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PERCEPTIONS OF TECHNICAL COMMITTEE MEMBERS REGARDING THE ADOPTION OF SKILL STANDARDS IN VOCATIONAL EDUCATION PROGRAMS

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Abstract

The primary purpose of this study was to develop an understanding of the perceptions of national industry-based skill standard technical committee members regarding the adoption of skill standards in vocational education programs at the secondary and post-secondary levels. Both qualitative and quantitative methods were used to address the research objectives of the study. From the results of this study, findings related to the impacts of skill standards on vocational education are reported. Six primary themes emerged associated with the impacts of skill standards on vocational educators: (a) improving communication between business and industry and education; (b) making the curriculum content more relevant; (c) producing better prepared entry-level workers; (d) graduating students better able to make the connection between school and work; (e) adopting the standards which will improve the teaching and learning process; and (f) making vocational educators more accountable.

As the international marketplace demands quality, timeliness, and customization in producing goods and

services, increasing importance is being placed on the skills of individual workers. Vocational educators are being asked to reform their programs to provide occupational preparation that reaches higher standards for entry-level skilled workers. The needs for reform have emerged in part from a call for greater accountability in vocational education and concern about the condition of the American economy as it aligns with productivity and globalization (Commission on the Skills of the American Workforce, 1990; Office of Work-Based Learning, 1992; and Warnat, 1992).

As vocational educators, we are addressing occupational preparation of entry-level skilled workers within the framework of (a) program standards and (b) performance standards that have been mandated by the Perkins Act (U. S. Congress, 1990) and Goals 2000: Educate America Act (U. S. Congress, 1994). These standards call for assessing what is currently being taught, determining present and future needs of students, and determining how both teachers and students will meet those specific needs. A third type of standards, national industry-based skill standards, were also mandated. Skill standards are to be used on a voluntary basis to provide the framework needed to ensure that workers have the portable skills required by today's fast-changing, global economy, according to Secretary of Labor Robert B. Reich (U. S. Department of Labor, 1993).

One major outcome of the current concern about the economy and workforce preparation has been the development and implementation of national industry-based standards mandated by the Carl D. Perkins Vocational and Applied Technology Act of 1990 (U. S. Congress, 1990 and Warnat, 1992). Advocates for skill standards posit that skill standards would improve the U. S. workforce and produce quality in the international marketplace by being measured against the best skill standard systems in the world. These standards would improve the outcomes of vocational education by providing portable employment credentials for U. S. workers. Increased accountability among schools, teachers, and vocational programs would also be an advantage of skill standards. This increased accountability would require educators to prepare graduates with entry-level work skills, which meet the needs of business and industry. The Commission on the Skills of the American Workforce (1990) suggested skill standards as a major reform for the education and training field. The Perkins Act (U. S. Congress, 1990) authorized the establishment of a program of grants to industrial trade associations, labor organizations, or comparable national organizations for purposes of organizing and operating business-labor-education technical committees. The Act required that these committees should establish national skill standards for competencies in industries and trades which identify the knowledge, skill, and level of ability an individual needs to perform successfully in the workplace (Office of Public Affairs, 1993). The U. S. Department of Labor (1993) maintains that skill standards ensure a common, standardized system for classifying and describing the skills needed for particular occupations and the skills possessed by individual workers. An example of the view that the skill standards can strengthen both education and business and industries' reform efforts toward building a high performance workplace was the Goals 2000: Educate America Act (U. S. Congress, 1994). This Act established a National Skill Standards Board to promote the development of a national system of skill standards.

In establishing a grants program, Congress mandated that the grant recipients, using technical committees, would identify (a) standards that establish entry and career advancement criteria; (b) broadly-defined occupational categories that crosscut individual firms or industries; (c) methods for benchmarking standards to world-class levels and for maintaining the currency of the standards; (d) preferred training delivery mechanisms, competency-based assessment tools, and certification arrangements; (e) incentives for development and implementation of national skill standards; and (f) the relationship of skill standards to existing occupational licensing and civil rights concerns (U. S. Department of Labor, 1992).

