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State Approved Performance Measures for Evaluating Vocational Education

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Abstract:

The Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 presented a specific requirement for a statewide system of performance measures and standards for vocational education. This study reviewed and analyzed the approved systems of measures for each of the States. Findings reveal that the States have approved and implemented a number of differing measures of academic and other performance. Differences were noted in number and type of measures in systems from state to state, as well as between secondary and postsecondary systems.

In the last decade there has been an increasing level of dissatisfaction with the quality of public education in the United States. The initial sound of alarm regarding the inadequacies of our education system began with the release of *A Nation at Risk* (National Commission on Excellence in Education, 1983). Since that time several other National reports have signaled similar concerns (e.g., The William T. Grant Foundation Commission on Work, Family and Citizenship, 1988; Commission on Skills of the American Workforce, 1990; U. S. Department of Education, 1991; Secretary's Commission on Achieving Necessary Skills, 1991; Special Study Panel on Education Indicators, 1991; and Secretary's Commission on Achieving Necessary Skills, 1992). Each of these studies called for major changes in the U.S. educational system by stressing the gap between the demands of the future and the present level of preparedness of America's youth to meet these requirements.

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Accompanying the need for improved educational programs was a call for better evidence regarding the accountability of public education. Accountability is defined as "responsibility for the justification of expenditures, decisions, or the results of one's own efforts" (Scriven 1991, p. 46). Accountability implies a relationship between program providers and those who are funding the program. As stated by Anderson and Ball (1978), accountability, "usually implies some obligation by the spenders to those whose money they are spending (or interests they are supposedly representing) to provide information about what they did, why they did it, and what the consequences were or are" (p. 212). This relationship of accountability is also emphasized by Hill and Bonan (1991):

> Accountability is a relationship between two persons in which four conditions apply: first, one person expects the other to perform a service or accomplish a goal; second, the person performing the activity accepts the legitimacy of the other's expectation; third, the person performing the activity derives some benefits from the relationship; and fourth, the person for whom the activity is performed has some capacity to affect the other's benefits (p. 35).

As can be seen by the definitions cited above, the concept of accountability in education has been evident for some time and is becoming more widespread. In fact, as White (1990) explained:

> Accountability has become a guiding principle in the way states have approached new ways to improve education. Thus, systems to measure accountability have become a major `business' in The United States (Odden, 1990). Schools are expected to act like businesses, and account for their successes and failures; and though it has never been easy to apply quantitative measures to complex educational processes and outcomes, more and more school systems have been doing just that (p. 1).

Accountability systems in education have traditionally relied on reviews of inputs and processes of the educational systems

(McCaslin, 1990). However, as McCaslin indicated, the focus on accountability systems in education has been changing to one of assessing outcomes.

The movement toward more emphasis on accountability and evaluation has had an impact on vocational education. At the time of the hearings to reauthorize the Carl D. Perkins Vocational Education Act, the Office of Technology Assessment (1989) reported that "there is now widespread consensus for including the vocational education system in the national debate over school reform and academic excellence" (p. 2).

Vocational education has considered accountability and evaluation essential activities for many years. Federal vocational education legislation from 1963 through 1984 included provisions for evaluating vocational programs.

The Carl D. Perkins Vocational and Applied Technology Education Act of 1990 continued to include evaluation specifications. It required states to develop core standards and measures of performance for secondary and postsecondary vocational education programs. These performance measures were to include:

1. Measures of learning and competency gains, including student progress in the achievement of basic and more advanced academic skills;

2. One or more measures of performance, which shall include only–(a) competency attainment; (b) job or work skill attainment or enhancement including student progress in achieving occupational skills necessary to obtain employment in the field for which the student has been prepared, including occupational skills in the industry the student is preparing to enter; (c) retention in school or completion of secondary school or its equivalent; and (d) placement into additional training or education, military service, or employment;

3. Incentives or adjustments that are–(a) designed to encourage service to targeted groups or special populations; and (b) for each student, consistent with the student's individualized education

program developed under section 614(a)(5) of the Education of the Handicapped Act, where appropriate; and

4. Procedures for using existing resources and methods developed in other programs receiving Federal assistance (p.770-771).

