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Perceptions of Vocational Educators and Human Resource/Training and Development Professionals Regarding Skill Dimensions of School-to-Work Transition Programs

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Abstract

The study examined the perceptions of vocational educators and training and development professionals regarding academic, occupational/technical and employability skill dimensions of school-to-work programs for secondary school students in central Ohio. Randomly selected individuals were asked to define levels of student skill mastery prior to beginning a school-to-work program, as well as to determine school-based and work-based responsibility levels for student skill development. Additionally, respondents were asked to ascertain school-based and work-based responsibilities for evaluation of student skill achievement. Results indicated that vocational educators and training and development professionals have varying ranges of agreement regarding responsibilities for skill development and evaluation of students involved in school-to-work programs. Consensus between the two groups is urged if school-to-work initiatives are to be successful.

Recently, there has been a national consciousness emerging that the United States has a serious deficiency in the system by which youth obtain needed skills and move from the school world to the work world (Barton, 1993). Much of the recent impetus for improving this transition has come from outside the schools (Goldberger and Kazis, 1996). Changes in the workplace have demanded a variety of skills from workers. Business and industry, involved in competition on a global level, have grown increasingly "worried by the growing gap they see between the capabilities of high school graduates and the skills, knowledge and habits of mind that employers seek" (O'Neill, 1992, p. 6) Studies, such as the American Society for Training and

Development (ASTD)/U.S. Department of Labor document *Workplace Basics: The Skills Employers Want* (Carnevale, Gainer and Meltzer 1988) and SCANS (1991) are just two of the publications that document skill deficits in high school graduates.

All of these concerns have generated initiatives geared toward producing a well-rounded student and potential employee. Culminating with the signing of the School-to-Work Opportunities Act in May 1994, school-to-work is perhaps the best known of these initiatives. School-to-work has rapidly become a "system" of partnerships between education, business/industry, organized labor, community groups and parents designed to prepare students to successfully enter the workplace.

The concept of school-to-work is not a new one. However, the idea of a national system of transition, articulated by the aforementioned groups, is a novel approach. Previous school-to-work efforts have been criticized for a variety of reasons. Carnevale (1992) defined current school-to-work transition efforts as tending to be low-skilled, narrowly defined and structured with little developmental activity. The General Accounting Office (GAO) (1993) found that youth were poorly prepared for entry-level work due to poor academic preparation, limited career guidance and virtually no workplace experience. Hollenbeck (1996) characterized the system as "awkward". The lack of a comprehensive and effective school-to-work system has a significant impact on many students (Charner, 1996).

While much has been written about the skills needed by employees on the job, and also the need for a formal system of school-to-work transition, less is known about what skills and skill levels students should bring to a school-to-work transition program, who should be specifically responsible for the development of a given skill during a program, and who should be responsible for the assessment/ evaluation of the skills the student should have obtained upon exiting the program. As the federal government, states and local districts set policies and guidelines defining what is expected from a school-to-work transition program, major emphasis must be placed on concerns related to the skill development of the participants. Pease and Copa (1993) described two identifying features of school-to-work transition. First, there are two different, expressed states - a before and an after. The before state is as student, the after is as worker. Second, there is some type of bridge between the two states - the passage over which change is produced. The American Vocational Association (1995) provided a structural definition for school-to-work transition programs by defining three basic components: school-based learning, work-based learning and connecting activities. The connecting activities "bridge the gap" between school and work-based learning and help ensure coordination of effort between all involved parties.

It is what occurs at the bridge that is the focus of this research. What must come to pass is a consensus regarding what type of skills schools will be responsible for and what will be the domain of the workplace. Cooperative activities can then grow from the determination of these responsibilities.

Purpose and Objectives

The purpose of this study was to identify the skills students should possess before beginning a school-to-work transition program, to determine who was to be responsible for their development and to determine who was responsible for the evaluation of student achievement of these skills. The study also provided information regarding participants' professional position and status.

