficiency in using a computer.	470	518	.004
FACTOR 7- Higher Order Skills			
61. A proficiency in measurement and geometry.	492	461	.058
41. A proficiency in basic algebra.	457	531	.000
62. Knowledge of basic economic principles.	475	509	.042
28. An understanding of basic scientific concepts and processes.	468	519	.002
FACTOR 8- Entrepreneurial Skills			
12. An understanding of risk taking and its consequences.	497	465	.054
14. An awareness of aesthetic criteria and concepts of design as they may be applied to decision making.	478	462	.335
8. An ability to work without close supervision.	510	449	.000
13. An ability to efficiently manage time and materials.	498	476	.109

TABLE 4 (Cont.)

General Academic Skills	Mean Rank AVTS	Mean Rank CHS	Level of Significance*
FACTOR 9- Not Named			
52. Be able to use information sources and research techniques.	480	505	.109
33. An awareness of one's personal strengths and limitations.	493	475	.116

* Two tailed level of probability, corrected for ties.

Research Question 4: What is the difference between the course/program delivery configurations chosen for each of the 66 educational outcome statements and the educational role and subject specialization of the respondents?

Before answering this research question, a profile of delivery configuration selections by all respondents is presented. Upon inspection of the percentage of selections made among the five possible delivery configurations, (vocational with some academic, equal vocational and academic, academic with some vocational, and academic) in Table 6, it is clear that some distinct patterns are present. To aid in the identification of patterns, all selections that exceed 10% have been highlighted by boldface type in Table 5.

One pattern which prevails throughout most of the selections of the respondents is a high percentage of choices made in the equal vocational and academic category. In half of the 66 educational outcome statements, the equal category was selected by more than 50% of the respondents. One notable exception to this particular pattern is evident in the educational outcome statements under Factor Two: Technical Skills. The delivery configurations selected by all the respondents for this set of educational outcomes showed a shift toward the configuration categories of vocational (28%), and vocational with some academic (34%). Other directional patterns are seen in several factor groupings when one examines delivery configuration ratings in excess of 10%. Using this percentage level as a guide, distinct directional patterns can be seen in Factors Three, Four, and Five, which reflect delivery

configurations that are vocational, vocational with some academic, as well as equal vocational and academic. The conceptual content of these factor groupings of educational outcomes are what would be considered vocational and career education.

Conversely, there are directional patterns clearly present in Factors One, Six and Seven which reflect preference in the delivery configurations of equal vocational and academic, academic with some vocational, as well as academic. The conceptual content of these factor groupings of educational outcomes are what would be considered academic areas of education.

To answer the fourth research question, a Chi-Square test was conducted to compare differences in delivery configuration selections between AVTS respondents and CHS respondents. High levels of statistical significance were found between the AVTS and the CHS respondents in their selection of delivery configurations to most of the educational outcomes. A complete listing of these significance levels is presented in Table 6. It should be noted, however, that although there are high levels of statistically significant differences identified through the Chi-Square test, these are not necessarily differences of any practical significance in terms of their interpretation.

This is reinforced through an examination of the patterns in Table 6, and comparing these patterns with the patterns in Tables 7 and 8. Upon inspection, one can see that all of these patterns remain essentially the same. The statistically significant differences identified by the Chi-Square test reflect slight

differences in the intensity of delivery configuration selections by the AVTS and CHS respondents within the patterns, not differences in the actual patterns.

TABLE 5

AVTS AND CHS DELIVERY CONFIGURATION SELECTIONS

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 1	%	%	%	%	%
27. An understanding of the ecology problems facing our society.	1.5	7.3	67.1	16.1	8.0
64. An understanding of the environment at the local, regional and global levels.	1.2	7.6	**58.9**	**19.1**	**13.1**
57. Positive values and attitudes toward the protection of the environment.	1.5	8.9	**70.8**	**12.4**	6.3
51. Knowledge of human growth and development and good nutrition.	1.7	8.9	**52.5**	**17.8**	**19.0**
48. A respect for the equal rights and worth of all men and women in our society.	2.1	6.0	**82.9**	4.1	4.9
37. An understanding of family life.	1.4	6.9	**66.7**	**14.5**	**10.4**
56. An awareness of the participatory nature of the democratic process.	1.5	7.0	**58.3**	**19.1**	**14.1**
26. A positive attitude toward persons from different ethnic and racial backgrounds.	1.9	7.0	**81.2**	5.7	4.2
5. An awareness of the dangers of tobacco, alcohol, and drugs.	1.9	6.4	**76.6**	8.7	6.5

TABLE 5 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 1 (cont.)	%	%	%	%	%
25. A positive attitude toward personal and physical health.	2.6	8.8	**76.0**	7.7	4.9
46. A proficiency in consumer decision making skills.	3.6	**14.9**	**60.1**	**14.7**	6.6
15. An understanding of the influence that art literature have on our society.	1.4	5.3	**40.3**	**26.0**	**26.9**
6. Be able to select, manage and maintain personal and family resources.	2.4	**10.2**	**64.8**	**13.2**	9.2
7. An understanding of personal abilities and interests.	2.8	**10.1**	**76.7**	7.5	3.0
29. An understanding of labor unions and how they affect the worker or job.	**17.3**	**35.1**	**40.0**	6.1	1.4
65. An awareness of the need for lifelong learning.	2.4	8.7	**78.6**	6.7	3.7
Average percent for Factor 1.	3.0	9.9	**65.7**	**12.5**	9.1
Factor 2					
23. An awareness of the special tools and equipment needed for a job.	**49.0**	**30.5**	**18.4**	1.3	0.7
49. A proficiency in operating tools and equipment needed for a job.	**43.5**	**34.5**	**20.3**	1.1	0.5

TABLE 5 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 2 (Cont.)	%	%	%	%	%
10. An understanding of terminology related to a job.	26.6	**34.2**	**35.6**	2.6	1.0
9. An understanding of the principles and concepts of craftsmanship.	**34.0**	**41.5**	**21.6**	1.9	1.0
45. An understanding of technical information related to a job.	**1.6**	**39.6**	**32.8**	4.8	1.1
43. An understanding of the steps required to do a job.	**14.8**	**29.7**	**52.1**	2.7	0.7
18. An ability to perform a job safely.	**31.0**	**35.9**	**31.1**	1.4	0.6
22. An understanding of rights as a worker.	**20.5**	**34.4**	**40.9**	3.3	0.9
30. An ability to present a good image to an employer.	**10.2**	**24.3**	**61.3**	3.2	1.0
Average percent for Factor 2.	**27.9**	**33.8**	**34.9**	1.8	0.8
Factor 3					
53. A respect for authority	2.8	9.0	**83.8**	3.0	1.5
50. An ability to be dependable on the job.	**12.7**	**26.8**	**56.8**	2.5	1.2
55. The desire to work hard.	**10.0**	**13.9**	**72.0**	3.2	0.9
38. An ability to follow directions.	4.2	**11.7**	**78.0**	3.7	2.4

TABLE 5 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 3 (cont.)	%	%	%	%	%
59. A positive attitude toward learning.	2.7	7.7	**81.6**	5.6	2.4
35. A positive attitude toward work.	**10.5**	**18.6**	**67.6**	2.6	0.8
58. A feeling of self-confidence.	3.4	8.9	**82.6**	3.6	1.5
60. An understanding of employer's expectations.	**16.1**	**34.4**	**46.9**	2.0	0.6
54. An ability to meet an identified standard when performing a job.	**15.5**	**30.4**	**50.6**	2.8	0.8
2. An ability to be on time.	6.4	**12.2**	**77.8**	2.7	0.9
Average percent for Factor 3.	8.4	**17.4**	**68.8**	3.2	1.3
Factor 4					
44. An ability to prepare a resume.	4.6	**15.6**	**59.5**	**13.5**	6.8
34. A knowledge of how to approach an employer for potential employment.	**10.2**	**31.4**	**53.6**	3.9	0.9
66. A knowledge of how to look for a job.	8.1	**27.0**	**59.1**	4.3	1.4
11. An ability to interview effectively for a job.	7.7	**23.9**	**60.9**	5.2	2.3
63. An ability to fill out a job application.	7.6	**20.1**	**63.0**	6.3	3.0
36. An awareness of current and projected job opportunities.	**14.4**	**29.6**	**50.3**	4.2	1.4

TABLE 5 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 4 (cont.)	%	%	%	%	%
40. A desire to seek out job opportunities.	10.6	26.3	57.4	4.5	1.2
42. An identified career goal.	8.1	**20.8**	**66.1**	3.4	1.7
Average percent for Factor 4.	8.9	**24.3**	**58.7**	5.7	2.3
Factor 5					
17. An ability to work as a team member.	9.0	**24.6**	**62.1**	3.4	0.9
4. A positive attitude toward co-workers.	**11.0**	**18.4**	**66.0**	3.3	1.2
19. An understanding of the need to upgrade job skills.	**22.6**	**35.2**	**38.4**	2.9	1.0
24. An ability to be creative and make suggestions to improve the job.	**14.9**	**33.9**	**45.7**	4.0	1.4
21. A knowledge of training required for advancement in the job.	**18.7**	**37.8**	**38.5**	3.6	1.3
47. An ability to get along with a variety of people.	3.1	9.4	**82.3**	3.8	1.4
31. A proficiency in decision-making skills.	5.2	**15.3**	**71.4**	6.1	1.9
Average percent for Factor 5.	**12.1**	**24.9**	**57.8**	3.9	1.3