Although the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 presented a specific requirement for a system of performance measures and standards, this was not its first appearance on the national policy scene. The Job Training Partnership Act (JTPA) had previously required a system of performance measures and standards.

The JTPA Experience With Accountability and Evaluation

Performance standards were first adopted as an instrument of national human resource policy in the employment and training area with the passage of the Job Training Partnership Act of 1982 (P.L. 97-300). The measures that were developed for these programs included: placement and retention in unsubsidized employment, earnings, and reductions in public assistance. Performance standards had made a major impact on how these programs were conducted. Butler (1988) stated: "The most significant outcome-oriented practice has been the development of formal national, state, and locally-administered systems of outcomes measures, and standards for aggregated program achievement" (p. 2).

For the federal government, priorities in implementing JTPA 1982 were to hold local providers responsible for the outcomes that were attained, to encourage efficient service, to create incentives for effective management of local programs, and to foster acceptance of the program by business and industry (Dickinson & West, 1988). Though the record for JTPA was positive–especially compared to the Comprehensive Employment and Training Act (CETA), the federal training program that preceded JTPA–some concerns were raised. Among the concerns reported were: (a) inappropriate targeting of participants and services (Apling, 1989; Dickinson & West, 1988), (b) questionable performance measures (Frazier, 1991), (c) problems in

defining services, outcomes, etc. (Frazier), and (d) inconsistent and incomplete data (Office of Technology Assessment, 1989).

Some problems were reported when agencies received incentives and adjustments for serving special populations. Apling (1989) reported that in JTPA programs, where adjustments were in use, data were difficult to obtain and verify concerning the special conditions that warranted adjustments. When asked to justify funding for programs on the basis of performance standards, JTPA representatives at times found it difficult to produce hard data to support their claims. Further, there were questions about the programs becoming so outcomes driven that the mission of the program became secondary to producing adequate "numbers." (Butler, 1988).

The JTPA experience with the use of performance measures and standards provided a basis for their use in other programs. As Butler (1988) stated, "I will argue that the performance standard approach has much in its favor...with appropriate modifications for difference of purpose, it ought to be emulated in large part by revised vocational education legislation (p. 3). The Office of Technology Assessment (OTA) was asked to examine the feasibility of using performance measures and standards in the assessment of vocational programs. OTA (1989) reported that "the application of outcome-based performance standards in...the Job Training Partnership Act, has led many observers to call for a similar strategy in vocational education" (p. 2).

Using Performance Measures And Standards

One of the probable impacts of the 1990 Amendments will be the increased attention paid to student outcomes. Adoption of performance measures and standards will allow education agencies to assess student outcomes for program evaluation purposes. The measures and standards must be carefully constructed, however, so as not to hinder the process they seek to evaluate. As defined by the Department of Education (Federal Register, August 14, 1992) a measure is a description of an outcome, and a standard is the level or rate of that outcome. Hoachlander, Levesque, and Rahn (1992) explained that, "an outcome indicates the condition that will be

measured, while a measure specifies how that condition will be measured, and a standard represents the level against which performance on the measure will be evaluated" (p. 45).

States must make choices such as whether to emphasize the development of academic measures centered on benchmarking (meeting an outside accepted standard) or on value added. As Ewell (1988) stated:

> From a policy perspective, however, the issue can be real and concrete: Are institutions and programs to be judged primarily in terms of the degree to which they 'develop talent' or in terms of the degree to which their ultimate products meet accepted standards? (p. 64)

When used within the context of a broader and more comprehensive system of evaluation, the use of performance measures can be helpful. As suggested by McCaslin (1990), and White (1990), program evaluation will be more meaningful if needs and processes are evaluated in addition to outcomes.

The use of measures and standards in vocational education could serve several purposes. Section 117 of the Carl D. Perkins Vocational and Applied Technology Act of 1990 outlines their use for annual local program review. When dealing with occupational training, there is an expectation in the workplace that measures and standards can be used as benchmarks for performance. Measures and standards for vocational programs can also serve to provide the framework for assessing student progress against an accepted level of performance, and for identifying programs where outcomes are not meeting prescribed levels, suggesting inadequacies in the program. Data on student outcomes could also be used for comparing programs and institutions.