Specifically, the research questions for this study were as follows:

1. To what level should a given skill be mastered prior to beginning a school-to-work transition program?
2. During a school-to-work transition program, to what extent should the development of a given skill be the responsibility of the school?
3. During a school-to-work transition program, to what extent should the development of a given skill be the responsibility of the workplace?
4. At the conclusion of a school-to-work transition program, which entity (the school or the workplace) should be responsible for the evaluation of student achievement of a given skill?

Limitations of the Study

The study was limited in that it was carried out within and was limited to the geographic region served and defined by the Ohio Central Region Vocational Education Personnel Development Center, located at The Ohio State University. Inquiry was limited to those vocational education personnel and human resource training and development personnel within this region. These two populations were targeted for their specific relationship to the area of workforce education and training. Vocational education has traditionally been associated with the preparation of youth for the world of work, and while the School-to-Work Opportunities Act of 1993 requires all students to have access to school-to-work transition programs, vocational education has taken a lead role in the development of these programs. Training and development professionals are directly responsible for the continuing education and training of employees in their respective organizations, from new hires to experienced workers and thus have a unique perspective on the issues posed in this study.

Design of the Study

The study design relied on a questionnaire to generate data for analysis. Survey participants were vocational education personnel in schools and human resource training and development personnel in business and industry. The study examined the perceptions of these two groups regarding skill dimensions of the school-to-work transition process and was classified as descriptive research.

The descriptive components of the study consisted of two parts. The first part determined the perceptions of these two participant groups regarding student skill achievement during a school- to-work transition program. The second part provided demographic characteristics of the two groups surveyed.

The Population

The population of the study consisted of vocational teachers, supervisors and administrators, employed within the geographic area served by the Ohio Central Region Vocational Education Personnel Development Center and human resource training and development personnel in business and industry fields such as health care, financial services and manufacturing, affiliated with the Central Ohio Chapter of the American Society for Training and Development (ASTD). The Central Ohio ASTD chapter provided a listing of members for survey purposes, while the names of vocational education personnel were obtained from the State of Ohio Department of Education, Division of Vocational Education. The ASTD list contained 467 active members, while the list of vocational educators contained 454 names.

Sampling Information

Participant samples were chosen randomly from the two provided lists through the use of a programmable graphic calculator utilizing a random number generation mode. Using a power analysis provided by Cohen (1988), it was determined that, for a desired power of .80 and an alpha level of .05, 128 subjectswould be needed (64 vocational educators and 64 human resource training and development professionals) to test a "medium" effect for this study.

Instrumentation

A preliminary questionnaire was devised through a literature review of previous works addressing skill issues in the workplace and submitted to an expert panel of 5 individuals from the State of Ohio Department of Education, Division of Vocational Education and the State of Ohio Department of Development, Division of Industrial Training. Definitions for each skill were developed through examples provided by the National Center on Education and Training for Employment (1992), Harvey & Cohen (1989), the National Academy of Sciences (1984) and through development by the author of the study. Content changes regarding definitions of certain skills were incorporated into the final questionnaire. The items on the questionnaire were in the form of 4 questions, with a Likert scale for rating each statement, with scale points numbered 1-5 (see tables 1-4 for examples of each question). A total of 23 skills were presented in each of the questions.

Five of these skills were classified as academic skills, 11 were classified as occupational/technical skills and 7 were defined as employability skills. Definitions for the skills utilized by this questionnaire were as follows:

Academic Skills

Reading Skills - the ability to comprehend printed materials

Writing Skills - the ability to interpret, apply and transmit information in writing

Basic Math Computational Skills - the ability to perform addition, subtraction, multiplication and division

Advanced Math Computational Skills - the ability to perform algebra, geometry and trigonometry

Oral Communication Skills - the ability to listen and speak in an effective manner

Occupational/Technical Skills

Safety and Health Skills - the ability to conduct oneself in a safe manner in the workplace

Primary Tool Use Skills - the ability to utilize hand tools specific to a job

Basic Machine Operation Skills - the ability to operate equipment that manufactures a product

Advanced Machine Operation Skills - the ability to setup and operate equipment that manufactures a product

Trade Specific Reading Skills - the ability to comprehend written manuals, procedure sheets, etc.