TABLE 5 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 6	%	%	%	%	%
1. An ability to effectively communicate verbally and in writing.	1.3	8.9	**59.1**	**21.0**	9.6
16. A proficiency in applying reading skills.	1.3	7.1	**64.3**	**15.3**	**12.0**
39. A proficiency in applying writing skills.	1.8	7.0	**50.0**	**28.5**	**12.7**
20. A proficiency in arithmetic.	2.3	**11.9**	**54.9**	**20.2**	**10.8**
3. A proficiency in a core of basic skills designed to prepare students for advanced study.	2.9	**11.2**	**52.8**	**21.7**	**11.5**
32. A proficiency in using a computer.	3.7	**12.8**	**59.4**	**17.5**	**6.7**
Average percent for Factor 6.	2.2	9.8	**56.8**	**20.7**	**10.6**
Factor 7					
61. A proficiency in measurement and geometry.	3.2	**17.0**	**42.0**	**25.8**	**12.0**
41. A proficiency in basic algebra.	1.8	8.6	**34.5**	**30.6**	**24.4**
62. Knowledge of basic economic principles.	2.1	9.7	**48.4**	**24.9**	**14.9**
28. An understanding basic scientific concepts and processes.	2.1	**10.3**	**50.0**	**25.6**	**11.9**
Average percent for Factor 7.	2.3	**11.4**	**43.7**	**26.7**	**16.3**

TABLE 5 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 8	%	%	%	%	%
12. An understanding of risk taking and its consequences.	4.7	**14.5**	**71.3**	7.0	2.6
14. An awareness of aesthetic criteria and concepts of design as they may be applied to decision making.	6.2	**20.8**	**56.0**	**11.8**	5.1
8. An ability to work without close supervision.	**12.1**	**22.8**	**59.4**	4.3	1.3
13. An ability to efficiently manage time and materials.	**10.3**	**20.9**	**63.2**	4.0	1.5
Average percent for Factor 8.	8.3	**19.8**	**62.5**	6.8	2.6
Factor 9					
52. Be able to use information sources and research techniques.	2.8	**10.7**	**52.9**	**23.1**	**10.6**
33. An awareness of one's personal strengths and limitations.	3.4	**10.8**	**79.0**	4.5	2.3
Average percent for Factor 9.	3.1	**10.8**	**66.0**	**13.8**	6.5

TABLE 6

CHI SQUARE TEST LEVELS OF SIGNIFICANCE BETWEEN AVTS AND CHS RESPONDENTS ON DELIVERY CONFIGURATION

Educational Outcome No.	Significance Level	Educational Outcome No.	Significance Level
1.	.000	34.	.014
2.	.000	35.	.000
3.	.000	36.	.000
4.	.000	37.	.003
5.	.000	38.	.000
6.	.018	39.	.000
7.	.000	40.	.004
8.	.000	41.	.000
9.	.007	42.	.000
10.	.000	43.	.000
11.	.000	44.	.000
12.	.000	45.	.000
13.	.000	46.	.000
14.	.203	47.	.000
15.	.000	48.	.000
16.	.000	49.	.000
17.	.000	50.	.000
18.	.000	51.	.008
19.	.000	52.	.000
20.	.000	53.	.000
21.	.000	54.	.000
22.	.019	55.	.000
23.	.000	56.	.000
24.	.000	57.	.000
25.	.000	58.	.000
26.	.002	59.	.000
27.	.000	60.	.005
28.	.007	61.	.000
29.	.257	62.	.051
30.	.000	63.	.001
31.	.000	64.	.001
32.	.000	65.	.000
33.	.000	66.	.019

TABLE 7

AVTS DELIVERY CONFIGURATION SELECTIONS

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 1	%	%	%	%	%
27. An understanding of the ecology problems facing our society.	2.6	9.7	**78.0**	5.4	4.3
64. An understanding of the environment at local, regional and global levels.	1.6	**10.0**	**54.8**	**19.0**	**14.6**
57. Positive values and attitudes toward the protection of the environment.	2.0	**10.9**	**55.3**	**18.3**	**13.7**
51. Knowledge of human growth and development and good nutrition.	2.1	**11.2**	**51.2**	**15.4**	**20.0**
48. A respect for the equal rights and worth of all men and women in our society.	3.1	9.1	**78.0**	4.2	5.5
37. An understanding of family life.	1.8	9.5	**64.1**	**13.4**	**11.3**
56. An awareness of the participatory nature of the democratic process.	2.0	**10.9**	**55.3**	**18.3**	**13.7**
26. A positive attitude toward persons from different ethnic and racial backgrounds.	2.6	9.7	**78.0**	5.4	4.3
5. An awareness of the dangers of tobacco, alcohol and drugs.	2.6	9.6	**74.1**	7.7	6.0
25. A positive attitude toward personal and physical health.	3.6	**12.9**	**72.5**	6.5	4.4

TABLE 7 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 1 (Cont.)	%	%	%	%	%
46. A proficiency in consumer decision making skills.	4.3	**19.6**	**53.3**	**14.3**	8.6
15. An understanding of the influence that art and literature have on our society.	1.8	7.7	**38.8**	**23.6**	**28.2**
6. Be able to select, manage and maintain personal and family resources.	2.6	**12.2**	**61.5**	**13.2**	**10.4**
7. An understanding of personal abilities and interests.	4.3	**13.4**	**71.8**	7.2	3.3
29. An understanding of labor unions and how they affect the worker or job.	**19.9**	**34.0**	**39.2**	5.7	1.1
65. An awareness of the need for lifelong learning.	3.6	**11.6**	**76.8**	5.4	2.6
Average Percent for Factor 1.	3.8	**12.6**	**62.7**	**11.4**	9.5
Factor 2					
23. Awareness of the special tools and equipment needed for a job.	**53.3**	**29.2**	**15.8**	1.5	0.2
49. A proficiency in operating tools and equipment needed for a job.	**49.5**	**30.8**	**18.7**	1.0	0.0

TABLE 7 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 1	%	%	%	%	%
10. An understanding of terminology related to a job.	**32.4**	**35.6**	**28.9**	2.3	0.8
9. An understanding of the principles and concepts of craftsmanship.	**38.7**	**38.8**	**20.2**	1.5	0.8
45. An understanding of technical information related to a job.	**26.5**	**39.1**	**29.6**	3.9	1.0
43. An understanding of the steps required to do a job.	**20.6**	**33.1**	**44.2**	1.8	0.3
18. An ability to perform a job safely.	**35.0**	**36.1**	**27.6**	1.3	0.0
22. An understanding of rights and duties as a worker.	**22.3**	**36.4**	**38.2**	2.6	0.5
30. An ability to present a good image to an employer.	**13.4**	**29.1**	**54.6**	2.6	0.3
Average Percent for Factor 2.	**32.4**	**34.2**	**30.9**	2.1	0.4
Factor 3					
53. A respect for authority	**4.2**	**13.5**	**79.0**	2.1	1.1
50. An ability to be dependable on the job.	**17.0**	**31.7**	**49.2**	1.8	0.3
55. The desire to work hard.	**14.9**	**19.6**	**62.7**	2.5	0.3
38. An ability to follow directions.	6.7	**16.3**	**71.8**	3.3	2.0

TABLE 7 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 3 (Cont.)	%	%	%	%	%
59. A positive attitude toward learning.	4.3	**11.8**	**78.5**	3.8	1.6
35. A positive attitude toward work.	**15.0**	**23.9**	**59.1**	1.8	0.2
58. A feeling of self-confidence.	5.2	**12.9**	**77.7**	3.6	0.7
60. An understanding of employer's expectations.	**18.6**	**34.9**	**44.6**	1.6	0.3
54. An ability to meet an identified standard when performing a job.	**20.6**	**34.5**	**43.1**	1.6	0.2
2. An ability to be on time.	9.3	**16.6**	**71.5**	2.1	0.5
Average Percent for Factor 3.	**11.6**	**21.6**	**63.7**	2.4	0.7
Factor 4					
44. An ability to prepare a resume.	6.5	**18.7**	**57.7**	**11.9**	5.2
34. A knowledge of how to approach an employer for potential employment.	**12.8**	**31.5**	**51.7**	3.3	0.7
66. A knowledge of how to look for a job.	**10.1**	**26.3**	**57.8**	4.8	0.8
11. An ability to interview effectively for a job.	**10.6**	**27.3**	**56.2**	3.9	2.0
63. An ability to fill out a job application.	**10.0**	**21.6**	**59.9**	6.2	2.3
36. An awareness of current and projected job opportunities.	**17.8**	**32.1**	**45.5**	3.8	0.8

TABLE 7 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 4 (Cont.)	%	%	%	%	%
40. A desire to seek out job opportunities.	**13.5**	**26.5**	**55.4**	3.9	0.8
42. An identified career goal.	**10.8**	**24.8**	**59.5**	3.1	1.8
Average Percent for Factor 4.	**11.5**	**26.1**	**55.5**	5.1	1.8
Factor 5					
17. An ability to work as a team member.	**12.6**	**30.6**	**53.5**	3.1	0.2
4. A positive attitude toward co-workers.	**14.5**	**23.5**	**59.1**	3.1	0.8
19. An understanding of the need environment at local, regional and global levels.	**26.4**	**36.8**	**33.7**	2.6	0.5
24. An ability to be creative and make suggesions to improve the job.	**18.2**	**38.2**	**40.2**	2.8	0.7
21. A knowledge of training required for advancement in the job.	**20.5**	**41.1**	**34.9**	2.8	0.7
47. An ability to get along with a variety of people.	4.7	**13.5**	**77.0**	3.6	1.1
31. A proficiency in decision-making skills.	7.4	**22.9**	**63.3**	5.4	1.0
Average Percent for Factor 5.	**14.9**	**29.5**	**51.7**	3.2	0.7

