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ABSTRACT

A study explored learning outcomes for secondary students in Pennsylvania. Data were collected in two stages: through a survey of the opinions of 1,089 educators in eastern Pennsylvania (51% response) and through a random sample of 3,364 member of the business and industrial community in the area (22.3% response). The survey resulted in the production of 11 tables comparing the educational outcomes emphasized by the educators and the business and industry leaders. Some of the outcomes rated highly by both educators and business people included the following: (1) ability to be dependable on the job; (2) ability to follow directions; (3) positive work attitude; (4) ability to be on time; (5) effective communications; (6) positive attitude toward learning; (7) desire to work hard; (8) proficiency in applying reading skills; (9) teamwork; and (10) positive attitude toward co-workers. Recommendations were made to conduct a review of vocational education programs to determine if the outcomes ranked highly are currently in place, and to consider the rank order of outcomes to identify areas of emphasis for the schools' curricula. (KC)

AN INVESTIGATION OF OPINIONS TOWARD EDUCATIONAL OUTCOMES

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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 its 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 (see Figure 1).

Figure 1 about here

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 Quality Goals gained new prominence and became the driving force behind sweeping changes in Chapters 3, 5, and 6 of the Code (see Figure 2). 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 PA State Board of Education (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 have the potential to extend the level of influence of the 1965 and 1979 Quality Goals into the 21st century.

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 1). 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 2). Still, concerns about the new regulations persisted, especially in the area of student learning outcomes.

Figure 2 about here

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.

The Investigation

The intent of our research was to explore learning outcomes for secondary level students in Pennsylvania. Specifically, we wanted to be able to describe what students should know and be able to do as a result of secondary schooling. Data collection was done in two stages. The first stage surveyed opinions of educators (N = 1,089) in eastern Pennsylvania using an Educational Outcome Survey Instrument designed specifically for the study. The educators consisted of two sub-groups. Sub-group one consisted of educators from all 25 Area Vocational Technical Schools (AVTSs) in eastern Pennsylvania. The second sub-group consisted of a sample of educators from 18 Comprehensive High Schools that send students to the AVTSs. In both instances, the sub-groups were comprised of teachers, administrators, and counselors. The combined population was 2,138 educators. The combined return rate for the educators was 51%.

The second stage of the research surveyed members of the business and industrial community throughout Pennsylvania. Data were collected from a state wide randomly selected sample of 3,364 members of the business and industrial community identified by the Bureau of Research and Statistics, Employment Security Section, Pennsylvania Department of Labor and Industry. A modified version of the Educational Outcome Survey Instrument used in the first stage of the research was used to assess their opinions.

Included in both instruments were 66 educational outcome statements to be rated on a scale from 1 to 4, where 1 represented no emphasis and 4 represented great emphasis on the degree to which each outcome should be emphasized in secondary education. With no follow-up mailing, the number of usable returns from the businesses was 749 (22.3%).

Findings

Data analysis consisted of an inspection of survey demographics, a review of descriptive statistics from the educational outcome statement ratings, and a factor analysis on the outcome statement ratings. It should be noted that the data from the educators and business and industry community were collected separately, through two independent projects and reported in two research monographs. This paper, however, represents a blending of these two efforts. Further, the tables which have been included in this paper were developed by combining both data sets.

Table 1 provides a rank order listing of the degree of emphasis ratings on the educational outcome statements by respondents from both stages of the study (i.e., business and industry and education). The ratings were quite high (3.6 on or 4 point scale) illustrating the high level of emphasis the respondents felt the 66 educational outcomes should receive in secondary schools. Interestingly, this high degree of emphasis rating prevailed among the various sub-groups of educators and business persons studied (e.g. academic teachers, vocational teachers, small business, large business).

Table 1 about here

Table 2 presents the top ten, and bottom ten, groupings of outcome statements (rank order by mean) for the two sets of respondents. The outcomes comprising each grouping are essentially the same. An inspection of the mean ratings for the top ten outcome statements reveals nearly identical ratings for business and industry and education, $\underline{M}$ = 3.90 and $\underline{M}$ = 3.91, respectively. The low end, however, while consisting of similar outcome statements was rated approximately 20% lower by the business and industry group ($\underline{M}$ = 2.59) than the educators ($\underline{M}$ = 3.02).