Technical Writing Skills - the ability to transmit trade-specific information through written materials

Trade Specific Math/Computational Skills - the ability to perform trade-specific mathematical operations

Sketching/Drawing Skills - the ability to create illustrations related to trade-specific tasks

Quality Assurance Skills - the ability to assume responsibility for the quality of manufactured products

Basic Computer Skills - the ability to work in DOS, Windows and/or MacIntosh operating environments

Advanced Computer Skills - familiarity with specific software, e.g., WordPerfect, Lotus 1-2-3

Employability Skills

Decision-making Skills - the ability to make an effective choice when presented with alternatives

Problem-solving Skills - the ability to identify, analyze and solve a problem situation

Creative Thinking Skills - the ability to use different modes of thought to generate new ideas

Teamwork Skills - the ability to work cooperatively with a variety of individuals in a job setting

Leadership Skills - the ability to guide others in the completion of work-related tasks

Negotiation Skills - the ability to work with other individuals to resolve a work-related conflict

Self-Management Skills - the ability to set and achieve personal performance goals

An estimate of the reliability of the instrument for this study was calculated utilizing the test-retest

procedure. To obtain test-retest reliability information, the questionnaire was administered to a small group of individuals selected from the target population in a pilot study. Fifteen individuals from each group were randomly selected from the two lists of vocational educators and human resource training and development professionals. Correlations were calculated between a participant's response to each question on two separate administrations of the same questionnaire. A mean Pearson *r* correlation of .70 for the questionnaire was calculated, meeting guidelines for test-retest reliability established by Kaplan and Sacuzzo (1982) and Frankel and Wallen (1990).

Data Collection

Participants were sent a cover letter, which described the concept of school-to-work and the purposes of the intended research, along with a copy of the survey, and a self-addressed stamped envelope. Numbers were assigned to participant questionnaires for identification purposes and color-coded for the determination of response (first mailing or second mailing). After 14 calendar days, a second copy of the questionnaire was sent to all nonrespondents, and an accompanying telephone call was made when possible. No further questionnaires were sent after the second mailing.

Data Analysis

The major independent variable in this study was professional affiliation (vocational education personnel or human resource training and development personnel). The four research questions posed by the questionnaire were analyzed via a t-test for two independent samples. The level of significance for the t-test was .05. Each questionnaire consisted of 99 data elements, which included data for the skill questions and the demographic information. Data were input into the statistical analysis program SPSS for Windows.

Results

From the two populations, a simple random sample of 64 participants was chosen from each group, for a total of 128 participants. Of the 64 vocational educators, 57 returned questionnaires, of which 55 were deemed usable, for a total usable response rate of 85.9%. Fifty-four questionnaires were returned from the 64 training and development professionals surveyed of which 51 were determined to be usable, for a total usable response rate of 79.7%.

Once the data were input into SPSS, means were calculated for the two respondent groups. T-tests were performed to determine if there was a significant difference between the mean ratings of the two groups.

Research question one, which addressed prior mastery levels, had several skill areas in which there were significantly different perceptions between the two respondent groups when analyzed through a *t*-test (see Table1). Training and development professionals rated the academic skill areas of reading and writing significantly higher. The occupational/technical skill areas of safety/health, primary tool use, basic machine operation, advanced tool operation, trade specific reading, technical writing, trade specific math, sketching/drawing and quality assurance were all rated higher by vocational educators, as were the employability skill areas of decision-making, problem-solving, teamwork, leadership and negotiation.