TABLE 7 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 6	%	%	%	%	%
1. An ability to effectively communicate verbally and in writing.	2.0	**13.8**	**58.1**	**17.3**	8.8
16. A proficiency in applying reading skills.	2.0	9.8	**60.0**	**15.2**	**13.1**
39. A proficiency in writing skills.	2.4	9.9	**49.5**	**25.6**	**12.5**
20. A proficiency in arithmetic.	2.3	**16.5**	**50.6**	**19.9**	**10.8**
3. A proficiency in a core of basic skills designed to prepare students for advance study.	4.3	**16.4**	**53.0**	**18.0**	8.3
32. A proficiency in using a computer.	5.4	18.4	53.6	16.1	6.4
Average Percent for Factor 6.	3.1	**14.1**	**54.1**	**18.7**	**10.0**
Factor 7					
61. A proficiency in measurement and geometry.	4.9	**20.6**	**38.2**	**23.6**	**12.7**
41. A proficiency in basic algebra.	2.6	**11.3**	**31.3**	**27.0**	**27.7**
62. Knowledge of basic economic principles.	2.6	**12.3**	**46.0**	**23.8**	**15.3**
28. An understanding of basic scientific concepts and processes.	2.8	**13.3**	**48.0**	**24.4**	**11.5**
Average Percent for Factor 7.	3.2	**14.4**	**40.9**	**24.7**	**16.8**

TABLE 7 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 8	%	%	%	%	%
12. An understanding of risk taking and its consequences.	6.0	19.3	65.8	6.4	2.5
14. An awareness of aesthetic criteria and concepts of design as they may be applied to decision making.	6.4	**22.0**	**56.9**	9.8	5.0
8. An ability to work without close supervision.	**17.5**	**27.9**	**51.6**	2.6	0.3
13. An ability to efficiently manage time and materials.	**14.9**	**27.8**	**52.8**	3.6	1.0
Average Percent for Factor 8.	**11.2**	**24.3**	**56.8**	5.6	2.2
Factor 9					
52. Be able to use information sources and research techniques.	4.1	**15.0**	**54.1**	**19.8**	7.0
33. An awareness of one's personal strengths and limitations.	5.6	**15.4**	**73.0**	3.8	2.3
Average Percent for Factor 9.	4.9	**15.2**	**63.6**	**11.8**	4.7

TABLE 8

CHS DELIVERY CONFIGURATION SELECTIONS

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 1	%	%	%	%	%
27. An understanding of the ecology problems facing our society.	0.8	3.6	**85.6**	6.4	3.6
64. An understanding of the environment at local, regional and global levels.	0.8	4.7	**66.8**	**18.2**	9.5
57. Positive values and attitudes toward the protection of the environment.	1.4	1.4	**63.6**	**19.0**	**14.6**
51. Knowledge of human growth and development and good nutrition.	1.4	5.8	**58.2**	**18.8**	**15.8**
48. A respect for the equal rights and worth of all men and women in our society.	0.6	2.0	**90.1**	3.7	3.7
37. An understanding of family life.	1.1	3.7	**72.6**	**14.8**	7.7
56. An awareness of the participatory nature of the democratic process.	1.4	1.4	**63.6**	**19.0**	**14.6**
26. A positive attitude toward persons from different ethnic and racial backgrounds.	0.8	3.6	**85.6**	6.4	3.6
5. An awareness of the dangers of tobacco, alcohol and drugs.	0.8	2.2	**80.8**	9.2	6.9

TABLE 8 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 1 (Cont.)	%	%	%	%	%
25. A positive attitude toward personal and physical health.	0.8	3.4	**81.6**	9.8	4.5
46. A proficiency in consumer decision-making skills.	2.8	9.0	**71.8**	**13.0**	3.4
15. An understanding of the influence that art and literature have on our society.	0.8	1.9	**44.3**	**29.0**	**24.0**
6. Be able to select, manage and maintain personal and family resources.	1.9	8.1	**71.9**	**11.4**	6.7
7. An understanding of personal abilities and interests.	0.6	5.3	**84.1**	7.3	2.8
29. An understanding of labor unions and how they affect the worker or job.	**14.2**	**35.2**	**42.7**	6.1	1.7
65. An awareness of the need for lifelong learning.	0.6	4.1	**81.2**	8.3	5.8
Average Percent for Factor 1.	1.9	6.0	**71.5**	**12.5**	8.1
Factor 2					
23. Awareness of the special tools and equipment needed for a job.	**40.1**	**34.5**	**23.5**	0.6	1.4
49. A proficiency in operating tools and equipment needed for a job.	**32.2**	**40.1**	**24.9**	1.7	1.1

TABLE 8 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 2 (Cont.)	%	%	%	%	%
10. An understanding of terminology related to a job.	**19.1**	**29.8**	**46.4**	3.0	1.7
9. An understanding of the principles and concepts of craftsmanship.	**27.2**	**44.2**	**25.0**	2.2	1.4
45. An understanding of technical information related to a job.	**14.6**	**38.2**	**39.6**	6.5	1.1
43. An understanding of the steps required to do a job.	**5.0**	**21.5**	**68.4**	3.9	1.1
18. An ability to perform a job safely.	**24.4**	**34.9**	**37.7**	1.4	1.7
22. An understanding of rights and duties as a worker.	**18.9**	**29.5**	**46.0**	4.2	1.4
30. An ability to present a good image to an employer.	5.3	**17.5**	**71.0**	3.9	2.2
Average Percent for Factor 2.	**20.8**	**32.2**	**42.5**	3.0	1.5
Factor 3					
53. A respect for authority.	0.8	2.8	**90.0**	4.4	1.9
50. An ability to be dependable on the job.	5.2	**18.5**	**70.2**	3.3	2.8
55. The desire to work hard.	1.9	4.7	**86.6**	5.0	1.7

TABLE 8 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 3 (Cont.)	%	%	%	%	%
38. An ability to follow directions.	0.8	3.6	**87.2**	4.7	3.6
59. A positive attitude toward learning.	0.6	2.2	**84.5**	8.6	4.1
35. A positive attitude toward work.	3.6	9.5	**81.6**	3.9	1.4
58. A feeling of self-confidence.	0.8	3.1	**88.9**	4.2	3.1
60. An understanding of employer's expectations.	**11.9**	**30.8**	**53.3**	2.8	1.1
54. An ability to meet an identified standard when performing a job.	6.7	**23.7**	**63.2**	4.7	1.7
2. An ability to be on time.	1.7	4.7	**88.4**	3.6	1.7
Average Percent for Factor 3.	3.4	**10.4**	**79.4**	.5	2.3
Factor 4					
44. An ability to prepare a resume.	2.0	9.3	**62.9**	**16.3**	9.6
34. A knowledge of how to approach an employer for potential employment.	6.7	**31.0**	**55.6**	5.3	1.4
66. A knowledge of how to look for a job.	5.3	**28.3**	**60.9**	3.3	2.3
11. An ability to interview effectively for a job.	3.3	**18.2**	**67.4**	8.0	3.0
63. An ability to fill out a job application.	4.2	**17.2**	**66.8**	7.2	4.7

TABLE 8 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 4 (Cont.)	%	%	%	%	%
36. An awareness of current and projected job opportunities.	9.3	**23.0**	**59.8**	5.3	2.5
40. A desire to seek out job opportunities.	7.1	**24.0**	**61.0**	5.6	2.3
42. An identified career goal.	3.7	**16.1**	**74.6**	4.2	1.4
Average Percent for Factor 4.	5.2	**20.9**	**63.6**	6.9	3.4
Factor 5					
17. An ability to work as a team member.	3.4	**14.6**	**76.2**	3.4	2.2
4. A positive attitude toward co-workers.	5.0	**10.2**	**77.3**	5.3	2.2
19. An understanding of the need to upgrade job skills.	**16.8**	**31.6**	**46.4**	3.6	1.7
24. An ability to be creative and make suggestions to improve the job.	8.9	**26.8**	**56.1**	5.9	2.2
21. A knowledge of training required for advancement in the job.	15.8	30.3	46.7	5.0	2.2
47. An ability to get along with a variety of people.	0.8	3.4	**89.7**	4.2	2.0
31. A proficiency in decision-making skills.	1.9	4.4	**82.4**	8.3	3.0
Average Percent for Factor 5.	7.5	**17.6**	**67.8**	5.1	2.2

TABLE 8 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 6	%	%	%	%	%
1. An ability to effectively communicate verbally and in writing.	0.3	1.7	**59.1**	**26.8**	**12.2**
16. A proficiency in applying reading skills.	0.3	3.0	**71.3**	**14.6**	**10.8**
39. A proficiency in writing skills.	1.1	2.8	**52.4**	**30.8**	**12.9**
20. A proficiency in arithmetic.	2.8	5.0	**61.8**	**18.8**	**11.6**
3. A proficiency in a core of basic skills designed to prepare students for advance study.	0.8	4.5	**52.9**	**25.6**	**16.2**
32. A proficiency in using a computer.	0.8	4.7	67.8	19.8	6.9
Average Percent for Factor 6.	1.0	3.6	**60.9**	**22.7**	**11.8**
Factor 7					
61. A proficiency in measurement and geometry.	0.6	**12.2**	**47.8**	**28.6**	**10.8**
41. A proficiency in basic algebra.	0.6	5.3	**40.2**	**34.3**	**19.7**
62. Knowledge of basic economic principles.	1.4	7.2	**51.7**	**25.7**	**14.1**
28. An understanding of basic scientific concepts and processes.	1.1	6.6	**51.7**	**27.9**	**12.7**
Average Percent for Factor 7.	0.9	7.8	**47.9**	**29.1**	**14.3**

TABLE 8 (Cont.)