Problem Statement

The move to establish a system of performance measures and standards in vocational education is a large undertaking. The states had until September 25, 1992 to implement the systems of standards and measures (Federal Register, August 14, 1992). Many of the states

found it necessary to develop new evaluation procedures as a result of the mandates of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. Yet, relatively little information is available regarding this process. Hoachlander and Rahn (1992) gathered information in 1991 from the states in an effort to determine the expected makeup of the systems. However, Hoachlander and Rahn stated, "The systems actually implemented in fall 1992 may look substantially different, as states continue to develop performance measures and standards" (p. 2). By December 1, 1992, no information was available concerning the actual systems of core standards and performance measures that had been adopted by each state. This information could be used to further develop and improve state systems of performance measures and standards and in meeting the requirements of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990.

Purpose and Objectives

The purpose of this study was to examine the system of performance measures that had been approved in each state in response to the requirements of Section 115 of the Carl D. Perkins Vocational and Applied Technology Act of 1990. The specific objectives were:

1. To ascertain what types of measures had been approved for academic performance (i.e., basic and advanced) and other types of performance (i.e., competency attainment, work skill attainment, retention/completion, placement, and service to special populations) in secondary vocational education programs in each state.

2. To ascertain what types of measures had been approved for academic performance (i.e., basic and advanced) and other types of performance (i.e., competency attainment, work skill attainment, retention/completion, placement, and service to special populations) in postsecondary vocational education programs in each state.

Methodology

Descriptive-survey research methods were used in this study. The 54 state directors of vocational education were asked to submit documents which were reviewed and analyzed. For the purposes of this study, a state was defined as any of the 50 states in the United States plus the District of Columbia, Puerto Rico, Guam, and the Virgin Islands.

An initial letter was sent to all 54 state directors on November 24, 1992 requesting documents which describe the system of performance measures and standards that had been approved by their state board for vocational education. This strategy was used to minimize the amount of time and energy that would be required to provide the information. Approximately four weeks later, a follow-up letter, containing the original request, was again sent to the 19 state directors who had not responded. A third and final follow-up letter was sent on February 1, 1993 to the remaining seven state directors who had not responded. On March 3, 1993 phone calls were made to the remaining five state directors from which no response had been received. As of April 15, 1992, 52 of the 54 states (96%) had responded with information concerning their approved systems of measures for secondary vocational education programs and 50 states (93%) had responded with information concerning their approved systems of measures for postsecondary programs. Two state directors (Iowa and the Virgin Islands) indicated that their system of measures and standards had not been approved by their state boards. Additionally, Georgia and Arkansas did not report their system of postsecondary performance measures and standards.

Once the documents had been received, they were reviewed in order to determine the performance measures that had been approved. For the purposes of this study, only performance measures outlined in section 115 of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 were considered. This analysis resulted in a listing, by states, of the measures that the states had adopted, using the categories listed in section 115 of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. The following categories were established: (a) basic academic skills, (b) advanced academic skills,(c) competency

attainment, (d) work skill attainment, (e) retention/completion, (f) placement, and (g) service to special populations.

A summary sheet was developed for each state, categorizing the data on adopted measures. On March 12, 1993, the summary sheets were mailed to the state directors of vocational education. Personnel from each state were asked to review, verify and amend the listing as necessary. When discrepancies occurred, a further review of the documents was carried out. If necessary, a follow-up call was made to the state director's office for additional clarification.

Findings

This section reports the measures that states have approved for their statewide system of core standards and measures of performance. First, the measures approved for secondary vocational education will be presented. These will be followed by the measures approved for postsecondary vocational education.

Approved Measures for Secondary Vocational Education

The majority of the measures reported by the states have been approved for implementation in 1993. However, several measures were reported that were approved for implementation in 1994 or later. As indicated previously, Iowa and the Virgin Islands had not yet approved standards for their system. Therefore, information from these areas was not included in this report. The number of performance measures approved for secondary vocational education ranged from 2 to 16 and averaged 10.

Academic Skills

The information presented in Table 1 identifies the areas for which states have approved measures of learning and competency gains in academic skills. These academic skills include two types: basic and advanced. For purposes of this paper the academic skills were classified as either reading, language, mathematics, science or "other". Thirty states were using the same set of measures for both basic and advanced academic skills. The remaining 22 states were using different sets of measures for basic and advanced academic skills. At the secondary vocational education level, two of the

reporting states did not indicate that they had approved any basic or advanced academic skill measures.