Table 2 about here

A principle components factor analysis using a varimax rotation was also independently applied to data collected from both the educators and business group. The responses from the educators, when factor analyzed, grouped into nine factors which all loaded above the .36 level. The responses from the business community, when factor analyzed, grouped into eleven factors which all loaded above the.36 level. Interestingly, especially high levels of congruence (i.e., factors with common outcome statements) were found in five factor groupings among the business persons and the educators. The factor titles are listed in Table 3 and, the factor titles with high levels of congruency have been underlined.

Table 3 about here

A greater understanding of the composition of the factors and the high degree of congruency can be achieved through an inspection of Tables 4 through 11. Congruent outcome statements have been underlined.

Tables 4-11 about here

These high levels of factor congruence also prevailed when a comparison was made with a similar study of educational outcomes research conducted in Illinois (Barnard and Wentling, 1987). It should be noted that the Illinois study served as a model for and was a source for 45 of the 66 outcome statement used in both parts of our Pennsylvania study. The Illinois researchers collected data from 1,019 respondents consisting of educators at the secondary and post-secondary level, as well as persons from business and industry.

The findings of our two-part study corroborated by the research conducted in Illinois provided an empirical base to support the introduction of a vocational-technical skill development outcome for secondary education in the revised PA School Code. (A final codified version of PAs Quality Goals is provided in Figure 3). Further, these research findings on

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Figure 3 about here

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outcomes provide a knowledge base to contribute to the advancement of school reform in areas of curriculum and program development at a time when the need for school restructuring is widely recognized. The quest for educational excellence as well as the development of a better prepared and smarter work force has never been more urgent.

Recommendations

The challenge before us is to use these findings to contribute to the improvement of education so that it meets the needs of students, as well as the collective expectations of educators and persons from business and industry. In support of this challenge, the following recommendations are made:

1. Conduct a discrepancy review of vocational education programs to determine if any of the outcomes identified in the factors or which were high in rank ordering are currently in place.

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

3. Use rank order findings and factor data in the development of curriculum and learning activities that will: (1) contribute to the horizontal articulation of vocational and academic areas at the secondary level, and (2) be vertically articulated with the primary level.

4. Use rank order findings and factor data in the development of curriculum and learning activities in school to work and work re-entry programs.

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Figure Caption

Figure 1. A Comparison of the 1979 and 1991 (Proposed) 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 Independ- (9) ently and Collaboratively
_____ __	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 (47) Ecology
4 Citizenship (5)	5 Citizenship (44)
12 Understanding Others (5)	6 Appreciating and (71) Understanding Others
5 Arts and Humanities (5)	7 Arts and Humanities (33)
8 Work (6)	8 Career Education (61) and Work
9 Health (6)	9 Wellness and Fitness (44)
7 Family Living (4)	10 Personal, Family, and (40) Community Living
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 Caption

Figure 2. 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

TABLE 1

RANK ORDER LISTING OF DEGREE OF EMPHASIS

RATINGS - BUSINESS AND INDUSTRY/EDUCATORS

Rank Order			
Bus./Ind.	Educator	Item No.	Outcome Statement
1.	2.	50.	An ability to be dependable on the job.
2.	1.	38.	An ability to follow directions.
3.	4.	35.	A positive attitude toward work.
4.	3.	2.	An ability to be on time.
5.	10.	1.	An ability to effectively communicate verbally and in writing.
6.	6.	59.	A positive attitude toward learning.
7.	9.	55.	The desire to work hard.
8.	8.	16.	A proficiency in applying reading skills.
9.	27.	17.	An ability to work as a team member.
10.	17.	4.	A positive attitude toward co-workers.
11.	7.	53.	A respect for authority.
12.	21.	47.	An ability to get along with a variety people.
13.	12.	54.	An ability to meet an identified standard when performing a job.
14.	5.	18.	An ability to perform a job safely.

Table 1 (Cont.)

Rank Order			
Bus./Ind.	Educator	Item No.	Outcome Statement
15.	20.	13.	An ability to efficiently manage time and materials.
16.	11.	58.	A feeling of self-confidence.
17.	16.	60.	An understanding of employer's expectations.
18.	35.	48.	A respect for the equal rights and worth of all men and women in our society.
19.	31.	25.	A positive attitude toward personal and physical health.
20.	23.	8.	An ability to work without close supervision.
21.	15.	20.	A proficiency in arithmetic.
22.	19.	43.	An understanding of the steps required to do a job.
23.	14.	63.	An ability to fill out a job application.
24.	28.	19.	An understanding of the need to upgrade job skills.
25.	25.	31.	A proficiency in decision-making skills.
26.	37.	26.	A positive attitude toward persons from different ethnic and racial backgrounds.