Education Outcomes by Factor Groups	DELIVERY CONFIGURATIONS V	VA	E	AV	A
Factor 8	%	%	%	%	%
12. An understanding of risk taking and its consequences.	2.5	8.4	**79.1**	7.2	2.8
14. An awareness of aesthetic criteria and concepts of design as they may be applied to decision making.	5.1	**21.1**	**54.4**	**14.8**	4.6
8. An ability to work without close supervision.	4.7	**13.4**	**71.9**	7.0	3.1
13. An ability to efficiently manage time and materials.	3.3	9.7	**80.1**	4.4	2.5
Average Percent for Factor 8.	3.9	**13.2**	**71.4**	8.4	3.3
Factor 9					
52. Be able to use information sources and research techniques.	0.6	5.0	**51.9**	**26.8**	**15.7**
33. An awareness of one's personal strengths and limitations.	0.6	3.6	**88.0**	5.3	2.5
Average Percent for Factor 9.	0.6	4.3	**70.0**	**16.1**	9.1

CHAPTER 4

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Summary

Faculty at the Center for Vocational Education Professional Personnel Development, Temple University conducted a survey of high school academic and vocational teachers and administrators to gain more knowledge in the area of student educational outcomes. The research was motivated by legislative changes at the Federal and State levels. Specifically, the Carl D. Perkin's Vocational and Applied Technology Education Act of 1990, P.L. 101-392 which is expected to contribute to a closer degree of integration between academic and vocational subjects. And, changes in Chapters 3, 5 and 6 of the Pennsylvania School Code which are likely to influence school restructuring in the Commonwealth. Already prominent in the revision of the School Code are the quality goals of education and their component educational outcomes.

An Educational Outcome Survey Instrument was developed to (a) study opinions associated with the educational outcomes students must know and/or be able to do in order to graduate from high school and (b) study opinions associated with various possible academic and vocational program/course delivery configurations which could be used for the achievement of educational outcomes. Four research questions were studied:

(1) What is the educational role and subject specialization of the respondents who have completed the educational outcome survey?

(2) What is the difference between the degree of emphasis ratings given to the 66 educational outcome statements and the educational role and subject specialization of the respondents?

(3) What is the difference between the course/program delivery configurations chosen for each of the 66 educational outcome statements and the educational role and subject specialization of the respondents?

(4) To what degree will the ratings given to the 66 educational outcome statements load in the factors derived from the 12 Quality Goals of Education? How will this vary due to educational role and subject specialization of the respondents?

Data were collected in two stages. In the first stage information was obtained from a population of administrators, counselors and teachers from area vocational technical schools (AVTSs) in eastern Pennsylvania. In the second stage data were collected from teachers, administrators, and counselors at the comprehensive high schools (CHSs) that send students to the AVTSs. The combined population was 2,138 educators. The number of usable returns was 1,089, with an average return rate of 51%.

Data were subjected to factor analysis, Mann-Whitney U, and Chi Square tests to answer the research questions of the study. The results of the factor analysis yielded nine factor groupings from the 66 educational outcome statements included on the

instrument. The following factor titles were assigned by reviewing constructs represented in the factor groupings:

Factor 1--General Academic Skills,

*Factor 2--Technical Skills,

*Factor 3--Occupational Survival Skills,

*Factor 4--Job Search Skills,

*Factor 5--Affective Job Skills,

*Factor 6--Basic Skills,

Factor 7--Higher Order Skills,

Factor 8--Entrepreneurial Skills,

Factor 9--Not Named.

It is interesting to note that 29 of 30 educational outcomes from this study which were also common to a study conducted by Barnard and Wentling (1987) in Illinois, loaded into exactly the same factor groupings in both studies. These five congruent factors are designated with an asterisk in the above listing.

The respondents' degree of emphasis ratings given to educational outcome statements were analyzed through an examination of mean ratings and use of a Mann-Whitney U test. On a four point scale, with a low of 1 and a high of 4, the overall mean rating from all respondents was 3.62, and ranged from 3.91 to 3.02. The Mann-Whitney U tests identified patterns unique to the school setting of the respondents. The degree of emphasis ratings given to vocational or career related outcome statements by AVTS respondents were higher than the ratings to the same outcome statements by CHS respondents. Conversely, the degree of emphasis

ratings given to the more academic related outcome statements by CHS respondents were higher than the ratings of the same outcome statements by AVTS respondents. This pattern was most dramatically noted in the Technical Skills factor grouping.

The delivery configurations chosen by respondents were analyzed through the use of a Chi Square test. Although statistically significant differences were found between the delivery configuration patterns selected by the AVTS and CHS respondents, it was determined that these differences were of no practical significance due to the high similarities of patterns of selections by both groups of respondents. The pattern identified most frequently was a configuration which emphasized equal vocational and academic involvement. Other delivery configuration selections were more directional and tended to reflect a delivery mode which was consistent with the composition of the factor grouping. This selection pattern prevailed with all delivery configuration selections by the respondents. The factor groupings of educational outcomes that were more vocational or career oriented tended to be identified for delivery through a configuration that was more vocational than academic, and the factor groupings of educational outcomes that were more academic tended to be identified for delivery through a configuration that was more academic than vocational.

DISCUSSION

The State Board's revision of the School Code dominated the conversations of the educational community in Pennsylvania at the time of this study. Central to discussions was the introduction of new curriculum regulations (Chapter 5) for PA's 506 school districts. The September 1991 version of the code included 575 educational outcomes organized around 5 common core goals and 10 categorical goals. This revision was recognized as a contemporary update of two earlier attempts in the 1960s and 1970s at redirecting education to an outcome-based mode vis-a-vis quality goals of education. The February 27, 1992, revision of the outcomes was dramatic and reduced the number from 575 to 57 outcome statements.

The study reported herein was initiated to gain additional knowledge in the area of student educational outcomes as they may be related to changes in the state school code. The instrument used was an adaptation of one used by Barnard and Wentling (1987) to identify learning outcomes for education for work programs in Illinois. In the Illinois study, outcomes were defined as a value added concept, specifically, as broad expressions of what students must know and be able to do as a result of schooling. The same operational definition for learning outcome was used in this study.

Barnard and Wentling used factor analysis techniques to determine the underlying constructs being measured by the 45 outcome statements on their questionnaire. They identified five

factors that contained distinct categories of outcomes (i.e., 30 items loaded at the .40 or higher level).

All 45 outcome statements from the Illinois study were included in this study. It was felt that Barnard and Wentling's outcome statements related particularly well to the educational outcomes included in the career education work goal of the proposed Chapter 5 curriculum in Pennsylvania, and to other Pennsylvania outcome goal areas as well. However, an additional 21 outcome statements were added to the study to represent other goal categories being proposed in Pennsylvania.

The outcome statements compiled for this study were factor analyzed to explore possible relationships of factor loading patterns to the content of the proposed educational outcomes in the Pennsylvania State Code. The analysis focused on the academic and vocational educators responses to the emphasis that should be placed on the student learning outcomes. It resulted in the 66 items of this study being grouped into 9 factors. Five of the factors, however, contained approximately the same outcome statements as five factors identified by Barnard and Wentling. While it is significant that all items loaded into factors, it is the second finding that is particularly important.

In the Barnard and Wentling study, 30 of their 45 outcomes loaded in 5 factors when their respondents were queried as to whether the outcomes should be emphasized in education for work programs in Illinois. In this study all 45 of their outcomes loaded in one or another of the 9 factors found. What is

startling, however, was that of the 30 outcomes that loaded for Barnard and Wentling, 29 of them also loaded in this study and in the same five factors. Apparently, the perceptions of the 1,019 subjects that Bernard and Wentling studied, which included persons from business and industry, and vocational professional personnel from the state department of education, state advisory council, career guidance centers, universities, area vocational schools, and comprehensive high school, differed little from the perceptions of the 1,089 secondary school educators that were surveyed here in Pennsylvania. Another reason these findings are important is because this study included 366 academic educators from both the AVTS and comprehensive high school settings. The educators that Bernard and Wentling surveyed were all vocational education personnel.

The instrument used in this study included 21 additional items, which when combined with the 45 items used by Barnard and Wentling, totalled 66 items. By adding more items, the likelihood of having outcome statements from the Illinois study load into different or new factors was greatly increased. This, however, did not happen. As was stated above, five of the nine factors found in the factor analysis of this study were, with one slight exception, the same in their basic content as five of the factors found in Illinois. In effect over 2,000 respondents representing different states agreed that the same broad constructs constitute five discrete factors relating to vocational education. It is believed that this information is critical for defining and organizing

Pennsylvania's proposed goal for Career Education and Work. Additional comments on this are made in the recommendations section of this report.

CONCLUSIONS

The following conclusions were drawn as a result of the data analyzed and the literature reviewed:

1. A great degree of concurrence existed among area vocational technical school and comprehensive high school educators in regard to the high degree of emphasis which should be placed on the educational outcomes examined in this study.

2. There was little difference among factor loading patterns of any of the sub-populations of academic and vocational educators studied.

3. An extremely high degree of similarity existed between five factor loading patterns identified in this study and in a similar study conducted in Illinois by Barnard and Wentling (1987). The similar factors were: Technical Skills, Occupational Survival Skills, Job Search Skills, Affective Skills, and Basic Skills.