Table 1
Frequency and Percentage of States Utilizing Each Measure of Academic Performance (N=54)

	Postsecondary		Secondary	
Measure	f	%	f	%
Basic Academics				
Reading	43	80	26	48
Language	40	74	29	54
Mathematics	46	85	30	56
Science	19	35	8	15
Other	24	44	27	50
Advanced Academics				
Reading	35	65	16	30
Language	35	65	24	44
Mathematics	41	76	26	48
Science	22	41	8	15
Other	23	43	24	44

Basic academic skills. The area that states had most often approved as a measure of basic academic skills (see Table 1) was mathematics (85%). This was followed by reading (80%), language (74%) and science (35%). A total of 44% of the states indicated that they had approved "other" measures of basic academic skills for their system of standards and measures of performance. Examples of "other" basic academic skills included measures in areas such as social studies, critical thinking, and problem solving.

Advanced academic skills. The areas in advanced academic skills (see Table 1) that were reported approved by each state followed a pattern similar to that reported for basic academic skills. More than three-fourths of the states reported a mathematics measure for advanced academic skills (76%). About two-thirds (65%) of the states reported using reading and language measures. Less than half (41%) of the states reported using measures in the area of science. In the

area of "other" advanced academic skills, 43% of the states had approved measures such as critical thinking, problem solving, and social studies. Six of the states reporting did not include any approved measures of advanced academic skills.

Other Measures of Performance

Table 2 presents information on other measures of performance that have been approved by the states. Only two states had not yet approved any measures of performance for secondary vocational education programs. These areas are discussed below and include: competency attainment, work skill attainment, program completion, high school graduation, placement, percent served, and gender mix.

Table 2

Frequency and Percentage of States Utilizing Other Measures of Performance (N=54)

	Secondary		Postsecondary	
Measure	f	%	f	%
Competency Attainment	24	44	18	33
Work Skill Attainment	39	72	34	63
Program Completion	25	46	38	70
High School Graduation	27	50	–	–
Related Placement	25	46	26	48
Any Placement	33	61	30	56
Percent Served	28	52	30	56
Gender Mix	17	31	17	31

Competency attainment. Competency attainment was generally defined by the states as basic employability skills. Approximately one-half of the states (44%) reported using competency attainment performance measures.

Work skill attainment. This area tended to be defined by the states as including measures of specific occupational skills attainment. About three-fourths of the states (72%) reported that their states had approved performance measures on work skill attainment.

Program completion. States generally referred to program completion as the rate at which students fulfilled the requirements of their program. Almost one-half (46%) of the states reported having this type of performance measure approved.

High school graduation. High school graduation referred to the rate of students who had successfully completed the requirements for graduation in their school or its equivalent (e.g., General Education Development). One-half (50%) of the states reported using this as a performance measure.

Placement. Related placement refers to individuals who have obtained employment in an area closely related to their area of education and training. Any placement refers to obtaining any type of job after completing a program of studies. Approximately one-half (46%) of the states reporting using related placement as a performance measure, whereas 61% of the states reported using any placement as a performance measure. Nine states reported using both types of placement as performance measures. A total of 92% of the states reported using some type of placement measure.

Percent served. This performance measure referred to the percent of the high school aged special population students that were enrolled in vocational education programs. Slightly more than one-half (52%) of the states reported using this type of performance measure.

Gender mix. Gender mix referred to the percentage of male and female students who were enrolled in vocational education programs. Approximately one-third (31%) of the states indicated that this type of measure was being used in their system.

Comparison of Expected and Approved Measures

A comparison of the findings of this study of approved measures with those of the earlier Hoachlander and Rahn (1992) study of expected measures was also made. These two studies used different methodologies and it is important that these differences are noted. In the Hoachlander and Rahn (1992) study, individuals were surveyed and asked about the expected makeup of the state systems of measures and standards. In response to whether a particular measure was expected to be included in the approved system, a state

could respond yes, no, or maybe. In the comparison reported in this paper, the yes and maybe responses were combined to indicate if a particular measure was expected to be included in the states system of measures and standards. In contrast, the study reported in this paper requested copies of the documents indicating the measures and standards that had been approved by states. These documents were then reviewed to determine if a measure was included. The results of this comparison of measures for secondary vocational education are presented in Table 3.