Table 1

Mean Ratings of Vocational Educators and Training and Development Professionals of the Desired Levels of Student Skill Development Prior to a School-to-Work Transition Program

	–	–		
	X	**X**	***t***	**2-tail**

	VE	**TD**		**significance**
ACADEMIC SKILLS				
Reading Skills	3.93	4.41	-3.68	<.001*
Writing Skills	3.84	4.24	-2.74	.007*
Basic Math Computational Skills	4.05	4.27	-1.58	.117
Advanced Math Computational Skills	3.15	3.10	0.24	.809
Oral Communication Skills	4.00	4.14	-0.98	.327
OCCUPATIONAL/TECHNI-CAL SKILLS				
Safety and Health Skills	4.05	3.47	3.58	.001*
Primary Tool Use Skills	3.75	3.16	3.46	.001*
Basic Machine Operation Skills	3.53	2.76	4.21	<.001*
Advanced Machine Operation Skills	2.71	2.02	4.14	<.001*

Trade Specific Reading Skills	3.29	2.78	2.73	.007*
Technical Writing Skills	3.02	2.59	2.61	.010*
Trade Specific Math Skills	3.40	2.71	3.78	<.001*
Sketching/Drawing Skills	2.95	2.53	2.36	.020*
Quality Assurance Skills	3.16	2.61	3.02	.003*
Basic Computer Skills	3.20	3.32	-0.10	.922
Advanced Computer Skills	2.53	2.33	1.10	.274
EMPLOYABILITY SKILLS				
Decision-making Skills	3.45	3.11	2.24	.028*
Problem-solving Skills	3.44	3.08	2.50	.014*
Creative Thinking Skills	3.25	3.09	0.93	.352
Teamwork Skills	3.82	3.27	3.46	.001*
Leadership Skills	3.21	2.51	4.31	<.001*

Negotiation Skills	3.13	2.55	3.36	.001*
Self-Management Skills	3.62	3.43	1.10	.273

Note. Data in this table are in response to the following research question and rating scale:

Prior to beginning the work-based component of a school-to-work transition program, assess the level of mastery each student should have achieved.

Rating Scale

1 - Student cannot perform this skill2 - Student can perform parts of this skill, but requires considerable assistance and/or supervision3 - Student can perform this skill, but requires some assistance and/or supervision

4 - Student can perform this skill satisfactorily without assistance or supervision

5 - Student can perform this skill without supervision and with initiative and adaptability to problem situations

* Significantly different at the alpha = .05 level

Research question two, which assessed the level of responsibility the school should have for the development of certain skills, also had several significant differences when the group means were analyzed (see table 2). The academic skill areas of reading, writing, basic math, advanced math and oral communication were all rated significantly higher by the training and development professionals. The occupational skill areas of safety/health, primary tool use, basic machine operation, advanced machine operation, trade specific reading, trade specific math, and quality assurance were all rated significantly higher by vocational educators. Training and development professionals rated basic computer skills significantly higher. The employability skill area yielded one significant difference in the skill of leadership, rated higher by vocational educators.

Table 2

Mean Ratings of Vocational Educators and Training and Development Professionals of the Level of Responsibility of Schools for Student Skill Development

	–	–		
	X	**X**	***t***	**2-tail**
	VE	**TD**		**Significance**
ACADEMIC SKILLS				

Reading Skills	4.00	4.53	-3.37	.001*
Writing Skills	3.95	4.51	-3.56	.001*
Basic Math Computational Skills	4.02	4.59	-3.68	<.001*
Advanced Math Computational Skills	3.42	4.14	-3.77	<.001*
Oral Communication Skills	3.80	4.14	-2.10	.038*
OCCUPATIONAL/TECHNI-CAL SKILLS				
Safety and Health Skills	3.64	3.04	3.97	<.001*
Primary Tool Use Skills	3.69	3.04	3.70	<.001*
Basic Machine Operation Skills	3.62	2.80	4.28	<.001*
Advanced Machine Operation Skills	2.98	2.24	4.24	<.001*
Trade Specific Reading Skills	3.35	2.86	3.25	.002*
Technical Writing Skills	3.20	2.94	1.67	.098