4. The factor groupings identified in this study provided a content-based organizational influence on the educational outcomes and provided insight to the answers of all of the research questions that may not have been gained otherwise.

5. There was a high degree of concurrence on the degree of emphasis ratings among all respondent sub-populations who participated in this study.

6. There was a high degree of similarity among factor loading patterns found through an analysis of emphasis ratings by all respondent sub-populations studied.

7. The delivery configuration selections identified in this study tended to follow a pattern consistent with the conceptual content of the factor groupings. This was most notable in the technical skills factor grouping.

8. There was a high degree of concurrence on the delivery configuration selections identified among the area vocational technical school and comprehensive high school educators.

9. There was a high level of agreement among all respondents on the selection of the equal vocational and academic delivery configuration which could be used for the achievement of a great number of the educational outcomes studied. This could signal a predisposition/willingness to integrate vocational and academic programs.

RECOMMENDATIONS

The following are recommendations for the PA State Board and the PA Department of Education based on the analysis of data and the synthesis of literature reviewed:

1. Include a technical skills cluster of student educational outcomes under the Career Education and Work goal of the 1992 proposed regulation of 22 PA Code, Chapter 5, Curriculum (Requirements).

2. Use the five factor groupings with their 28 component student educational outcomes as a core structure in the reorganization of the content of the Career Education and Work goal of the 1992 proposed regulations of 22 PA Code, Chapter 5, Curriculum (Requirements).

3. Include a student learning outcome which addresses the concept of technical skill development in the Career Education and Work goal of the 1992 proposed regulations of 22 PA Code, Chapter 5, Curriculum (Requirements) which states that: <u>All students develop technical skills which are appropriate to their career interest area and incorporate the selection, proper use of and maintenance of appropriate tools, equipment, processes and technology.</u>

4. Develop a set of career exploratory and technology problem solving learning activities for the primary school curriculum that are based on the educational outcome factor groupings identified in this study.

5. Formulate guidelines for the development of curriculum and learning activities that will (a) contribute to the horizontal articulation of vocational and academic areas at the secondary level and (b) be vertically articulated with the primary level.

6. Consider the rank order findings of the degree of emphasis ratings given to educational outcome statements in order to identify areas for emphasis in the curriculum at the secondary school and primary school levels.

7. Recognize the strengths of vocational and academic instructors in their respective areas and incorporate these strengths as complementary resources in the development of horizontal and vertically articulated vocational and academic instructional models.

8. Develop instructional strategies with outcomes to (a) address an understanding level of knowledge in the area of technical skills for the post secondary directed secondary student and (b) address a demonstration/performance level of skill and

knowledge in the area of technical skills for the employment directed secondary student.

9. Recognize the educational outcome of "a proficiency in using a computer" as a basic skill and develop learning activities which are horizontally and vertically articulated at the primary and secondary levels for all students.

In view of the findings and conclusions of this study, the following areas are recommended for further research and development:

1. Conduct a similar study on the degree of emphasis that should be placed on the same student educational outcomes using other populations and samples to include (a) members of the business and industrial community, (b) parents of secondary school juniors and seniors, and (c) recent secondary school graduates.

2. Conduct similar student education outcomes research using a factor analytical statistical approach in various academic disciplines and inter-discipline areas.

3. Conduct further research and development efforts on (a) a broad base setting and (b) on a local school district basis in the area of delivery configurations as it may contribute to

advancement in the area of integrating academic and vocational programs.

4. Develop staff development training strategies to reflect the findings of the factor analysis and delivery configuration portions of this study.

5. Use the findings of the factor analysis portion of the study as a matrix consideration in the development of curriculum materials.

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APPENDIX A

QUALITY GOALS

PENNSYLVANIA'S TEN GOALS OF QUALITY EDUCATION

SELF-UNDERSTANDING - Quality education should help every child acquire the greatest possible understanding of himself and an appreciation of his worthiness as a member of society.

UNDERSTANDING OTHERS - Quality education should help every child acquire understanding and appreciation of persons belonging to social, cultural and ethnic groups different from his own.

BASIC SKILLS - Quality education should help every child acquire to the fullest extent possible for him mastery of the basic skills in the use of words and numbers.

INTEREST IN SCHOOL AND LEARNING - Quality education should help every child acquire a positive attitude toward school and toward the learning process.

GOOD CITIZENSHIP - Quality education should help every child acquire the habits and attitudes associated with responsible citizenship.

GOOD HEALTH HABITS - Quality education should help every child acquire good health habits and an understanding of the conditions necessary for the maintenance of physical and emotional well-being.

CREATIVITY - Quality education should give every child the opportunity and encouragement to be creative in one or more fields of endeavor.

VOCATIONAL DEVELOPMENT - Quality education should help every child understand the opportunities open to him for preparing himself for a productive life and should enable him to take full advantage of these opportunities.

UNDERSTANDING HUMAN ACCOMPLISHMENT - Quality education should help every child to understand and appreciate as much as he can of human achievement in the natural sciences, the social sciences, the humanities, and the arts.

PREPARATION FOR A CHANGING WORLD - Quality education should help every child to prepare for a world of rapid change and unforeseeable demands in which continuing education throughout his adult life should be a normal expectation.

Pennsylvania 12 Goals of Quality Education and their Objectives*

1. Communication Skills

Quality education shall help every student acquire communication skills of understanding, speaking, listening, reading and writing.

Objectives are:

1. Comprehension of oral, written and nonverbal communication.
2. Composition of oral and written communication.
3. Interpretation of and facility with language patterns.
4. Comprehension and appreciation of literature and arts.
5. Use of information sources and research techniques.

2. Mathematics

Quality education shall help every student acquire knowledge, appreciation and skills in mathematics.

Objectives are:

1. Knowledge of numeration and computation.
2. Knowledge of geometry and measurement.
3. Knowledge of computer literacy and data management.
4. Development of reasoning, problem solving and creativity.
5. Knowledge of mathematical life skills and applications.

3. Science and Technology

Quality education shall help every student acquire the knowledge, understanding and appreciation of science and technology.

Objectives are:

1. Knowledge of basic scientific concepts and processes.
2. Understanding of technological applications of scientific principles.
3. Appreciation of interaction of science, technology and society.
4. Opportunity for inquiry and hands-on activity in science and technology.
5. Understanding and use of scientific methodology.

4. Citizenship

Quality education shall help every student learn the history of the United States understand its systems of government and economics and acquire the values and attitudes necessary for responsible citizenship.

Objectives are:

1. Knowledge of histories: local, State, national and global.

2. Understanding of systems of government and law.
3. Understanding of systems of economics.
4. Knowledge of individual rights and responsibilities.
5. Knowledge of the participatory natures of the democratic system.

5. Arts and the Humanities

Quality education shall help every student acquire knowledge, appreciation and skills in the arts and the humanities.

Objectives are:

1. Comprehension of principles and concepts in art, music, craftsmanship, other discrete arts and the humanities.
2. Understanding of the influence of literature, philosophy and tradition in shaping our heritage.
3. Development of analytic and performing skills in the arts and the humanities.
4. Application of objective and aesthetic criteria to decision-making.
5. Participation in intellectual and creative experiences in the arts and humanities.

6. Analytical Thinking

Quality education shall help every student develop analytical thinking.

Objectives are:

1. Development of information management skills.
2. Development of logical thinking skills.
3. Development of problem-solving skills.
4. Development of decision-making skills.

7. Family Living

Quality education shall help every student acquire the knowledge, skills and attitudes necessary for successful personal and family living.

Objectives are:

1. Development of personal and family relationships.
2. Selection, management and maintenance of personal and family resources.
3. Understanding of economics of family life.
4. Development of consumer skills.

8. Work

Quality education shall help every student acquire the knowledge, skills and attitudes necessary to become a self-supporting member of society.

Objectives are:

1. Development of career awareness.
2. Development of personal career planning skills.
3. Development of job seeking, job getting and job keeping skills.
4. Development of entry level occupational skills.
5. Development of an awareness of the dignity of work.
6. Development of current labor market skills to foster economic development.

9. Health

Quality education shall help every student acquire knowledge and develop practices necessary to maintain physical and emotional well-being.

Objectives are:

1. Development of personal and physical health.
2. Knowledge of community health, disease prevention and control including knowledge from instruction about Acquired Immune Deficiency Syndrome (AIDS), as required by * 5.10a (relating to Acquired Immune Deficiency Syndrome (AIDS).
3. Knowledge of human growth, development and good nutrition.
4. Awareness of the dangers of tobacco, alcohol and other drugs.
5. Knowledge of safety and first aid skills.
6. Development of family and consumer health.

10. Environment

Quality education shall help every student acquire the knowledge and attitudes necessary to maintain the quality of life in a balanced environment.

1. Knowledge of natural and human resources.
2. Understanding of geographic environments: local, regional, global.
3. Knowledge of interrelationships and interdependence of natural and human systems.
4. Development of personal environmental attitudes and values.
5. Development of environmental problem-solving and management skills.
6. Knowledge of and appropriate uses of energy.

11. Self-esteem

Quality education shall help every student develop self-understanding and a feeling of self-worth.

Objectives are:

1. Understanding of personal strengths and limitations.
2. Recognition of one's personal abilities, interests and accomplishments.
3. Awareness of one's personal beliefs and opinions.
4. Development of self-confidence.
5. Development of personal adaptability to change.