In the areas of mathematics, reading, and work skill attainment measures the percentage of states expecting to approve the measures and actually approving a measure was within 12 points. However, in the remaining areas of science, high school graduation, program completion, and placement measures the difference in percentage between those states expecting to approve a measure and actually approving a measure differed by at least 19 points.

Approved Measures for Postsecondary Vocational Education

Again, most of the measures reported by the states were approved for use in 1993. However, some of the measures were approved for use after 1993. Iowa and the Virgin Islands reported that they had not yet approved standards for postsecondary vocational education programs. Information concerning postsecondary measures for Georgia and Arkansas was unavailable. Therefore, information from these areas was not included in this report. The number of performance measures approved for postsecondary vocational education ranged from two to sixteen and averaged eight. A total of four states did not report having any basic or applied academic skill measures approved for their postsecondary programs.

Table 3
Comparison of Expected and Approved Measures (Secondary)

Measure	Expected %	Approved %
Mathematics	94	85
Reading	92	80
Science	79	35
Graduation	82	50
Completion	82	46
Work Skill[a]	84	72
Related Placement	94	46
Any Placement	80	61

[a]Defined as Occupational Competency in Hoachlander and Rahn (1992).

Academic Skills

The information presented in Table 1 identifies the areas for which states have approved measures of learning and competency gains in academic skills for postsecondary vocational education programs. These academic skills include two types: basic and advanced. For purposes of this report the academic skills were classified as either reading, language, mathematics, science or "other". Nineteen states were using the same set of measures for both basic and advanced academic skills. The remaining 35 states were using different sets of measures for basic and advanced academic skills.

Basic academic skills. The area that states most often had approved as a measure of basic academic skills (see Table 1) was mathematics (56%). This was followed by language (54%), and reading (48%). Science was reported being used as measures by 15% of the states. A total of 50% of the states indicated that they had approved an "other" measure of basic academic skills for their system of standards and measures of performance. Examples of "other" basic academic skills for postsecondary vocational education included the following: course completion, social studies, and thinking skills.

Advanced academic skills. Table 1 also reports the areas in advanced academic skills that were reported approved for postsecondary vocational education in each state. In the advanced

academic skills area, 48% of the states reported they were using performance measures related to mathematics and 44% reported using measures related to language. Approximately one-third (30%) of the states were using measures in the reading area. Only eight states (15%) were using performance measures related to science. A total of 44% of the states reported using performance measures related to other advanced academic skill areas. This "other" category included measures such as: problem solving, higher order thinking, and interpersonal relations.

Other Measures of Performance

The information in Table 2 presents information on other measures of performance that had been approved by the states for their postsecondary vocational education programs. The other measures of performance were similar to those presented for secondary vocational education and included: competency attainment, work skill attainment, program completion, placement, percent served, and gender mix. These performance measures are discussed below.

Competency attainment. States tended to define competency attainment as the development of employability skills. Only one-third (33%) of the states reported that they had approved competency attainment performance measures for postsecondary vocational education programs.

Work skill attainment. This area was generally defined by the states as including measures of the extent to which students had developed specific occupational skills. Approximately two-thirds of the states (63%) reported that they had approved this type of a performance measure.

Program completion. States tended to refer to program completion as a measure of the ratio of students who initially enrolled to those who met the requirements/outcomes of the program. Nearly three-fourths (70%) of the states reported having approved this type of performance measure.

Placement. Two types of placement rates were reported by the states: related placement and any placement. Related placement referred to individuals who had obtained employment in an area

closely related to their area of education and training. Any placement referred to obtaining any type of job after completing a program of studies. Approximately one-half (48%) of the states reporting using related placement as a performance measure. Fifty six percent of the states reported using any placement as a performance measure. Ten states reported using both types of placement as performance measures. A total of 88% of the states reported using either related or any type of placement as an approved performance measure.