Trade Specific Math Skills	3.40	2.94	3.09	.003*
Sketching/Drawing Skills	3.05	2.98	0.43	.667
Quality Assurance Skills	3.13	2.76	2.37	.020*
Basic Computer Skills	3.49	3.80	-2.00	.049*
Advanced Computer Skills	2.91	2.92	-0.08	.939
EMPLOYABILITY SKILLS				
Decision-making Skills	3.42	3.25	1.28	.205
Problem-solving Skills	3.36	3.27	0.68	.497
Creative Thinking Skills	3.36	3.35	0.07	.942
Teamwork Skills	3.40	3.24	1.17	.246
Leadership Skills	3.40	3.08	2.23	.028*
Negotiation Skills	3.13	2.88	1.66	.101
Self-Management Skills	3.47	3.45	0.16	.876

Note. Data in this table are in response to the following research question and rating scale:

During a school-to-work transition program that includes a school-based and a work-based component, please assess the level of responsibility the school should have for student development of the following skills:

Rating Scale

1 - Little or no responsibility for the development of this skill2 - A secondary responsibility for the development of this skill

3 - Equal responsibility with workplace for development of skill

4 - A primary responsibility for the development of this skill

5 - Most or all responsibility for the development of this skill

* Significantly different at the alpha = .05 level

The third research question, which assessed the level of responsibility the workplace should have for the development of certain skills, did not yield many significant differences. The occupational/ technical skill areas of primary tool use, basic machine operation, advanced machine operation and technical writing, all rated significantly higher by training and development professionals (see Table 3).

Table 3

Mean Ratings of Vocational Educators and Training and Development Professionals of the Level of Responsibility of Workplaces for Student Skill Development

	_	_		
	X	**X**	***t***	**2-tail**
	VE	**TD**		**Significance**
ACADEMIC SKILLS				
Reading Skills	1.76	1.49	1.82	.071
Writing Skills	1.78	1.57	1.41	.162
Basic Math Computational Skills	1.80	1.53	1.74	.085

Advanced Math Computational Skills	2.34	2.04	1.72	.089
Oral Communication Skills	1.93	2.04	-0.64	.525
OCCUPATIONAL/TECHNI-CAL SKILLS				
Safety and Health Skills	3.00	3.14	-0.81	.419
Primary Tool Use Skills	2.58	3.04	-2.58	.011*
Basic Machine Operation Skills	2.65	3.20	-2.90	.005*
Advanced Machine Operation Skills	3.36	3.86	-2.75	.007*
Trade Specific Reading Skills	2.95	3.11	-1.12	.267
Technical Writing Skills	2.80	3.11	-2.02	.046*
Trade Specific Math Skills	2.87	3.15	-1.69	.095
Sketching/Drawing Skills	2.85	3.00	-0.81	.421
Quality Assurance Skills	3.29	3.19	0.58	.563
Basic Computer Skills	2.53	2.24	1.58	.117

Advanced Computer Skills	3.07	3.12	-0.23	.815
EMPLOYABILITY SKILLS				
Decision-making Skills	2.76	2.88	-0.80	.423
Problem-solving Skills	2.75	2.86	-0.84	.402
Creative Thinking Skills	2.67	2.78	-0.77	.441
Teamwork Skills	2.91	2.90	0.05	.957
Leadership Skills	2.87	3.04	-1.10	.276
Negotiation Skills	2.93	3.22	-1.91	.058
Self-Management Skills	2.69	2.75	-0.34	.735

Note. Data in this table are in response to the following research question and rating scale:

During a school-to-work transition program that includes a school-based and a work-based component, please assess the level of responsibility the workplace should have for student development of the following skills:

Rating Scale

1 - Little or no responsibility for the development of this skill2 - A secondary responsibility for the development of this skill

3 - Equal responsibility with the school for development of this skill

4 - A primary responsibility for the development of this skill

5 - Most or all responsibility for the development of this skill

* Significantly different at the alpha = .05 level

The final research question, which sought to determine the level of responsibility between the two groups for the evaluation of the achievement and mastery of certain skills, did not discover any significant differences in the ratings for academic areas. In the occupational/technical skill area, the two groups assigned significantly different ratings for the evaluation of safety/health, primary tool use, basic machine operation, trade specific reading, trade specific math, sketching/drawing and basic computer skills. The employability skill area found 6 of 7 areas to be significantly different: decision-making, problem solving, creative thinking, teamwork, leadership and negotiation.