Table 1 (Cont.)

Rank Order			
Bus./Ind.	Educator	Item No.	Outcome Statement
27.	26.	5.	An awareness of the dangers of tobacco, alcohol and drugs.
28.	36.	39.	A proficiency in applying writing skills.
29.	18.	30.	An ability to present a good image to an employer.
30.	32.	65.	An awareness of the need for lifelong learning.
31.	44.	33.	An awareness of one's personal strengths and limitations.
32.	34.	3.	A proficiency in a core of basic skills designed to prepare students for advanced study.
33.	41.	22.	An understanding of rights and duties as a worker.
34.	52.	24.	An ability to be creative and make suggestions to improve the job.
35.	24.	10.	An understanding of terminology related to a job.
36.	22.	11.	An ability to interview effectively for a job.
37.	51.	6.	Be able to select, manage and maintain personal and family resources.
38.	30.	34.	A knowledge of how to approach an employer for potential employment.

Table 1 (Cont.)

Rank Order			
Bus./Ind.	Educator	Item No.	Outcome Statement
39.	48.	7.	An understanding of personal abilities and interests.
40.	50.	12.	An understanding of risk taking and its consequences.
41.	29.	66.	A knowledge of how to look for a job.
42.	38.5.	45.	An understanding of technical information related to a job.
43.	13.	49.	A proficiency in operating tools and equipment needed for a job.
44.	43.	40.	A desire to seek out job opportunities.
45.	40.	52.	Be able to use information sources and research techniques.
46.	47.	57.	Positive values and attitudes toward the protection of the environment.
47.	46.	21.	A knowledge of training required for advancement in the job.
48.	55.	37.	An understanding of family life.
49.	38.5.	9.	An understanding of the principles and concepts of craftsmanship.
50.	45.	36.	An awareness of current and projected job opportunities.

Table 1 (Cont.)

Rank Order			
Bus./Ind.	Educator	Item No.	Outcome Statement
51.	33.	23.	An awareness of the special tools and equipment needed for a job.
52.	54.	32.	A proficiency in using a computer.
53.	42.	44.	An ability to prepare a resume.
54.	53.	27.	An understanding of the ecology problems facing our society.
55.	59.	56.	An awareness of the participatory nature of the democratic process.
56.	49.	42.	An identified career goal.
57.	57.	46.	A proficiency in consumer decision making skills.
58.5.	56.	28.	An understanding of basic scientific concepts and processes.
58.5.	63.	62.	Knowledge of basic economic principles.
60.	60.	51.	Knowledge of human growth and development and good nutrition.
61.	62.	14.	An awareness of aesthetic criteria and concepts of design as they may be applied to decision making.
62.	61.	64.	An understanding of the environment at the local, regional and global levels.
63.	58.	61.	A proficiency in measurement and geometry.
64.	65.	41.	A proficiency in basic algebra.

Table 1 (Cont.)

Rank Order			
Bus./Ind.	Educator	Item No.	Outcome Statement
65.	66.	15.	An understanding of the influence that art and literature have on our society.
66.	64.	29.	An understanding of labor unions and how they affect the worker or job.

TABLE 2

UPPER AND LOWER RANK ORDER LISTING OF DEGREE OF EMPHASIS RATINGS: BUSINESS AND INDUSTRY AND EDUCATORS

TOP 10

Business and Industry		Educators	
Item No.	Mean	Item No.	Mean
50.	3.903	38.	3.909
38.	3.871	50.	3.898
35.	3.870	2.	3.890
2.	3.824	35.	3.870
1.	3.809	18.	3.867
59.	3.808	59.	3.857
55.	3.807	53.	3.845
16.	3.717	16.	3.829
17.	3.703	55.	3.818
4.	3.696	1.	3.812

BOTTOM 10

Business and Industry		Educators	
Item No.	Mean	Item No.	Mean
46.	3.035	46.	3.385
28.	3.984	61.	3.381
62.	2.984	56.	3.372
51.	2.977	51.	3.352
14.	2.961	64.	3.292
64.	2.911	14.	3.282
61.	2.890	62.	3.236
41.	2.782	29.	3.209
15.	2.592	41.	3.181
29.	2.581	15.	3.023

TABLE 3

FACTOR TITLE AND CONGRUENCY

Educators		Business and Industry	
Factor No.	and Title	Factor No.	and Title
1.	General Academic Skills	1.	Job Search Skills
2.	Technical Skills	2.	Occupational Survival Skills
3.	Occupational Survival Skills	3.	Ecology
4.	Job Search Skills	4.	Technical Skills
5.	Affective Job Skills	5.	Basic Skills: Math & Science
6.	Basic Skills	6.	Working Independently
7.	Higher Order Skills	7.	Learning and Self-Concept
8.	Entrepreneurial Skills	8.	Basic Skills: Reading & Writing
9.	Not Named	9.	Equal Rights
		10.	Decision Making
		11.	Health and Family

NOTE: Factor titles with high levels of congruency have been underlined.