12. Understanding Others

Quality education shall help every student acquire knowledge of different cultures and an appreciation of the equal worth and rights of all people to include the active roles and contributions of women, minority racial and ethnic groups.

Objectives are:

1. Knowledge of cultural similarity and diversity.
2. Knowledge of individual similarity and diversity.
3. Development of interpersonal relationship skills.
4. Understanding of human interdependence.
5. Knowledge of roles and contributions of racial and ethnic groups and women.

Taken from:

Title 22 of the Pennsylvania Code, Part I, Subpart A. Miscellaneous Provisions, Chapter 5, Curriculum Requirements, Section 13, Educational Planning and Assessment; No. 159, February, 1988.

File: B:Matrix.CW

APPENDIX B

CORRESPONDENCE

TEMPLE UNIVERSITY
A Commonwealth University

College of Education

Ritter Hall 003-00
Philadelphia, Pennsylvania 19122

Department of Curriculum, Instruction and Technology in Education (CITE)

Educational Media
Elementary Education
Secondary Education
Vocational, Adult and Continuing Education

April 24, 1991

^F1^
^F2^

Dear ^F3^:

The Center for Vocational Education, Temple University is conducting a research project to examine the relationship between selected educational outcomes and possible program delivery configurations in Eastern Pennsylvania. Anticipated findings from this survey effort will likely contribute to knowledge affecting the integration of academic and vocational programs as well as program delivery considerations related to component elements of Pennsylvania Quality Goals of Education.

We are in the process of establishing a distribution and collection schedule of survey instruments for Area Vocational Technical Schools and are therefore requesting your cooperation. The survey is planned to take place during the first week in June. Temple University Field Resource Associates will distribute and collect the survey instruments.

I will be calling you within the next week to:

1. Discuss possible survey distribution arrangements with you.
2. Identify a contact person at your AVTS to aid in this effort.
3. Determine the number of administrators, counselors and teachers at your AVTS.
4. Answer any questions you may have.

Attached for your reference is a copy of the Educational Outcome Survey Reasearch Abstract to further acquaint you with this study. Your cooperation in this request is greatly appreciated.

Sincerely,

Chester P. Wichowski, D.Ed.
Senior Research Associate

CPW:ct

Attachment

File: A:Research

TEMPLE UNIVERSITY
A Commonwealth University

College of Education

Ritter Hall 003-00
Philadelphia, Pennsylvania 19122

Department of Curriculum, Instruction and Technology in Education (CITE)

Educational Media
Elementary Education
Secondary Education
Vocational, Adult and Continuing Education

July 31, 1991

^F1^
^F2^

Dear ^F3^:

The Center for Vocational Education, Temple University is conducting a research project to examine the relationship between selected educational outcomes and possible program delivery configurations in Eastern Pennsylvania. Anticipated findings from this survey effort will likely contribute to knowledge affecting the integration of academic and vocational programs as well as program delivery considerations related to component elements of Pennsylvania Quality Goals of Education.

We are in the process of establishing a distribution and collection schedule of survey instruments for Area Vocational Technical Schools and are therefore requesting your cooperation. This segment of the survey is planned to take place during the first two weeks in September. Temple University Field Resource Associates will distribute and collect the survey instruments.

I will be calling you within the next week to:

1. Discuss possible survey distribution arrangements with you.
2. Identify a contact person at your AVTS to aid in this effort.
3. Determine the number of administrators, counselors and teachers at your AVTS.
4. Answer any questions you may have.

This study has received authorization by the Research Review Committee of The School District of Philadelphia , a copy of the authorization letter is attached.

Also attached is a copy of the Educational Outcome Survey Research Abstract to further acquaint you with this study. Your cooperation in this request is greatly appreciated.

Sincerely,

Chester P. Wichowski, D.Ed.
Senior Research Associate

BEST COPY AVAILABLE

CPW:ct

Attachment

EDUCATIONAL OUTCOME SURVEY RESEARCH ABSTRACT

Background

Recent legislative changes at the Federal and State level are providing an influence on the structure and delivery of education. The Carl D. Perkin's Vocational and Applied Technology Education Act of 1990, P.L. 101-392, which recently became law, is expected to contribute to a closer degree of integration between academic and vocational subjects. Also, it is likely that educational programs will be restructured, in some fashion, in order to comply with the current revision of Chapters 3, 5 and 6 of the Pennsylvania State Code. Already prominent in this revision are the Twelve Quality Goals of Education and educational outcomes.

Purpose

Due to these recent legislative events and in an attempt to generate new knowledge in these areas of a change, a survey research effort has been undertaken by the Center for Vocational Education, Temple University. An Educational Outcome Survey Instrument was developed to: (1) study opinions associated with the educational outcomes students must know and/or be able to do in order to graduate from high school and (2) study opinions associated with various possible academic and vocational program/course delivery configurations which could be used for the achievement of educational outcomes.

Method

Data will be collected in several stages. The first stage will include a population of administrators, counselors and teachers from AVTS's in Eastern Pennsylvania. The second stage will include data collected from AVTS feeder comprehensive high schools. The combined population surveyed for the first two stages is 1,710. Other populations for future stages may include vocational education advisory council members, parents and secondary program graduates. Data are being collected by way of the Educational Outcome Survey Instrument which was specifically developed and pilot tested for this purpose.

Demographic variables which will be examined in relation to opinion data of respondents include the type of school in which they teach, the subject they teach, their educational role, and the geographic setting in which they work. All data collected will be pooled and the identity of respondents, their school and their geographic location will remain anonymous.

Data analysis will be conducted through descriptive statistics, an Analysis of Variance, a Chi Square Test and a Factor Analysis.

Implications

Findings from this study will contribute to knowledge in the areas of educational outcomes and possible modes of program integration for the delivery of academic and vocational education. Implications for the use of this knowledge include program planning and delivery, curriculum revision and development, course design, and in-service staff training.

TEMPLE UNIVERSITY
A Commonwealth University

College of Education

Ritter Hall 003-
Philadelphia, Pennsylvania 19122

Department of Curriculum, Instruction and Technology in Education (CITE)

Educational Media
Elementary Education
Secondary Education
Vocational, Adult and Continuing Education

April 25, 1991

Dr. James Ayrer
Manager of Testing Services
and Chairperson of the Educational
Research Committee
Room 407, Office of Accountability
and Assessment
The School District of Philadelphia
21st Street, South of the Parkway
Philadelphia, PA 19103

Dear Dr. Ayrer:

Thank you for faxing to me a copy of the "Procedure for Applying to the School District of Philadelphia for Cooperation with a Research Project." This information has been reviewed, and 10 copies of the following materials are being provided:

1. The Educational Outcome Survey Research Abstract
2. The Educational Outcome Survey Transmittal Letter
3. The Educational Outcome Survey Research Instrument
4. A set of my VITA materials

In addition to the above items, I am taking this opportunity to provide specific comments on each of the six criteria listed in the application procedures in order to aid the research committee in their review:

1. General Significance of the Project

   This is addressed in the background, purpose and implications sections of the Abstract. Further, it should be noted that this research activity is a proactive effort and that the knowledge gained is expected to serve as a foundation to future program planning, course design and in-service education during the early 1990s.

2. Utility to the School District

   Anticipated findings of this research, in addition to adding to knowledge in the timely areas of need identified in the background section of the Abstract, are likely to provide further knowledge which could contribute to the "Education for Employment" effort to restructure career and vocational education in Philadelphia comprehensive high schools currently in progress.

3. Soundness of the Research Design

The design, instrumentation and statistical measures described in the purpose and methods sections of the Abstract provide an overview of the research design and serve to reflect its soundness. Also, it should be noted that great care and planning by the Research Staff of the Center for Vocational Education, Temple University was taken during scheduled weekly meetings over the last several months to address the controlled development of each aspect of this project.

The survey instrument consists of two sections. The first section is demographic. The second consists of 66 educational outcome statements which will be rated by respondents - see instrument and transmittal letter. These outcome statements represent selected component elements of the Twelve Quality Goals of Education from Chapter 3 of the Pennsylvania State Education Code as well as educational goal statements which were found to be significant in a statewide vocational education outcome study in Illinois conducted by Barnard and Wentling in 1986.

In addition to content review and editing, two other activities were used to aid in the development of the instrument. A Q-Sort analysis of the educational outcome statements was conducted among senior faculty members of the Center for Vocational Education in order to provide a further content review of the outcome statements and determine preliminary factor loading patterns. A pilot test of a draft version of the instrument was conducted with vocational, business and industrial education graduate students at Trenton State College.

4. Interference with School Practice

Only minimal involvement of school personnel is necessary in this research effort. The average time needed to complete the research questionnaire, as determined through pilot testing, is 20 minutes. If possible, hand delivery and pick-up of the questionnaires will be used to facilitate data collection in a quick and uncomplicated fashion. A one week turn around is projected for the activity. The following Philadelphia area vocational technical schools and skill centers have been identified as members of the population in this study: Bok, Dobbins, Mastbaum, Swenson and Randolph. Respondents would include teachers, counselors and administrators.

5. Extent of School District Involvement

There are no capital resources being requested from the school district in the conduct of data collection for this research project. It will be necessary to identify a contact person at each of the five Philadelphia schools in the population to help facilitate the hand-delivery and return pick-up of the instruments.

6. Background of the Applicant

As principal investigator of this research project, I have supplied a set of my VITA materials to acquaint you with my research and related professional experiences.

This research project is being conducted as a professional activity under the sponsorship of the Center for Vocational Education, Temple University.

Dr. Richard A. Adamsky, Dr. Edward P. Kahler and Dr. Thomas Walker, senior faculty members of the Center, have been directly involved in the conceptilization, design and development of this research effort in a continuous fashion.