Table 4

Mean Ratings of Vocational Educators and Training and Development Professionals of the Level of Responsibility of Schools and Workplaces for Evaluation of Student Skill Achievement

	–	–		
	X	**X**	***t***	**2-tail**
	VE	**TD**		**Significance**
ACADEMIC SKILLS				
Reading Skills	3.91	3.82	0.52	.607
Writing Skills	3.91	3.73	1.10	.273
Basic Math Computational Skills	3.87	3.76	0.65	.520
Advanced Math Computational Skills	3.49	3.49	0.00	.996
Oral Communication Skills	3.67	3.53	0.90	.368

OCCUPATIONAL/TECHNI-CAL SKILLS				
Safety and Health Skills	3.04	2.69	2.04	.044*
Primary Tool Use Skills	3.25	2.71	3.02	.003*
Basic Machine Operation Skills	3.27	2.72	2.98	.004*
Advanced Machine Operation Skills	2.62	2.27	1.86	.066
Trade Specific Reading Skills	3.00	2.53	2.81	.006*
Technical Writing Skills	3.07	2.75	1.96	.053
Trade Specific Math Skills	3.07	2.57	2.95	.004*
Sketching/Drawing Skills	3.13	2.73	2.33	.022*
Quality Assurance Skills	2.78	2.51	1.61	.109
Basic Computer Skills	3.49	3.08	2.55	.012*
Advanced Computer Skills	2.89	2.67	1.21	.230

EMPLOYABILITY SKILLS				
Decision-making Skills	3.11	2.65	2.97	.004*
Problem-solving Skills	3.13	2.67	2.92	.004*
Creative Thinking Skills	3.07	2.68	2.42	.017*
Teamwork Skills	3.07	2.59	2.89	.005*
Leadership Skills	3.05	2.55	2.96	.004*
Negotiation Skills	3.01	2.51	3.08	.003*
Self-Management Skills	3.09	2.80	1.81	.074

Note. Data in this table are in response to the following research question and rating scale:

At the conclusion of a school-to-work transition program, assess the level of responsibility the school and the workplace should have in evaluating the achievement and mastery of the following skills:

Rating Scale

1 - Evaluation of this skill is the sole responsibility of the workplace

2 - Evaluation of this skill is the responsibility of the workplace, with some input from the school

3 - Evaluation of this skill is an equal responsibility of the workplace and the school

4 - Evaluation of this skill is the responsibility of the school, with some input from the workplace

5 - Evaluation of this skill is the sole responsibility of the school

* Significantly different at the alpha = .05 level

Conclusions

The primary purpose of this study was to determine if there were differences in perceptions between vocational educators and training and development professionals regarding certain skill dimensions of school-to-work programs in Central Ohio. The following conclusions appear warranted:

With regard to question 1 (prior skill levels), the training and development professionals perceived students as needing higher prior mastery skill levels in academic skills when entering school-to-work transition programs than did vocational educators. They felt most strongly about reading and writing skills, as those are the areas where the differences in perception were statistically different. It would appear that training and development professionals clearly felt these skills need to be mastered prior to entrance. From these observations, it may be concluded that training and development professionals did not believe students should enter school-to-work transition programs with academic skill deficiencies. The lone exception to this was advanced math, where both groups felt some assistance or supervision with this skill may be required.