Conceptual Framework

In our rapidly changing technological society, representatives from business and industry, labor, and education play an important role in collaborating with vocational educators to assure that entry level workers are prepared with relevant entry-level skills. Koffel (1994) suggested that education must provide the kinds of schooling individuals need to become successful employees. To do this an accurate knowledge of the

workplace is essential. Additionally, one conclusion of the SCANS report (Secretary's Commission on Achieving Necessary Skills, 1991) was that America's schools must help students develop a new set of competencies and foundation skills if they are to enjoy a productive, full life. These competencies and foundation skills were defined by determining skills needed in the high performance workplace.

The adoption of technologies in service and manufacturing businesses has led to increased skill requirements needed to perform a variety of tasks in the high performance workplace (Flynn, 1988). Therefore, to prepare workers for the high performance workplace, vocational educators need knowledge of what the workplace situation is today. Failure by vocational educators to implement programs based on the workplace situation could hinder production gains and economic growth. An understanding of the skill requirements of business and industry provides a basis for vocational educators to establish a curriculum that prepares workers with the skills needed to meet these requirements. Additionally, with skill standards in place, not only can vocational educators better assess worker skills, but also relevant vocational education reforms can be made in other areas such as teacher preparation.

The U. S. government has come to recognize that human capital development is important for the economic success of our country. Wooldridge (1992) posited the existence of a skills deficit and predicted a significant fall in demand for unskilled laborers and a major increase in demand for skilled workers. The move toward "smarter jobs" appears to have accelerated in the past ten years because of a rise in information technology. This realization has led to the belief that training and education of workers are critical. Business and industry's success is largely "embodied in the collective skills and knowledge of its people and the organizational procedures that shape the way employees interact" (A new approach to investment, 1994, p. 79).

Significance of the Study

Skill standard development grants were provided in the Perkins Act (U. S. Congress, 1990) and the first projects didn't complete their work until 1994 and 1995. Thus, a relatively short period of time has been available to determine how these standards might be used in business and industry. Additionally, a search of literature did not reveal studies which have been completed to achieve an understanding of the perceptions and projections of national industry-based skill standard technical committee members regarding the impact of skill standards on vocational education. The results of this research could assist business and industry representatives and educators as they cooperatively develop curriculum, determine performance measures, strengthen their partnerships, and create professional development activities.

Purpose and Objectives of this Study

Leaders of the U. S. Departments of Education and Labor believed that skill standards and certification systems had potential value and both departments initiated efforts to help industry, labor, and education groups develop these standards (U. S. General Accounting Office, 1993). Therefore, they awarded 22 grants totaling more than eight million dollars to support the development of skill standards. Grants with funding from either the Department of Education or Labor have been made to organizations or associations who have an interest in setting worker qualifications. The first 13 grant recipients that were initially funded in 1992 were the focus of this study. The Perkins Act mandated that each grant has a technical committee to participate in the development of the skill standards. The act also required that the committees consist of representative coalitions of employers, labor organizations, trade associations, vocational-technical educators, and others.

Since the skill standards have been developed, literature reveals that little attention has been given to technical committee members' perceptions of how these standards might be used by industry and education. The identification, by those who developed the standards, of their perceptions of the impact of the standards might enable the business and industry, labor, and education communities to better utilize skill standards. Therefore, the purpose of this study was to determine the perceptions of technical committee members regarding the adoption of skill standards in all vocational education program areas at the secondary and post-

secondary education levels. The following were the research objectives of the study:

1. Identify the grant recipient technical committee members' perceptions of the process and results of the standard development project.
2. Determine how technical committee members perceive that the skill standards will impact on the effectiveness of vocational education.

Research Methods and Procedures

The data for the first objective were obtained from a mailed survey, and the data for the second objective were obtained from telephone interviews. The population for the survey phase of this study consisted of the technical committee members from 12 of the original 13 grants awarded in 1992 by both the departments of Education and Labor. The grant administrator for the other grant declined to participate. The technical committee members were identified by the grant administrators and consisted of representatives of business and industry, labor, education, and trade associations.

A letter was sent to the 225 technical committee members describing the study, informing them of both phases of the study, and asking them to participate. A survey instrument including both closed- and open-ended questions followed the letter. The closed-ended items were used to assess technical committee members' perceptions of the skill standard development process as well as their views of the standards developed by their committee. The responses to the opened-ended questions related to the impact of skill standards on vocational education were used as a basis for the interview phase of the study. The foundation for both the survey and interview items was a review of literature that focused on those business and industry associations that have a history of developing standards and certification requirements and the methods or models used by technical committees to develop those standards.

Of the 225 surveys mailed, technical committee participants returned 100 usable responses. The returned surveys were reviewed and analyzed to accomplish the first objective, develop interview questions, and select the twenty subjects for the interviews. Interview subjects were chosen based on the completeness and diversity of their answers to the open-ended questions and to have representation from across the occupational groups included in the technical committees. The eight groups, which were representative of technical committee composition were: a management and an employee representative from a service business or industry, a management and an employee representative from an industrial or manufacturing business or industry, a union representative, a representative of a nonunion trade or professional association, an educator, and a representative from government. Interviewees were also selected based on their involvement in developing standards, whether or not they had prior experience in developing industry-based skill standards, and their responses to the open-ended survey questions. In each of the eight groups, the researcher ranked the respondents in terms of the completeness and variety of their responses. Those ranked highest were contacted for participation in the in-depth interviews and to schedule a date and time.

The twenty people were contacted by phone and all 20 consented to the interview. Information from the interviews was collected by telephone, tape recorded, and subsequently transcribed. After recordings had been transcribed, a coding system was developed to facilitate the reduction of data. This method of data collection generated a variety of perspectives from the interview subjects, allowing for synthesizing, summarizing, and interpreting the information gathered from the interviews.

Qualitative methodology was used which allowed a holistic view involving understanding phenomena and situations as a whole with the assumption that the whole is greater than the sum of its parts (Patton, 1990). Patton noted that qualitative data consist of detailed descriptions of situations, events, people, interactions, and observed behaviors; direct quotations from people about their experiences, attitudes, beliefs and thoughts; and excerpts or entire passages from documents, correspondence, records, and case histories. By using survey and telephone interview methodology, the researcher was able to describe the technical committee members' perceptions of the standard development process and results as well as the impact of skill standards on vocational education.

After reviewing qualitative research specialists' ways to analyze data, cross-case analysis was used to group together interviewees' answers for each question in the interview. The use of cross-case analysis is a way of ordering and grouping or quantifying data so that large sums of data become manageable. Patton (1990) suggested that cross-case analysis is best for open-ended interviews. All interview transcripts were analyzed to discover themes and patterns that would create a portrait of perceptions of technical committee participants of the adoption of skill standard development in vocational education. The next level of analysis was to search for relationships and interrelationships among the interviews. As these relationships and interrelationships in the form of themes and patterns began to arise, the portrait of technical committee members' perceptions of the impact of skill standards on the effectiveness of vocational education emerged.

Findings and Conclusions

Objective 1. Identify the grant recipient technical committee members' perceptions of the process and results of the skill standard development project.

Of the 100 surveys returned, 52 were from committee members whose grants were funded by the U. S. Department of Labor and 48 from grants funded by the U. S. Department of Education. A series of 12 yes/no statements was included in the survey regarding the technical committee members' perceptions of the process of developing skill standards. Table 1 reports the members' replies about their role in developing standards, the participants of their committee, and the technical committee they served on. Ninety-one of the 100 respondents thought their role was that of reviewing standards, 82 advising, 73 recommending standards, 65 advocate, and 55 specific action. Ninety-two indicated they helped establish relevant skill standards for evolving and generic skills, 84 participants felt they had a clearly defined role, and 76 indicated they offered new insights to skill standard development. The technical committee was a viable mechanism for developing effective skill standards in the perception of 94 respondents; 93 indicated their committee included members of diverse opinions yet they reached common goals; 88 believed their committee effectively accomplished their tasks, and 83 felt their committee addressed emerging labor needs and technical innovations.

Table 1
Participation on Skill Standard Development Technical Committee

My Role in Developing Standards		
	91	5
Advising		11
Recommending standards	73	22
	65	35
Specific action		36
	92	3
Had a clearly defined role	84	10
Offered new insights to skill standard development	76	
Was a viable mechanism for developing effective skill standards	94	3
Included members with diverse opinions yet reached	93	4

common goals		
Effectively accomplished its tasks	4	
Addressed emerging labor needs and technological innovations	83	13

Note. N = 100. Not all respondents marked each item.

A series of 24 statements was included in the survey to assess the views of the members regarding the skill standards developed by their committee. The respondents were asked to rate their agreement with each statement using a five-point, Likert-type scale with 1 meaning strongly disagree and 5 meaning strongly agree. Those rated highest by the participants in the section, "the skill standards developed by my committee," were: are appropriate to their related occupation (4.48), are appropriate and useful to business and industry (4.48), and are appropriate and useful to educators (4.38). Respondents rated "technology skills" (4.33) as being the item addressed most frequently by their technical committee's skill standards and "employability skill" (4.11), had the second highest rating. Table 2, Technical Committee Members' Views of Skill Standards, reports the means and standard deviations of all 24 items.

Table 2
Technical Committee Members' Views of Skill Standards

The skill standards developed by my committee:	**Mean**	**SD**
Are appropriate to their related occupation	4.48	.65
Are appropriate and useful to business and industry	4.48	.68
Are appropriate and useful to educators	4.38	.74
Will allow for more consistent, targeted instruction and curriculum	4.38	.86
Can be implemented by vocational educators	4.34	.83
Will improve the quality of vocational education	4.28	.84
Facilitate clearer goals and direction for students	4.28	.83
	4.20	.78
Can make the U.S. more competitive in the world economy	4.12	.90
Can easily be adapted to education curriculum development	3.96	.94
Demand greater accountability from schools, programs, teachers, and students	3.93	1.19
Are durable		
Provide for changes in technology	3.63	
Increased technological demands of the workplace	3.35	.98
Are too broad/general		

Are too specific		
Technology skills	4.33	
Employability skills	4.11	.88
Problem solving and critical thinking skills	4.01	.87
Communication skills		.89
Academic competencies	3.76	1.07
Leadership skills		.96
Global perspectives	2.90	1.20
Cultural diversity		.83

Note. Responses rated on a 5-point Likert-type scale with 1 = strongly disagree and 5 = strongly agree.

The survey also included three questions related to the perceptions of technical committee participants regarding vocational educators' use of skill standards and factors which will enhance and inhibit the adoption of skill standards by vocational educators. The respondents were given a list of statements related to each question and asked to check all that applied. They were also asked to list additional perceptions, enhancers, inhibitors, and impacts on vocational education. When asked about vocational educators' use of skill standards, 91 of the 100 respondents felt that industry based skill standards would help vocational educators better understand the work preparation needs of business and industry; 89 indicated that skill standards provide a base for curriculum development.

Eighty-four respondents felt better communication between business and industry and education would enhance the adoption of skill standards by vocational educators; 80 marked business and industry expecting workers to demonstrate the mastery of skill standards as an enhancement to their adoption. The main inhibitor indicated by respondents (86) was lack of communication between business and industry and vocational educators. Table 3 gives the technical committee members' perceptions of factors regarding skill standards.

Table 3
Technical Committee Members' Perceptions of Factors Regarding Skill Standards

Industry-based skill standards:	
would help vocational educators better understand the work preparation needs of business and industry	91
would provide a base for curriculum development	89
would provide a solid foundation for work-based learning	81
will only be effective for vocational educators if they include measurable performance criteria	

	80
	79
	63
	86
Educators not willing to change	
Business and industry not accepting the standards	78
Business and industry not demanding better-trained workers	60
Lack of effective assessment and measurement tools	60
Insufficient financial resources	

Note. N = 100. Respondents only marked those they felt applicable.

Objective 2. Determine how technical committee members perceive that the skill standards will impact on the effectiveness of vocational education

Six main themes emerged from the interviews related to technical committee members' perceptions of the skill standards' impact on the effectiveness of vocational education. These themes were:

- improving the communication between business and industry and education,
- making the curriculum content more relevant,
- producing better prepared entry-level workers,
- graduating students who will be better able to make the connection between school and work,
- adopting the standards which will improve the teaching and learning process, and
- making vocational educators more accountable.

The findings related to the technical committee members' perceptions of the skill standards' impact on the effectiveness of vocational education are exemplified by the words of selected respondents.

All respondents thought there would be a positive impact on the effectiveness of vocational education but some believed more work needed to be done to further develop the skill standards before their full potential would be reached. One interviewee summed up his response:

If you expect vocational education to produce a product that industry wants, they [business and industry] should make their expectations darn effective. As long as vocational educators know the stated goals then it can be darn effective. So the best we can expect of our students is to learn the skills we asked vocational educators to teach and bring them in their back pocket when they walk through the door; and industry can shape them when they get in the door. We can expect the students will learn the spectrum of knowledge and be able to tie that knowledge together.

Improving the communication between business and industry and education. Based on the responses of technical committee members interviewed for this study, for skill standards to impact vocational education there should be a national vision and national direction. Yet the most relevant communication for vocational

education should be at the state and local levels. Strengthening business and industry and education partnerships at all levels will take time. Building partnerships at national, state, and local levels provides a mechanism for broad industry and education acceptance of the standards. Better communication avenues must be opened and dialogue within and among all partners must be strengthened.

A positive impact of skill standards that was cited by the interviewees was that business and industry and education are communicating more with each other. Lack of communication has been a major problem, and the development of skill standards has become an effective way to address the need for communication among business, industry, and education. Responses of two interviewees related to better communication were that "effective, ongoing communication creates a better direction than many vocational reforms have had in the past," and "effective communication can help educators understand what needs to be done." Another interviewee indicated that "educators get highly creative once they have an understanding of what is expected of them and their programs. This will enable students to make the connection between the skills being taught and relate them to work."

Making the curriculum content more relevant. There was an overall feeling among those interviewed that once the curriculum had been rewritten to meet the needs of business and industry, and teachers had an understanding of what was expected of them, then there would be the desired effectiveness. One respondent said, "The task now is to rewrite the curriculum; to make the curriculum content more relevant to the needs of business. Once local schools can determine the curriculum and an accepted performance level for the standards, produce an improved teaching and learning process, provide the additional training and work experiences for teachers so they can teach effectively, then vocational education will turn out the kind of employee that business needs." He also felt that vocational educators must be held accountable to make the necessary changes and meet the criteria established by the skill standards. There was disagreement, however, on whose responsibility it was to develop the curriculum. Some felt it was business and industry's responsibility while others felt vocational educators must take the standards as presently developed and develop curriculum to produce graduates who will be more employable.

Producing a better-prepared entry-level worker and graduating students who will be better able to make the connection between school and work. Interviewees thought that vocational educators would use skill standards to assist students in securing employment, to give students portable skills, to determine graduation requirements, to build student portfolios, to strengthen the value of the vocational diploma, to define what students need to learn, and to get students into the workplace. The ultimate goal of skill standards is to supply industry with better prepared entry-level workers. One respondent felt the goal should be to "help the student become a fully competent, contributing, self-motivating and self-fulfilling member of society. The connection between teaching and learning the standards and meeting the needs of business by helping students make that connection will be a positive impact." Some respondents felt an impact of the effectiveness of skill standards would be that educators could better place their students because they can show industry what the students know--the teacher and the students become more responsive to industry. One interviewee believed the skill standards would make vocational educators more effective, "It makes the process and the education of the students more applicable to today's business environment so that they are theoretically better educated. They have a better experience because it's a realistic situation, and it's based on fact and not something that doesn't bear any resemblance to the workplace."

Adopting the standards, which will improve the teaching and learning, process, and make vocational educators more accountable . *Respondents felt that in time, with additional work, skill standards could have an effective impact on vocational by helping vocational educators become more accountable as a result of incorporating skill standards into the teacher training programs. "Vocational education needs to take the initiative to educate teachers in an understanding of skill standards and workplace skills," said one respondent. In other words, teacher acceptance is needed to effectively impact the adoption of skill standards.*

Respondents thought that teacher training must be continuous and on going. There was a division of opinion as to who was responsible for that training. Some felt that industry must be responsible for a work-based

component of teacher training and preparation for teaching skill standards. Others felt this was education's responsibility. One respondent indicated that vocational educators need a minimum of two years experience in business and industry before being certified to teach. Another interviewee said this is already the practice in the automobile industry and that good teachers take advantage of the opportunities to train in industry settings. Another said the responsibility of accepting the standards, promoting the standards, and training in the adopted skills should begin with the educational system and not business and industry.

Interviewees thought that improvement of communication between business and industry and education creates a better direction for teaching and learning. Thus, educators have an understanding of what needs to be done. A secondary teacher felt the standards he helped develop would be used to update curriculum and "make it more user friendly." The development of business partnerships, strengthening advisory committees and industry-based teacher training are further indicators of the ways interviewees felt vocational educators will keep current in incorporating skill standards into their daily teaching activities.

Overcoming resistance to change and having the ability to teach the standards would impact the effectiveness of how vocational educators adopt the standards and improve educators' accountability. In regard to accountability, one respondent indicated that:

I could get a student in here and I start showing him things, and he says, "I've never heard of that. I've never seen that." and the person is intelligent. I know that he's telling me the truth. I know that the opportunity wasn't afforded him to learn this. Then I'm going to hold that educator responsible. I'm going to say, "You told me this boy went through a ...certified course, and he did not." I'm not going to deal with those people again.

In addressing accountability there was a definite thought that vocational educators would become more accountable as a result of incorporating skill standards into teacher training and vocational programs.

Respondents thought that in time, with additional work, skill standards could have an effective impact on vocational education. Improving communication among all partners and development of pertinent skill standards could help make the curriculum more relevant to the needs of business, make vocational educators more accountable to the needs of business and industry, make students better prepared to enter the workforce, and make business and industry more efficient and productive.

Implications and Recommendations

The skill standards projects were initiated in part to strengthen the education system and provide employers with high performance workers. This in turn would strengthen our economy and place the United States in a competitive position in the global marketplace. The 22 national skill standard projects provided the mechanism for beginning to develop a skill standards system. Technical committees played a vital role in developing these standards. The perceptions of the interviewees regarding their work on the technical committees has provided this researcher with insights as to whether the standards would impact vocational education. While much progress has been made to develop standards and have them accepted by business and industry and education, there is much that needs to be done. Additional research and study could relate to grant recipient administrators, to advisory committees, and to the technical committee members of the second stage of funding which involved an additional nine grants.

Continued dialogue among business and industry and education could provide occasions for representatives of labor and business and industry to develop a common language and bring technicians and front-line workers into the communication process. In addition, continued communication provides the opportunity for industry to "sell" the standards to those employers who do not see the need to develop the high performance worker. Communication can also strengthen the support of local school administrators and vocational advisory committee members. Additional research could focus on what state and local governments are doing with skill standards.

One implication of this study is that the skill standards should be used to develop relevant curriculum for

vocational programs at the secondary and post-secondary levels. Training programs need to be developed for worker retraining, updating of skills, and retraining teachers. This training could be provided by industry trainers, private training facilities, and community college continuing education programs. This is an area where employers and educators must work closely so that the teacher education curriculum provides the tools for teaching the skills. A result of appropriate curricula would be that students could acquire the skills for particular jobs or occupations. A relevant curriculum would mean that pertinent learning would take place because educators would know and focus on the needs of industry. Additional research could provide mechanisms for vocational educators to enhance employer partnerships for curriculum development, teacher training and updating of skills, and seeking equipment and tools.

Summary

This study provided evidence that technical committee members perceived that their groups served as a viable mechanism for establishing skill standards. The results also indicated that improved communication and stronger partnerships between business and industry and education can help establish more relevant vocational education curricula. The findings of the study suggested that the development and use of skill standards could contribute to the preparation of entry-level workers who are better prepared for the high performance workplace--workers with the ability to demonstrate a variety of skills in an industry context.

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