TABLE 4

JOB SEARCH SKILLS: BUSINESS AND INDUSTRY

Factor Loading Level	Mean*	Item No.**	Outcome Statement
.738	3.346	11.	An ability to interview effectively for a job.
.732	3.341	34.	A knowledge of how to approach an employer for potential employment.
.726	3.315	66.	A knowledge of how to look for a job.
.716	3.119	44.	An ability to prepare a resume.
.704	3.526	63.	An ability to fill out a job application.
.594	3.304	40.	A desire to seek out job opportunities.
.547	3.195	36.	An awareness of current and projected job opportunities.
.534	3.490	30.	An ability to present a good image to an employer.
.427	3.345	6.	Be able to select, manage and maintain personal and family resources.
.388	2.581	29.	An understanding of labor unions and how they affect the worker or job.

*Means were computed on degree of emphasis ratings provided by respondents on a four point Likert type scale with a low of one and a high of four.

**Item numbers are based on the outcome statement numbers used on the survey instrument; the order of these numbers and corresponding outcome statements reflect factor loading levels.

TABLE 5

JOB SEARCH SKILLS: EDUCATORS

Factor Loading Level	Mean*	Item No.**	Outcome Statement
.630	3.578	44.	An ability to prepare a resume.
.594	3.667	34.	A knowledge of how to approach an employer for potential employment.
.562	3.023	66.	A knowledge of how to look for a job.
.545	3.801	11.	An ability to interview effectively for a job.
.535	3.236	63.	An ability to fill out a job application.
.465	3.656	36.	An awareness of current and projected job opportunities.
.447	3.612	40.	A desire to seek out job opportunities.
.401	3.591	42.	An identified career goal.

*Means were computed on degree of emphasis ratings provided by respondents on a four point Likert type scale with a low of one and a high of four.

**Item numbers are based on the outcome statement numbers used on the survey instrument; the order of these numbers and corresponding outcome statements reflect factor loading levels.

TABLE 6

OCCUPATIONAL SURVIVAL SKILLS:

BUSINESS AND INDUSTRY

Factor Loading Level	Mean*	Item No.**	Outcome Statement
.723	3.903	50.	An ability to be dependable on the job.
.718	3.807	55.	The desire to work hard.
.701	3.870	35.	A positive attitude toward work.
.622	3.693	54.	An ability to meet an identified standard when performing a job.
.605	3.871	38.	An ability to follow directions.
.546	3.656	60.	An understanding of employer's expectations.
.536	3.824	2.	An ability to be on time.
.530	3.695	53.	A respect for authority.
.438	3.696	4.	A positive attitude toward co-workers.

*Means were computed on degree of emphasis ratings provided by respondents on a four point Likert type scale with a low of one and a high of four.

**Item numbers are based on the outcome statement numbers used on the survey instrument; the order of these numbers and corresponding outcome statements reflect factor loading levels.

TABLE 7

OCCUPATIONAL SURVIVAL SKILLS: EDUCATORS

Factor Loading Level	Mean*	Item No.**	Outcome Statement
.656	3.695	53.	A respect for authority.
.653	3.903	50.	An ability to be dependable on the job.
.622	3.807	55.	The desire to work hard.
.617	3.871	38.	An ability to follow directions.
.581	3.808	59.	A positive attitude toward learning.
.562	3.870	35.	A positive attitude toward work.
.558	3.657	58.	A feeling of self-confidence.
.487	3.656	60.	An understanding of employer's expectations.
.454	3.693	54.	An ability to meet an identified standard when performing a job.
.447	3.824	2.	An ability to be on time.

*Means were computed on degree of emphasis ratings provided by respondents on a four point Likert type scale with a low of one and a high of four.

**Item numbers are based on the outcome statement numbers used on the survey instrument; the order of these numbers and corresponding outcome statements reflect factor loading levels.

TABLE 8

TECHNICAL SKILLS: BUSINESS AND INDUSTRY

Factor Loading Level	Mean*	Item No.**	Outcome Statement
.812	3.31	49.	A proficiency in operating tools and equipment needed for a job.
.773	3.31	45.	An understanding of technical information related to a job.
.759	3.16	23.	An awareness of the special tools and equipment needed for a job.
.656	3.37	10.	An understanding of terminology related to a job.
.534	3.27	21.	A knowledge of training required to do a job.
.507	3.56	43.	An understanding of the steps required to do a job.
.401	3.05	42.	An identified career goal.

*Means were computed on degree of emphasis ratings provided by respondents on a four point Likert type scale with a low of one and a high of four.

**Item numbers are based on the outcome statement numbers used on the survey instrument; the order of these numbers and corresponding outcome statements reflect loading levels.

TABLE 9

TECHNICAL SKILLS: EDUCATORS

Factor Loading Level	Mean*	Item No.**	Outcome Statement
.697	3.66	23.	An awareness of the special tools and equipment needed for a job.
.558	3.78	49.	A proficiency in operating tools and equipment needed for a job.
.656	3.71	10.	An understanding of terminology related to a job.
.619	3.63	9.	An understanding of the principles and concepts of craftsmanship.
.585	3.63	45.	An understanding of technical information related to a job.
.582	3.74	43.	An understanding of the steps required to do a job.
.563	3.86	18.	An ability to perform a job safely.
.404	3.60	22.	An understanding of rights and duties as a worker.
.364	3.74	30.	An ability to present a good image to an employer.

*Means were computed on degree of emphasis ratings provided by respondents on a four point Likert type scale with a low of one and a high of four.

**Item numbers are based on the outcome statement numbers used on the survey instrument; the order of these numbers and corresponding outcome statements reflect factor loading levels.

TABLE 10

COMBINED BASIC SKILLS: BUSINESS AND INDUSTRY

Factor Loading Level	Mean*	Item No.**	Outcome Statement
.728	2.890	61.	A proficiency in measurement and geometry. A
.712	2.782	41.	A proficiency in basic algebra. A
.580	3.572	20.	A proficiency in arithmetic. A
.545	2.984	62.	Knowledge of basic economic principles. A
.513	2.984	28.	An understanding of basic scientific concepts and processes. A
.457	3.133	32.	A proficiency in using a computer. A
.674	3.809	1.	An ability to effectively communicate verbally and in writing. B
.602	3.491	39.	A proficiency in applying writing skills. B
.555	3.395	3.	A proficiency in a core of basic skills designed to prepare students for advanced study. B
.450	3.717	16.	A proficiency in applying reading skills. B

*Means were computed on degree of emphasis ratings provided by respondents on a four point Likert type scale with a low of one and a high of four.

**Item numbers are based on the outcome statement numbers used on the survey instrument; the order of these numbers and corresponding outcome statements reflect loading levels.

A Indicate those outcome statements which factored into the math and science basic skills cluster.

B Indicates those outcome statements which factored into the reading and writing basic skills cluster.

TABLE 11

COMBINED BASIC SKILLS: EDUCATORS

Factor Loading Level	Mean*	Item No.**	Outcome Statement
.701	3.809	1.	An ability to effectively communicate verbally and in writing. A
.699	3.717	16.	A proficiency in applying reading skills. A
.490	3.491	39.	A proficiency in applying writing skills. A
.486	3.572	20.	A proficiency in arithmetic. A
.459	3.395	3.	A proficiency in a core of basic skills designed to prepare students for advanced study. A
.371	3.133	32.	A proficiency in using a computer. A
.699	2.890	61.	A proficiency in measurement and geometry. B
.627	2.782	41.	A proficiency in basic algebra. B
.513	2.984	62.	Knowledge of basic economic principles. B
.465	3.984	28.	An understanding of basic scientific concepts and processes. B

*Means were computed on degree of emphasis ratings provided by respondents on a four point Likert type scale with a low of one and a high of four.

**Item numbers are based on the outcome statement numbers used on the survey instrument; the order of these numbers and corresponding outcome statements reflect loading levels.

A Indicate those outcome statements which factored into the basic skills cluster.

B Indicates those outcome statements which factored into the higher order basic skills cluster.

Figure Caption

Figure 3. The Codified Quality Goals of Education (1993)

Goal Area	No. of Outcomes
1. Communications	9
2. Mathematics	7
3. Science and Technology	8
4. Environment and Ecology	4
5. Citizenship	9
6. Arts and Humanities	4
7. Career Education and Work	4
8. Wellness and Fitness	6
9. Home Economics	2
TOTAL	53