Do not hestitate to contact me if any additional information is needed or if there are any questions which I can answer. I can be reached at (215) 787-6249.

Sincerely,

Chester Wichowski
Senior Research Associate

c: Dr. Marion Holmes

enc (4)

File: A:Ayrer.Ltr

THE SCHOOL DISTRICT OF PHILADELPHIA

Office of Assessment

PROCEDURE FOR APPLYING TO THE SCHOOL DISTRICT OF PHILADELPHIA FOR COOPERATION WITH A RESEARCH PROJECT

The School District of Philadelphia wishes to cooperate with agencies and individuals in the conduct of significant research studies which contribute to the development of new knowledge related to the improvement of educational practice. Such cooperation must, of necessity, be limited by the extent to which any proposed project interferes with the ongoing educational process - the district's primary function - or exerts undue pressures upon pupils, parents, or staff.

Please note that studies at the undergraduate level will not be approved, and only in the most exceptional cases will research below the doctoral level be authorized. These limitations are made necessary by the volume of research requests.

Any agency or individual wishing to secure the cooperation of the school district in a research project will be required to submit ten copies of the full research proposal for the project to the Director of the Office of Assessment. In a cover letter, the applicant should indicate what assistance, if any, is being requested of the School District of Philadelphia beyond permission to do the study.

A doctoral candidate, in addition to the above, must submit evidence that the proposal has been approved by his or her dissertation committee. A copy of the proposal, signed by the full committee, will suffice.

Copies of all tests, questionnaires, and other instruments to be used, with the exception of well-known standardized tests, must be submitted with the proposal, as well as information on instrument development procedures used or planned. (Information on the reliability and validity of these instruments and a description of the characteristics of the groups on which the reliability and validity were established should be submitted.) Once the proposal has been approved, no changes in procedure or instruments may be made without further approval.

Recommendations regarding a proposal will be made by a committee of research and administrative personnel appropriate to the particular proposal. Criteria will include the following:

1. General Significance of the Project: Does the project deal with major issues in education? Will it contribute to a growing body of theory on some aspect of education? Can the conduct of it contribute in any way to improved educational practice - either immediately or ultimately?

2. Utility to the School District: Does the project deal with problems which are of immediate importance to the School District of Philadelphia? Will the conduct of it aid the district in the solution of one or more of these problems? (While a direct utility to the district is not essential for approval of a project, those with this characteristic will receive priority.)

   The Office of Assessment is sometimes able to suggest research problems of interest to the School District.

3. Soundness of the Research Design: Is the project designed in such a way that its objectives are likely to be met? Is it designed so that valid answers to the questions asked are likely to be obtained? Is the statistical treatment appropriate to the instruments being used and the questions being asked?

4. Interference with School Practice: To what extent will the project interfere with ongoing operation of the schools? Is it likely to harm any child in any way? Does it place undue burden on teachers, principals, or other school administrative personnel? (For example, September and June are particularly hectic months in the schools.)

5. Extent of School District Involvement Requested: What, if any, resources are being requested from the school district? (Extensive expenditure of staff time or material resources cannot be entertained without compensation to the school district.)

6. Background of the Applicant: Does the background of the applicant indicate the presence of the knowledge or skills necessary for successful completion of the project?

The applicant will be informed of the approval or rejection of the request in writing by the Director of the Office of Assessment or his designee. If the request is approved, the applicant will be authorized to contact the schools or offices to be involved for the purpose of explaining the project and soliciting the desired participation. School district personnel may cooperate or not, at their own discretion, and it will be the responsibility of the applicant to communicate with them on details of the project. Approval of the project by the Office of Assessment means that school district personnel are authorized to participate, not that they are required to do so.

The conduct of research in the School District by outside individuals on agencies is always subject to the following general conditions (in addition to any specific conditions which might be imposed upon a particular project):

1. No action may be taken in any school without the approval of the principal.

2. Parental approval may be required in studies which are deemed unusually sensitive, or which, in the judgment of the school district, might be objectionable to parents. This would involve such situations as removal of pupils from school premises or activities with medical aspects. In addition, all requirements of state or federal law will be observed.

3. No individual or school may be identified in published or reported material without written approval of the Superintendent of Schools or her delegated representative.

4. One copy of the final report must be furnished for the files of the Office of Assessment.

5. A brief abstract of the final report must be furnished to each cooperating school or office and district or associate superintendent.

JEA:al

THE SCHOOL DISTRICT OF PHILADELPHIA
BOARD OF EDUCATION
21ST STREET S. OF THE PARKWAY
PHILADELPHIA, PENNSYLVANIA 19103-1099

OFFICE OF ASSESSMENT

TELEPHONE (215) 299-7758

July 23, 1991

Dr. Chester Wichowski
Temple University
College of Education
CITE
Ritter Hall 00300
Philadelphia, PA 19122

Dear Dr. Wichowski:

The Research Review Committee has reviewed the response to our questions concerning your Educational Outcome Survey and I am happy to inform you that your study has been approved for inclusion in our Cooperative Research Program.

You may use the enclosed letter of introduction to demonstrate that you have the Research Review Committee's approval.

All cooperative research is subject to the following general conditions:

1. No action may be taken in any school without the approval of the principal.
2. Parental approval may be required in studies which are deemed unusually sensitive, or which, in the judgment of the School District, might be objectionable to parents.
3. No individual or school may be identified in published or reported material without written approval of the Superintendent of Schools or her delegated representative.
4. A copy of the final report must be furnished for the files of the Office of Assessment.
5. A brief abstract of the final report must be furnished to each cooperative school or office and district superintendent.

Best Wishes for a successful study.

Yours,

James E. Ayrer

James E. Ayrer, Chairperson
Research Review Committee

THE SCHOOL DISTRICT OF PHILADELPHIA
BOARD OF EDUCATION
21ST STREET S. OF THE PARKWAY
PHILADELPHIA, PENNSYLVANIA 19103-1999

OFFICE OF ASSESSMENT

TELEPHONE (215) 299-7758

File No. 135
July 23, 1991

TO: District Superintendents and Principals

This will introduce Dr. Chester Wichowski who has been authorized by the Research Review Committee to solicit your cooperation in a study involving a survey of AVTS administrators, counselors, and teachers concerning educational goals.

Please be advised that all participation in this study is entirely voluntary. However, we believe that this study is worthwhile and warrants your consideration.

Yours,

James E. Ayrer

James E. Ayrer, Chairperson
Research Review Committee

APPENDIX C

INSTRUMENTATION

TEMPLE UNIVERSITY
A Commonwealth University

College of Education

Ritter Hall 003-00
Philadelphia, Pennsylvania 19122

Department of Curriculum, Instruction and Technology in Education (CITE)

Educational Media
Elementary Education
Secondary Education
Vocational, Adult and Continuing Education

May, 1991

Dear Colleague:

The enclosed two part questionnaire has been developed by the research staff of the Center for Vocational Education, Temple University to study opinions associated with educational outcomes which students must know and/or be able to do to graduate from high school.

As you may be aware, this information is important to education in Pennsylvania as well as timely since Chapters 3, 5 and 6 of the State Code are currently under revision. As indicated by the Pennsylvania State Board of Education and reported in the March 1991 edition of the Newsletter of the Pennsylvania Association of Vocational Administrators:

> The regulations must help schools and educators focus on their instructional mission. The basis of the regulations should be student achievement of rigorous learning outcomes, not the amount of time spent in school...
>
> State regulations should facilitate a restructuring of the public schools so that all involved focus our principal efforts on establishing and achieving learning outcomes for children, based on the Goals of Quality Education, that will prepare them for successful adulthood in the twenty-first century. (P 3)

Please take some time from your schedule to complete the questionnaire within the week. The information supplied by you will be used in strict confidence. Neither your identity nor the identity of your school will be used in this study.

If you have any questions concerning this study, do not hesitate to contact me at (215) 787-6249.

Your assistance in responding to this questionnaire is greatly appreciated. Your opinions are valued.

Sincerely,

C. Wichowski

Chester P. Wichowski, D.Ed.
Senior Research Associate

CPW:ct,B

File: A:Colleag.CPW

EDUCATIONAL OUTCOME SURVEY

Section I: BACKGROUND

Check the appropriate categories regarding your background.

1. I work at: ___ an AVTS ___a Comprehensive H.S. ___ Other: _____

2. I am a: ___Teacher ___Administrator ___Counselor ___Other: _____

3. If you teach, write in your subject in the space next to the appropriate field listed below:

FIELD:

Academic: _____

Agriculture: _____

Business and Office: _____

Health Occupations: _____

Home Economics: _____

FIELD:

Marketing and Distributive: _____

Related: _____

Trade and Industry: _____

Other: _____

Section II: EDUCATIONAL OUTCOMES

The 66 statements on the following pages describe outcomes which students must know and/or be able to do to graduate from high school. Please rate each statement in two ways.

First, rate each statement in terms of the degree of emphasis it should receive in secondary school subjects or courses by circling your choice in the column to the left of each statement using the following scale:

DEGREE OF EMPHASIS

NONE	LITTLE	SOME	GREAT	UNCERTAIN
1	2	3	4	UN

Second, review each statement and identify the course or program delivery configuration you believe is most appropriate for helping secondary students achieve the outcome by circling your choice in the column to the right of each statement using the following scale:

COURSE/PROGRAM DELIVERY CONFIGURATION

VOCATIONAL	VOCATIONAL WITH SOME ACADEMIC	EQUAL VOCATIONAL AND ACADEMIC	ACADEMIC WITH SOME VOCATIONAL	ACADEMIC
V	VA	E	AV	A

An **EXAMPLE** outcome statement that has been rated is provided below:

Degree of Emphasis	OUTCOME STATEMENT	Delivery Configuration
1 2 3 (4) UN	64. An ability to be thorough at work.	V (VA) E AV A

In the example above, the respondent rated the outcome statement as needing a great (4) degree of emphasis; the delivery configuration identified by the respondent was VA (vocational with some academic) as most appropriate for helping a student to develop the outcome.