The perceptions of vocational educators regarding the prior mastery level for occupational/ technical skills was significantly higher than training and development professionals in most (9 of 11) of the skill areas listed. Vocational educators perceived the prior mastery of these skills to be at least at the midpoint, where students are able to completely perform the skill with some assistance or supervision. Ratings from the training and development professionals are significantly lower in almost every case, perhaps indicating they felt the development of occupational/ technical skills is best done during a school-to-work transition program rather than prior to it.

As with occupational/technical skills, the vocational educators perceived a need for a higher prior mastery skill level for employability skills as well. The vocational educators ranked all these skills higher than the training and development professionals and they felt most strongly about the skills of decision-making, problem-solving, teamwork, leadership and negotiation, as these were statistically significant. Practical significance of the differences between the two groups on most of these skills is not readily apparent, as both groups generally felt students should be able to perform the skills with some assistance or supervision upon entrance, with vocational educators leaning toward performance without assistance or supervision.

Question two on the instrument assessed the responsibility level the school should have for skill development during a school-to-work transition program. Both groups clearly saw the school as having the primary responsibility for the development of academic skills, with training and development professionals' perceptions significantly higher. This would agree with their previous response on question one, where they felt students entering a school-to-work transition program should be able to perform these skills without assistance or supervision. Again, it was clear they do not see a role for the workplace in academic skill development.

The development of occupational/technical skills should be an equal or greater responsibility of the school, according to vocational educators. In general, training and development professionals disagreed with this, seeing somewhat less of an equal role for schools. In almost all cases, there was significant "disagreement" between the two groups on the responsibility level for the development of these skills. This may have indicated that training and development professionals do not see a need for vocational training prior to beginning a school-to-work transition program, while vocational educators did perceive a need for such training. One area of specific interest: training and development professionals rated the area of basic computer skills significantly higher than did vocational educators, a complete reversal when compared to all the other skills in this area. This may indicate a perception that schools should only address the basics of computer skill development and leave the advanced software training to the training and development professionals in business and industry.

With regard to employability skills, both groups perceived an equal to slightly greater responsibility level for the school in the development of these skills. The differences in this perception were not significantly greater in 6 of the 7 areas. This would seem to indicate that both groups are fairly close to agreement on the responsibility level of the school for the development of these skills.

Question three addressed the responsibility level of the workplace for the development of skills during a school-to-work transition program. Academic skill development was determined to be a secondary responsibility for the workplace. This would coincide with the perceptions of the two groups on the previous two questions, which indicated academic skills to be the domain of the school. Mean scores between the two

groups were fairly close, with no significant differences, which would indicate both groups perceive the workplace's role in a similar manner.

The perceptions for both groups for occupational/technical skills were somewhat mixed when considering the workplace's responsibility level. Training and development professionals had significantly higher ratings for the areas of primary tool use, basic machine operation and advanced machine operation skills, which may indicate a perception that industry may wish to train students on their own equipment, with their own tools, rather than leave this task to the schools. In general, training and development professionals perceived a higher responsibility level for the workplace than did vocational educators, which would concur with the previous question, which found vocational educators to perceive their responsibility level higher for the development of these skills.

With regard to employability skills, both groups generally perceived the workplace to have a slightly less than equal responsibility for the development for these skills, with the lone exceptions being the training and development professional's perception of an equal responsibility or greater for the development of leadership and negotiation skills. There were no significant differences between the two groups on any of these skills and the mean scores for each were very close to each other, which indicated a general agreement between the two groups with regard to the workplace's responsibility for the development of these skills.

Question four assessed the level of responsibility both the school and the workplace should have for the evaluation of achievement and mastery of the skills. Again, both groups felt responsibility for academic skills rested with the school, although ratings would indicate both groups desire some input from the workplace. There were no significant differences in perception between the two groups on these skills and the mean scores were very similar, which would indicate both groups perceived the evaluation of these skills in a similar fashion.

In the previous question, training and development professionals perceived a greater responsibility level for the workplace for the development of occupational/technical skills than did the vocational educators. This group also perceived a greater responsibility for the evaluation of the achievement and mastery of these skills than did vocational educators, who perceived an equal or greater responsibility for the evaluation of these skills. This concurs with their general perception in question two of an equal or greater responsibility for the development of these skills. The significant differences in perception in this area were many: safety/health, primary tool use, basic machine operation, trade specific reading, trade specific math and sketching/drawing.

Despite the previous question, which assessed the level of responsibility for the development of employability skills by the workplace to be something less than equal, the training and development professionals believed to a significantly higher degree than vocational educators that responsibility for the evaluation of achievement and mastery of these skills rests with the workplace. On 6 of the 7 skills in this area, training and development professionals' scores in this area indicated a perception toward a somewhat less than equal responsibility for the evaluation of these skills. Vocational educators' scores tended to indicate a perception of equality for the evaluation of these skills.

When drawing conclusions about the four research questions posed by this study, some summary statements can be made.

1. With regard to academic skills, both groups tended to perceive this area as the school's domain on all counts. Training and development professionals did not see the development of academic skills as their role.
2. During a school-to-work transition program, vocational educators perceived the school as having a somewhat greater than equal responsibility and the workplace a somewhat less than equal responsibility for the development of occupational/technical skills.
3. The exact opposite of conclusion #2 is generally the case when the perceptions of training and development professionals are considered. This group perceived the workplace as having a somewhat greater than equal responsibility and the school a somewhat less than equal responsibility for the

development of occupational/technical skills.

4. As might be expected, with regard to the evaluation of the achievement and mastery of occupational/technical skills, both groups perceived a somewhat greater role for their group than did the other.
5. Where employability skills were concerned, vocational educators perceived a much greater prior mastery level upon entrance than did training and development professionals. While both groups would appear to agree that the school should take a somewhat greater than equal responsibility for the development of these skills, the training and development professionals perceived a slightly greater role for themselves in the evaluation of the achievement and mastery of these skills. This may indicate a perception on the part of training and development professionals that, since these are "employability" skills, they are best evaluated in the context of a workplace, whereas vocational educators perceived the need for competence in this skill before a student ever enters a workplace.

Recommendations

Based on the conclusions presented, the following actions appear warranted with regard to the issues addressed by the research questions in this study:

1. The two groups were very much in agreement regarding the school and workplace roles with respect to academic skills. Both groups perceived the school as the main delivery system for academic skills. Further discussion between the groups concerning the application and utilization of these skills in a successful school-to-work program would seem appropriate. Vocational educators should continue to work with the applied academics model that integrates academic and vocational education instruction. Training and development professionals need to be drawn into the process by reviewing present curricula to assure its relevance to the workplace.
2. The two groups must reach consensus regarding each other's role in the development of occupational/technical skills during a school-to-work transition program. Since each group sees a somewhat greater role for itself in this area, it is recommended that this issue be addressed on an individual program and student basis. As student training plans are developed for school-to-work transition programs, it will likely be determined by the parties involved that a given occupational/ technical skill can be better addressed by either the school or the workplace. This will likely be a function of many variables, such as available equipment, materials, time and personnel. Continued collaboration and cooperation in this area is recommended in order to determine specific responsibility for these skills.
3. Related to recommendation #2, there must also be consensus between the two groups with respect to the responsibility for the evaluation of the achievement and mastery of occupational/ technical skills. As with the development of these skills during a school-to-work transition program, as individual student training plans are developed, the issue of responsibility for evaluation can be determined at the time development responsibility is determined. Whatever entity (the school or the workplace) assumes responsibility for the development of the skill should logically perform the evaluation.
4. With regard to employability skills, the role that these skills will play in a school-to-work transition program needs to be clarified. Since both groups perceive the school as having a greater role in the development of these skills, it is recommended that the schools assume primary responsibility for the development of these skills during a school-to-work transition program. Since the training and development professionals perceive a slightly greater role for themselves in the evaluation of these skills, and vocational educators perceive evaluation as an equal responsibility, it is recommended that consensus be reached on the responsibility for the evaluation of these skills.

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