Percent served. This performance measure referred to the percent of the special population students that were enrolled in postsecondary vocational education programs. Slightly more than one-half (56%) of the states reported that they were using this type of performance measure.

Gender mix. Gender mix referred to the percentage of male and female students who were enrolled in these postsecondary vocational education programs. Slightly less than one-third (31%) of the states indicated that their system was using this type of measure.

Comparison of Expected and Approved Measures

A comparison of the findings of this study of approved measures with those of the earlier Hoachlander and Rahn (1992) study of expected measures for postsecondary vocational education is contained in this section. The differences between these two studies was specified earlier and are not presented again in this section. The results of this comparison of measures for postsecondary vocational education are presented in Table 4. For all measures, there were no instances in which the percentages of expected measures were within 20 points of the approved measures.

Table 4
Comparison of Expected and Approved Measures (Postsecondary)

	Expected	Approved
Measure	%	%
Mathematics	70	56
Reading	68	48
Science	49	15
Completion	92	70
Work Skill*	84	63
Related Placement	96	48
Any Placement	83	56

*Defined as Occupational Competency in Hoachlander and Rahn (1992).

Conclusions

Based on the findings presented in the previous section, a number of conclusions have been developed. These conclusions are presented in this section.

In nearly every state, systems of core standards and measures of performance for secondary and postsecondary education had been approved and implemented in accordance with the requirements of Section 115 of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. Only two states had not yet had their system approved and were unable to provide the researchers with their approved measures for secondary vocational education. At the postsecondary level, information was not available from four states. For most of the measures, there was nearly a 20% difference in the number of states who had earlier indicated they expected to use a measure (Hoachlander and Rahn 1992) and the number who had actually approved that type of measure.

State systems tended to have more measures approved for secondary vocational education than for postsecondary vocational education programs. The average number of performance standards that had been approved for secondary vocational education programs was 10. An average of eight performance measures had been approved for postsecondary vocational education programs.

The performance measures listed in the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 were

generally accepted by the states. Of the measures of performance included in the Carl D. Perkins Vocational and Applied Technology Education Act of 1990, only competency attainment had been approved by less than 50% of the states.

States have taken seriously the requirement that measures of learning and competency gain, including student progress in the achievement of basic and more advanced academic skills be included in their systems. Academic skill measures were approved more often for secondary vocational education programs than they were for postsecondary vocational education programs. Mathematics and reading were the most frequently approved basic and advanced academic skill measure for secondary vocational education programs, followed by language measures. Science measures were approved least often as secondary vocational education academic skill measures. For postsecondary vocational education, mathematics and language were the most frequently approved basic and advanced academic measures followed by reading measures. Science measures were also approved least often at the postsecondary education level.

In addition, states have responded positively to the requirement that one or more measures of other performance be included in their system of core standards and measures of performance. At the secondary vocational education level, work skill attainment measures were reported as being approved most often. The next most frequently approved measures dealt with placement of any type, followed by program completion, and high school graduation. For postsecondary vocational education, program completion measures were approved most often. The second and third most often approved measures were work skill attainment and placement of any type, respectively.

More than one-half of the states reported measures for both secondary and postsecondary vocational education which addressed the extent to which they were serving special populations. In some cases, it was not obvious as to whether or not special population measures could be obtained from the state's records.

Specific measures related to the gender mix of individuals served by vocational education were not widely used by the states.

Approximately one-third of the states had approved measures of gender mix for both secondary and postsecondary vocational education programs.

Attempts to compare performance standards and measures across the nation, as suggested by Office of Technology Assessment (1989), will prove challenging due to the diverse nature of the approved measures and standards currently approved by the states. Differences in types and number of approved measures are not only apparent from state to state, but also between secondary and postsecondary programs.

Recommendations

The requirement that states develop a system of standards and measures of performance for secondary and postsecondary programs is new in vocational education legislation. This initial experience should be monitored in order to see how future policy initiatives related to these measures and standards might be improved. The following specific recommendations are offered:

1. This study relied on reviewing and analyzing existing documentation. Information also should be collected regarding the rationale states used in selecting their measures.

2. The strengths and weaknesses of the various measures of performance should be assessed in order to determine their relevancy for future use. Additionally, the validity and reliability of these measures should be established.

3. States should critically review their approved system of standards and measures of performance in order to identify the major facilitators and barriers they have encountered in developing and implementing them. Information also should be collected regarding how states offered incentives and made adjustments to encourage service to targeted populations.

4. Efforts should be made to determine how the state approved measures and standards compare with business and industry standards.

5. Further research on the standards should be conducted to identify the type and level of standards employed by the states.

Summary

Vocational education has been concerned with evaluation for many years. At the national level, vocational education legislation has included emphasis on evaluation since the passage of the Vocational Education Act of 1963. The inclusion of requirements for a state system of performance measures and standards in the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 continued this emphasis. This study examined those systems in early 1993. These performance measures and standards should continue to be monitored as they are further refined and developed. This information is needed to provide information for improving how vocational education programs are evaluated and guiding future policy initiatives, such as the reauthorization of future vocational education legislation.

References

Anderson, S. A. & Ball, S. (1978). *The profession and practice of program evaluation.* San Francisco: Jossey-Bass.

Apling, R. N. (1989). *Vocational education performance standards* .Washington DC: Congressional Research Service.

Butler, E. P. (1988). *The search for the bottom line in vocational training: What lessons are offered by the job training partnership act?* Washington DC: National Assessment of Vocational Education.

Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 (Public Law 100-392) Section 115. (1990). Washington, DC: U.S. Congress.

Commission on Skills of the American Workforce. (1990). *America's choice: High skills or low wages!* Rochester, NY: National Center for Education and the Economy.

Dickinson, K. P. & West, R. W. (1988). *Evaluation of the effects of JTPA performance standards on clients, services, and costs.* Washington DC: National Commission for Employment Policy.

Ewell, P.T. (1988). Outcomes, assessment, and academic improvement: in search of usable knowledge. In J.C. Smart (Ed.). *Higher education: Handbook of theory and research Vol 1* New York. Agathon Press.

Federal Register. (August 14, 1992). *State vocational and applied technology programs and national discretionary programs of vocational education; final rule.* (34 CFR Part 400). Washington DC: Government Accounting Office.

Frazier, F. (1991). *Amending the job training partnership act: Inadequate oversight among issues that need to be addressed.* Washington DC: Government Accounting Office.

Hill, P. T. & Bonan, J. J. (1991). *Decentralization and accountability in public education.* Santa Monica, CA: RAND.

Hoachlander, E. G. & Rahn, M. L. (1992). *Performance measures and standards For vocational education: 1991 survey results,* Berkeley, CA: National Center for Research in Vocational Education.

Hoachlander, E. G., Levesque, K. & Rahn, M.L. (1992). *Accountability for vocational education. A practitioners guide.* Berkeley, CA: National Center for Research in Vocational Education.

McCaslin, N. L. (1990). *A framework for evaluating local vocational education programs.* (Information Series No. 344). Columbus, OH: Eric Clearinghouse on Adult, Career, and Vocational Education. (ERIC Document Reproduction Service No. ED 327738).

National Commission on Excellence in Education. (1983). *A nation at risk.* Washington, DC: U.S. Department of Education.

Office of Technology Assessment. (1989). *Performance standards for secondary school vocational education.* Washington, DC: Author. (ERIC Document Reproduction Service No. ED 313 591).

Scriven, M. (1991). *Evaluation Thesaurus.* Newbury Park, CA: Sage.

Secretary's Commission on Achieving Necessary Skills. (1991). *What work requires of schools. A SCANS report for America 2000.* Washington, DC: U.S. Department of Labor.

Secretary's Commission on Achieving Necessary Skills. (1992). *Learning a living: A blueprint for high performance*. Washington, DC: U.S. Department of Labor.

Special Study Panel on Education Indicators. (1991). *Education counts*. Washington, DC: National Center for Education Statistics.

United States Department of Education. (1991). *America 2000: An education strategy*. Washington, DC: Author.

White, B. (1990). *Vocational education effectiveness indicators*. Honolulu: University of Hawaii. (ERIC Document Reproduction Service No. ED 324 468).

William T. Grant Foundation Commission on Work, Family and Citizenship. (1988). *The forgotten half: Pathways to success for America's youth and young families*. Washington, DC: Author.