DEGREE OF EMPHASIS

NONE	LITTLE	SOME	GREAT	UNCERTAIN
1	2	3	4	UN

COURSE/PROGRAM DELIVERY CONFIGURATION

VOCATIONAL	VOCATIONAL WITH SOME ACADEMIC	EQUAL VOCATIONAL AND ACADEMIC	ACADEMIC WITH SOME VOCATIONAL	ACADEMIC
V	VA	E	AV	A

Degree of Emphasis						OUTCOME STATEMENT	Delivery Configuration				
1	2	3	4	UN	96.	An ability to effectively communicate verbally and and in writing.	V	VA	E	AV	A
1	2	3	4	UN	32.	An ability to be on time.	V	VA	E	AV	A
1	2	3	4	UN	15.	A proficiency in a core of basic skills designed to prepare students for advanced study.	V	VA	E	AV	A
1	2	3	4	UN	67.	A positive attitude toward co-workers.	V	VA	E	AV	A
1	2	3	4	UN	39.	An awareness of the dangers of tobacco, alcohol and drugs.	V	VA	E	AV	A
1	2	3	4	UN	94.	Be able to select, manage and maintain personal and family resources.	V	VA	E	AV	A
1	2	3	4	UN	63.	An understanding of personal abilities and interests.	V	VA	E	AV	A
1	2	3	4	UN	90.	An ability to work without close supervision	V	VA	E	AV	A
1	2	3	4	UN	16.	An understanding of the principles and concepts of craftsmanship.	V	VA	E	AV	A
1	2	3	4	UN	3.	An understanding of terminology related to a job.	V	VA	E	AV	A
1	2	3	4	UN	68.	An ability to interview effectively for a job.	V	VA	E	AV	A
1	2	3	4	UN	5.	An understanding of risk taking and its consequences.	V	VA	E	AV	A
1	2	3	4	UN	44.	An ability to efficiently manage time and materials.	V	VA	E	AV	A
1	2	3	4	UN	84.	An awareness of aesthetic criteria and concepts of design as they may be applied to decision making.	V	VA	E	AV	A
1	2	3	4	UN	78.	An understanding of the influence that art and literature have on our society.	V	VA	E	AV	A
1	2	3	4	UN	13.	A proficiency in applying reading skills.	V	VA	E	AV	A

Comments:

DEGREE OF EMPHASIS

NONE	LITTLE	SOME	GREAT	UNCERTAIN
1	2	3	4	UN

COURSE/PROGRAM DELIVERY CONFIGURATION

VOCATIONAL	VOCATIONAL WITH SOME ACADEMIC	EQUAL VOCATIONAL AND ACADEMIC	ACADEMIC WITH SOME VOCATIONAL	ACADEMIC
V	VA	E	AV	A

Degree of Emphasis						OUTCOME STATEMENT	Delivery Configuration				
1	2	3	4	UN	53.	An ability to work as a team member.	V	VA	E	AV	A
1	2	3	4	UN	38.	An ability to perform a job safely.	V	VA	E	AV	A
1	2	3	4	UN	87.	An understanding of the need to upgrade job skills.	V	VA	E	AV	A
1	2	3	4	UN	52.	A proficiency in arithmetic.	V	VA	E	AV	A
1	2	3	4	UN	36.	A knowledge of training required for advancement in the job.	V	VA	E	AV	A
1	2	3	4	UN	8.	An understanding of rights and duties as a worker.	V	VA	E	AV	A
1	2	3	4	UN	12.	An awareness of the special tools and equipment needed for a job.	V	VA	E	AV	A
1	2	3	4	UN	83.	An ability to be creative and make suggestions to improve the job.	V	VA	E	AV	A
1	2	3	4	UN	21.	A positive attitude toward personal and physical health.	V	VA	E	AV	A
1	2	3	4	UN	56.	A positive attitude toward persons from different ethnic and racial backgrounds.	V	VA	E	AV	A
1	2	3	4	UN	19.	An understanding of the ecology problems facing our society.	V	VA	E	AV	A
1	2	3	4	UN	7.	An understanding of basic scientific concepts and processes.	V	VA	E	AV	A
1	2	3	4	UN	54.	An understanding of labor unions and how they affect the worker or job.	V	VA	E	AV	A
1	2	3	4	UN	57.	An ability to present a good image to an employer.	V	VA	E	AV	A
1	2	3	4	UN	2.	A proficiency in decision-making skills.	V	VA	E	AV	A
1	2	3	4	UN	82.	A proficiency in using a computer.	V	VA	E	AV	A

Comments:

DEGREE OF EMPHASIS

NONE	LITTLE	SOME	GREAT	UNCERTAIN
1	2	3	4	UN

COURSE/PROGRAM DELIVERY CONFIGURATION

VOCATIONAL	VOCATIONAL WITH SOME ACADEMIC	EQUAL VOCATIONAL AND ACADEMIC	ACADEMIC WITH SOME VOCATIONAL	ACADEMIC
V	VA	E	AV	A

Degree of Emphasis						OUTCOME STATEMENT	Delivery Configuration				
1	2	3	4	UN	29.	An awareness of one's personal strengths and limitations.	V	VA	E	AV	A
1	2	3	4	UN	33.	A knowledge of how to approach an employer for potential employment.	V	VA	E	AV	A
1	2	3	4	UN	91.	A positive attitude toward work.	V	VA	E	AV	A
1	2	3	4	UN	85.	An awareness of current and projected job opportunities.	V	VA	E	AV	A
1	2	3	4	UN	47.	An understanding of family life.	V	VA	E	AV	A
1	2	3	4	UN	74.	An ability to follow directions.	V	VA	E	AV	A
1	2	3	4	UN	42.	A proficiency in applying writing skills.	V	VA	E	AV	A
1	2	3	4	UN	80.	A desire to seek out job opportunities.	V	VA	E	AV	A
1	2	3	4	UN	23.	A proficiency in basic algebra.	V	VA	E	AV	A
1	2	3	4	UN	27.	An identified career goal.	V	VA	E	AV	A
1	2	3	4	UN	18.	An understanding of the steps required to do a job.	V	VA	E	AV	A
1	2	3	4	UN	25.	An ability to prepare a resume.	V	VA	E	AV	A
1	2	3	4	UN	17.	An understanding of technical information related to a job.	V	VA	E	AV	A
1	2	3	4	UN	93.	A proficiency in consumer decision making skills.	V	VA	E	AV	A
1	2	3	4	UN	31.	An ability to get along with a variety of people.	V	VA	E	AV	A
1	2	3	4	UN	86.	A respect for the equal rights and worth of all men and women in our society.	V	VA	E	AV	A
1	2	3	4	UN	98.	A proficiency in operating tools and equipment needed for a job.	V	VA	E	AV	A

Comments:

DEGREE OF EMPHASIS

NONE	LITTLE	SOME	GREAT	UNCERTAIN
1	2	3	4	UN

COURSE/PROGRAM DELIVERY CONFIGURATION

VOCATIONAL	VOCATIONAL WITH SOME ACADEMIC	EQUAL VOCATIONAL AND ACADEMIC	ACADEMIC WITH SOME VOCATIONAL	ACADEMIC
V	VA	E	AV	A

Degree of Emphasis						OUTCOME STATEMENT	Delivery Configuration				
1	2	3	4	UN	35.	An ability to be dependable on the job.	V	VA	E	AV	A
1	2	3	4	UN	4.	Knowledge of human growth and development and good nutrition.	V	VA	E	AV	A
1	2	3	4	UN	9.	Be able to use information sources and research techniques.	V	VA	E	AV	A
1	2	3	4	UN	41.	A respect for authority.	V	VA	E	AV	A
1	2	3	4	UN	55.	An ability to meet an identified standard when performing a job.	V	VA	E	AV	A
1	2	3	4	UN	43.	The desire to work hard.	V	VA	E	AV	A
1	2	3	4	UN	58.	An awareness of the participatory nature of the democratic process.	V	VA	E	AV	A
1	2	3	4	UN	34.	Positive values and attitudes toward the protection of the environment.	V	VA	E	AV	A
1	2	3	4	UN	49.	A feeling of self-confidence.	V	VA	E	AV	A
1	2	3	4	UN	51.	A positive attitude toward learning.	V	VA	E	AV	A
1	2	3	4	UN	26.	An understanding of employer's expectations.	V	VA	E	AV	A
1	2	3	4	UN	75.	A proficiency in measurement and geometry.	V	VA	E	AV	A
1	2	3	4	UN	10.	Knowledge of basic economic principles.	V	VA	E	AV	A
1	2	3	4	UN	14.	An ability to fill out a job application.	V	VA	E	AV	A
1	2	3	4	UN	99.	An understanding of the environment at the local, regional and global levels.	V	VA	E	AV	A
1	2	3	4	UN	88.	An awareness of the need for lifelong learning.	V	VA	E	AV	A
1	2	3	4	UN	65.	A knowledge of how to look for a job.	V	VA	E	AV	A

Comments: