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ABSTRACT

This second volume in a four-volume study of industry- and education-driven skill standards in the United States and other countries contains information on how the individual states have been involved in the development of skills standards related efforts. Section A presents information regarding how nine states--Arizona, Florida, Georgia, Idaho, Illinois, Kentucky, Ohio, Oklahoma, and Oregon--have approached the challenge of development of a skills based education system. Topics covered in these summaries include historical development, general information, overview of the system and program, management issues and administration, financing, levels of certification, barriers, assessment, instructional approaches, and partnerships. Section B provides an inventory on efforts in 40 states and the District of Columbia to move forward the education/industry collaborative efforts to provide the necessary skills based education. For each state, the address and name of a contact is followed by descriptions of state leadership in occupational skills standards and related processes, assessment and certification processes, financing occupational skills standards and related activities, and usage of occupational skills standards. Appendixes include the following: a step-by-step explanation of how the current Vocational-Technical Education Consortium of States process can be modified for application to the identification and validation of national standards; illustrative examples of skills standards developed in 12 states; and survey instrument. (YLB)

EDUCATION DRIVEN SKILL STANDARDS SYSTEMS IN THE UNITED STATES

VOLUME II

THE INSTITUTE FOR EDUCATIONAL LEADERSHIP
Center for Workforce Development

VOLUME II

EDUCATION DRIVEN SKILL STANDARDS SYSTEMS IN THE UNITED STATES

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THE INSTITUTE FOR EDUCATIONAL LEADERSHIP

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Ms. Joan Wills, of the Institute for Educational Leadership served as the Principal Investigator for the project. She also had the lead responsibility for researching the industry based skill programs, providing an overview of the quality assurance organizations, preparing the case study of the United Kingdom, contributing to the case study of Australia, and providing the overview of other countries skill standards systems.

Evelyn Ganzglass and Martin Simon of the National Governors' Association contributed to the effort through review of materials and writing descriptions of industry based skill certification programs. In addition NGA shared with the study team the results of a companion study of nineteen states that are actively involved in the development of skills standards. Dr. Robert Sheets, a consultant to NGA conducted one of the in-depth studies of an industry based credentialling program and provided the case studies of Japan, Denmark and Germany. Mr. Larry Good, a consultant to NGA wrote the executive summary for the study.

Ed Davin of Meridian contributed by writing descriptions of industry based skill certification programs, Dr. Ronald Bird, of Meridian, had responsibility for organizing the information of industry skill standards programs to assess the extent of coverage of the programs within the total workforce. Dr. Eric Rice, of Meridian, had the lead responsibility for the literature search of job analysis and assessment issues, providing one of the case studies of an apprenticeship program, and the case study of Canada and Australia.

Ms. Madeline Hemmings of National Vocational Technical Foundation contributed the materials collected by the Foundation's fifty state survey of education driven skill standards initiatives as well as reviewing materials. Ms. Barbara Border, a consultant to NVTF, had the lead responsibility for preparing Volume II of the report, preparing the summary of chapter regarding education driven skill standard systems, providing the literature review of skill standards in the military, and the use of the DACUM type job analysis in education skill standard programs.

Each organization contributed technical support to the production of the Volumes and the study team is appreciative of the work of many people. A special thanks goes to Louise Clark of the Institute of Educational Leadership, without her help in numerous ways this project would not have been possible.

This four volume study of Industry and Education Driven Skill Standards Systems in the United States and Other Countries was prepared under the direction of Debra Nolan, Office of Vocational and Adult Education of the Department of Education.

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INTRODUCTION

This Volume contains information on how the individual states have been involved in the development of skill standards related efforts.

Section A presents information regaring how nine states have approached the challenge of development of a skills based education system. They are featured to show the range of approaches at the secondary and postsecondary levels of education. These states have contributed substantial efforts to the development of improved curriculum, establishment of formal processes to involve industry in the design of program, and in some cases substantial effort has been made to improve the assessment techniques.

Section B provides an inventory on all of the states efforts to move forward the education/industry collaborative efforts to provide the necessary skills based education.

Appendix A provides a step by step explanation of how V-Techs manages the process to identify and validate national standards.

Appendix B shows illustrative examples of skills standards developed in 12 states.

Appendix C is a copy of the NATVEF Survey instrument.

The material contained in this Volume was developed and analyzed by the National Vocational Education Foundation (NATVEF) affiliated with the National Association of State Directors of Vocational Education. The NATVEF conducted an indpendent survey of each of the fifty states in the fall of 1992 that was used as the basis of material that appears in this report. Ms. Barbara Border, through the offices of NATVEF, had the lead responsibility for analyzing the results of the survey and preparing this volume.

A. SELECTED EXAMPLES OF STATES WORKS IN PROGRESS

ARIZONA

Historical Development and General Information

Arizona is a fast growing state with an increasing population of both retired and working-age groups. The principal industries are tourism, light manufacturing, service occupations, and health occupations. Arizona is a right-to-work state and is considered by many out of state businesses to be a low-skill, low-wage state. Arizona is striving to change this image. Changes in Arizona's vocational education programs have been influenced by state government, local business interests, the Department of Education and the federal government.

Overview of the System and Program

Arizona's Vocational-Technological and Occupational Education programs are substantially controlled by local governing boards and are influenced by the Arizona Department of Education and the State Board of Directors for Community Colleges through external funds provided by the State of Arizona and the Carl D. Perkins Act of 1990.

Secondary schools and districts utilizing funds channeled through the Arizona Department of Education sign a statement of assurances that they will comply with the policies, rules and regulations from the State Board of Education and the Carl D. Perkins Act. Community colleges have considerably more autonomy in that fewer requirements are attached to funds they receive.

In 1981, the state legislature passed a law that defined levels of vocational education and delegated responsibility for delivery to begin in secondary schools, continue in community colleges, and to be supported by research activities in universities. This same legislation required articulation between secondary and postsecondary education to eliminate duplication of programs and to require joint planning between secondary and postsecondary institutions. In addition, it also provided for the development of a list of priority programs and skill competencies for these programs at the secondary level. Further, an appropriation was made for vocational education based on enrollment and extra cost factors involved in offering vocational education.

The primary purpose of the state's secondary vocational-technological education programs is to prepare students to enter a changing work force. The postsecondary, community college programs have the additional purpose of retraining members of the existing work force.

Management Issues and Administration

Since 1987, vocational education in the State of Arizona has been directed by committees of business, industry, and education. The committees were established by the Arizona Department of Education, Division of Vocational/Technological Education; and they developed Arizona's Model for Vocational-Technological Education.

The Model for Vocational-Technological Education is comprised of four linked and articulated levels of instruction and was designed to address two primary issues:

1. Students need to develop academic and technical skills that will prepare them for an ever-changing work place.

2. Students need to stay in school, complete a coherent sequence of instruction, graduate, and have the opportunity to continue their education, in order to benefit from the instructional program.

The four levels of the Arizona model allow students to begin with a broad view of occupational opportunities, and focus on more specific occupations as they progress. This concept provides a realistic career decision making process through which students gradually narrow their career focus while they develop occupational skills.

During the early design of the model, it became clear that certain general outcomes would need to be integrated throughout the four levels to meet the needs of the changing work place.

Six strands were developed to categorize these outcomes:

1. Thinking skills: decision making, problem solving, creativity and dealing with change;

2. Career development skills: career exploration, career decision making and job acquisition skills;

3. Applied academic skills: communications, mathematics and science related to technical areas;

4. Life management skills: in relationship, wellness, group process, health and safety;

5. Business, economic, and leadership skills: business economics, entrepreneurship, marketing procedures and continuous improvement processes; and

6. Technology skills - computer skills and applications of new and advanced technologies.

The strands are integrated into the curriculum with a greater emphasis in Level I and a lesser emphasis in Level IV. Level I is designed to provide a technological foundation in exploratory classes in grades 7-9, integrating technology with academics and occupational exploration in virtually all occupational areas.

Level II provides core academic and technical competencies and is designed for grades 9-10. It provides instruction in occupational clusters integrating technology, academics, and broad occupational skills.

Examples of such clusters are:

1. Biotechnology
2. Industrial technology
3. Human services technology
4. Information technology
5. Business management technology

Level III is preparatory vocational-technological education and is designed for grades 11-12. The instruction in this level is organized around six occupational program areas :

1. Agricultural education
2. Business education
3. Health occupations education
4. Home economics/life management education

5. Marketing education
6. Trade and industrial education

Level IV is the tech prep program authorized by the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. In 1990, the Arizona Tech Prep Task Force was jointly designated by the State Board for Vocational and Technological Education and the state Board of Directors for community colleges. Nearly all Arizona community colleges and most of the secondary institutions are implementing the Level IV Tech Prep program.

Since the Arizona legislature mandated the creation of skill competencies for its vocational-technical education program, 70 lists have been developed and validated. These lists are primarily used in the development of competency-based curriculum. The Arizona Department of Education, Vocational Education is currently focused on updating the existing competency lists for its priority vocational-technical education programs. Priority is based on projected labor market demand. The department is involved in implementing NATEF standards.

The program competencies are organized around both industry and occupational clusters. The V-TECS process was used to develop these competencies, and then they were validated by supervisors and workers from the appropriate industry. In addition, teachers and curriculum developers were involved in the competency development process.

The Department of Education Program Improvement Unit, a division of Vocational-Technical Education, is responsible for maintaining and updating the program competencies. Originally, competencies were reverified every three to five years. Reverification now occurs as needed, depending on a priority designation and the availability of funds and personnel.

The primary source of funding is the Carl D. Perkins Act of 1990, with an annual budget of approximately $800,000 for all competency development and maintenance activities.

Arizona has been involved in skill standards and certification activities for 10 years. The state is concurrently doing curriculum development, piloting and implementation, strategies for program maintenance and financing. Arizona sees its curriculum and implementation effort as a continuous improvement process.

The state has competency lists for each of the following programs:

Agricultural Business and Management
Agriculture Mechanics
Horticulture
Accounting and Computing
Administrative Support
Physical Therapy Aide
Clinical Lab Helper
Dental Assistant
Nursing Assistant
Practical Assistant
Child Care and Guidance
Clothing
Food Production, Management and Services
Institutional Home Management

General Marketing
Radio and TV Production
Masonry
Carpentry
Electrical Trades
Plumbing
Industrial Electronics
Heating, Air Conditioning and Refrigeration
Aircraft Mechanics
Graphic Arts
Machine Shop
Welding
Cabinetmaking
Construction Equipment Operator

These competency lists were developed by taking V-TECS and other business and industry occupational task lists and then converting the task lists to competency lists. The state differentiates competencies from task lists as follows:

Task: A task is an observable work place activity involving one or more steps, with a standard of acceptable performance that can be described and assessed.

Competency: A competency is an educational "construct" or "concept," an abstraction derived from a work place knowledge, skill, or attitude requirement. Acceptable performance is not always directly observable, and assessment of competence may require demonstration of knowledge in classroom settings. The activities or "competency indicator" to be performed must be defined for developing instruction and assessment of competence.

Levels of Certification

There is some form of student performance assessment in every school district. However, there is no statewide standardized method of occupational competency assessment. Local districts are using combinations of paper and pencil tests, performance-based assessment, and instructor assessment to determine student achievement. Final decisions related to assessment are the responsibility of local instructors and administrators.

Worker certification is not linked to vocational education competencies or agencies. In Arizona, the only occupations that are certified by a governmental body are those requiring licensure, such as real estate, nursing, and cosmetology. Some other certifying processes are associated with labor unions.

Barriers

Local control and site-based management are seen as barriers to implementing uniform standards across all school districts. The Division of Vocational-Technological Education in the Arizona Department of Education plans to create an electronic database that will identify curriculum materials that support validated

competencies. The department is considering developing a policy to take to the State Board of Vocational-Technical Education for approval that would link the local use of competencies to state funding.

Consistency of definitions and of development and implementation processes is essential for any new system now being developed. The new systems also must have high utility to users and low implementation and maintenance costs. High utility for a local education agency means students are being hired, advancing more quickly, or are better prepared for the next education step as a result of instituting standards. It is crucial that employers support the standards and demonstrate their support by giving preference to program completers.

Instructional Approaches

Although statewide policy for vocational-technical education in Arizona includes competency-based education as the criteria for instructional programs, many districts may have implemented this to a very limited degree.

The Arizona Board of Education recently established a policy which allows secondary schools to grant required academic credit for some specific vocational programs. Currently, there is little movement by local school districts to utilize this policy. In addition the state board passed a policy allowing schools to grant credit based on outcome-based, authentic assessment in lieu of the traditional Carnegie unit. Similarly, there is no evidence that any Arizona school districts are planning to use this policy.

FLORIDA

Historical Development and General Information

The state of Florida started skill standards with business and industry in the late 1970's. Business, agricultural, health, and industrial occupations were the first in which standards were adopted. The standards were used to develop curriculum and criteria for student assessments. In addition, the standards were also used for program review and instructional material development.

Since 1984, Florida has been developing programs with competencies, outcomes and performance standards with the assistance of business and industry. Florida revised its process for developing programs in response to criticism from employers indicating that the Florida education system was not producing sufficient numbers of competent workers. The Florida Commission on Vocational Education in 1986 made the following recommendations:

1. Business advisory committees should be mandated prior to program approval (committees shall remain functional throughout the life of the program).
2. The commission recommends the linkage of all local, regional, and state advisory committees.
3. The organization, operation, and utilization of advisory committees must be included in the job description of vocational-technical administrators and instructors.

4. The proper and adequate use of advisory committees shall be reviewed regularly by district school board/boards of trustees.

Advisory committees can contribute to vocational, adult, and community education in at least eight ways:

1. Assessing occupational requirements
2. Recruiting students
3. Evaluating curricula and instructor competence
4. Placement
5. Providing cooperative work experience for students
6. Evaluation of equipment and facilities
7. Identifying community resources
8. Fostering public relations

The commission recommends the occupational competence of each teacher shall be systematically reviewed annually by the appropriate advisory committee.

Overview of Existing System, Courses of Study, and Level of Certification

In 1988 the state initiated a process for involving employers in defining competencies required to succeed in entry level jobs and to advance a to higher level job. They created the Partners in Program Excellence (PIPE) to develop program standards leading to program and curriculum development.

This program is based on the concept that most programs train people for several occupations within an occupational cluster. Within that cluster are a core set of competencies that a person must learn. The goal was to identify core competencies and design programs and curriculum that resulted in students achieving these competencies.

The electronics program was the initial program to utilize the process of developing competency standards. The process first identified "state-of-the-art" competencies from various sources such as V-TECS and lists borrowed from other states. A task force of front line workers and managers from the electronics industry worked with the material to identify a core set of program competencies. Based on these competencies the program was developed and training system specifications were determined and used to purchase training system packages from commercial vendors. The training systems are field tested and evaluated before they are implemented state wide.

An annual evaluation system has been set up to revalidate the competencies and the training systems using an evaluation team composed of industry representatives. Florida determined priority occupational areas to be considered the first Center of Emphasis programs.

The occupational areas in the Center of Emphasis are:

1. Agribusiness
2. Electronics
3. Automotive
4. Health

Each of these specialized efforts was done with heavy involvement from industry partners. PIPE has progressed through several developmental stages. First was the development of core competencies to drive the design of programs and curriculum, then identifying and setting program standards through industry task forces, and lastly developing program curriculum based on these standards.

Program competency standards have been developed for the electronics programs and several related areas such as telecommunications, autotronics, and laser-electro optics. Standards have also been developed for programs in automotive technology, automotive collision and culinary arts.

The standards have been implemented in 39 community colleges and area vocational centers. All of the secondary schools are also applying the standards with only six to eight schools purchasing and utilizing the teaching systems.

Management Issues and Administration

The key partners include local agencies, area Vocational Centers, community colleges, and the vocational-technical advisory groups for local programs. The educational organizations primary role has been to review the competencies after they have been developed by the industry task groups and to develop programs locally to meet the needs of local industry.

Florida has developed state level technical committees in for the following areas:

1. Technology Education
2. Special Needs
3. Public Service Education
4. Marketing Education
5. Industrial Education
6. Home Economics Education
7. Health Occupations Education
8. Diversified Occupations Education

These committees have members from business and industry and ex-officio members from education. Representatives of special populations are present on all committee and curriculum content is reviewed by these committees.

The program competency standards were initially developed for programs offered at the community colleges and area vocational centers, which are postsecondary certificate and
degree granting institutions, to prepare postsecondary students for entry level jobs and to retrain and upgrade existing workers for more advanced jobs. The standards are now required in secondary schools with the intent of preparing students for entry level jobs or more advanced training in the postsecondary system.

For the occupations covered in the Florida system, program competency standards have been developed and are being implemented. For those institutions that have purchased the teaching systems, assessment procedures and instruments are part of the system. Secondary systems, most of which have not

purchased the systems, assessment is handled by the instructors. The system does not have an individualized certification system in place for awarding credentials to students at the completion of a program of study.

The Florida Department of Education plans to maintain its current level of effort in developing standards and expanding consortium and business and industry partnerships.

The Florida system does not have worker certification program in place that awards graduates from the occupational programs with credentials. Some specific industries award credentials through a testing and credentialing process. Florida has developed a "working transmittal document" called a *Career Map* that is required statewide. Each student completing a program leaves with a Career Map that documents what courses were covered and the competencies gained in each course. Student are able to take their Career Map to any receiving school in the state as their student record. It's also accepted by some employers as a resume.

Assessment

Assessment of the overall program is an important aspect of the Florida system. Business and industry groups are utilized to conduct this assessment.

Assessment of student performance takes place in the form of pencil and paper tests, performance-based assessments, on-the-job assessment by the supervisor and instructor assessment. In the purchased systems, the assessment process is built into the training systems. These systems provide lesson plans and the student tests. Student progress is generally reported through report cards.

Industry people in Florida have expressed a concern that the assessment process varies too much between institutions. They appear to favor an assessment system outside the educational system to insure a more objective process.

There is full articulation of common course competencies between the secondary school programs and the community college and area vocational center programs without loss of credit for course-work completed at the secondary level.

Most of the secondary and postsecondary districts use at least two of the skill standards and most articulation agreements utilize the standards.

Barriers

One of the major issues in Florida is determining a way to prioritize which program to focus on with their limited resources. There is competition between programs to receive a high priority. The process of developing standards is slow and requires regular updating. Some of the instructors have demonstrated a resistance to change and present a barrier to complete implementation of the completed standards.

GEORGIA

Historical Development

Georgia's efforts to redesign curriculum began more than five years ago. The state developed an industry certification system for secondary and postsecondary technical institutions. Characteristics of the system include:

1. A voluntary system;
2. Quality programs to meet employer needs;
3. Initiation by state educational agencies, with little involvement of other government agencies;
4. Involvement of employers and industry associations; and,
5. Involvement of labor in verifying skill competencies and occupational areas

In 1985, Georgia created a new agency to address the postsecondary vocational education programs. A Board for Vocational-Technical Education at the postsecondary level was formed and was to consist of business and industry representatives. A task force of over 2,000 business and industries were asked how to improve the vocational-technical product. From the group came a strong support base from business. Today, the postsecondary program consists of 100 programs. Fifteen to 20 programs per year have been added.

The business committee was established with 15 individuals from the executive level. This was the beginning of a series of activities which created working committees with incumbent workers to review task lists and validate new tests.

The Georgia postsecondary agency used a modified DACUM approach, or structured group interviews, to verify task tests.

The first product became the task lists. A third committee then was formed of educational representatives of business to develop program standards.

The results are that all 100 programs at 32 facilities are using the task lists and program standards created by businesses and educators as their minimum standards.

Overview

Nine general standards were developed for the system and were first used in developing the print education program. These program standards include:

1. Establishment of a clearly stated purpose for occupational areas;
2. Administration including advisory committees, federal relations activities, certification processes, and instructional activities;
3. Learning resources utilized are to include multi-media, periodicals, student materials, libraries, etc.;
4. Program budget resources were identified to support program;

5. Student services including counseling, job placement, follow-up procedures, and legal requirements;
6. Instruction including program plan, student training plan, curriculum, personal standards, work habits, student progress, ethics, testing, evaluation, and applied learning;
7. Equipment requirements for program;
8. Facilities appropriate for program; and,
9. Instructional staff in-service and pre-service requirements.

Industry certification system covers nine occupational areas in auto mechanics, construction trades and graphic arts. Auto body, forestry/horticulture, marketing, business education and home economics have been added since starting. Materials are being piloted in three curriculum areas this year. Standards have been completed and competency-based curriculum, staff development, student assessment is completed. Georgia is now working to develop credentials in each occupational area that are validated/accepted by industry.

The process as they have described it takes about three to five years per occupational area to develop and implement. When tasks include problem-solving and decision-making, then V-TECS can be an effective tool in helping students to achieve mastery of competencies while preparing for work. Purposes identified and common to all programs include:

1. Development of quality programs meeting employer needs;
2. Provision of a basis for curriculum development;
3. Recognition of skills obtained outside of the formal educational system;
4. The development of schools to work transition skills; and,
5. The development of career paths for students.

At present the state has ten schools that have been identified as pilot sites to utilize a systems approach to teaching and integrating vocational and academic study for career-bound students. A consortium has been established to pilot changes in curriculum, teaching methods, instructional practices and course offerings. This will bring general and vocational student achievement in mathematics, science and communication to the national average by the year 2000. These efforts are in addition to the modifications being implemented through the standards revision in the present vocational programs.

The postsecondary level provides standards with room for localization. Because both industry and education have served on the teams together, both take ownership in the system and the standards set.

The processes used in establishing tasks and skill standards include revision and update on a yearly basis. A content change is documented with industry through local programs. Six consortiums meet quarterly and determine if changes prepared in the curriculum are to be changed.

Georgia guarantees student performance. The student has up to two years to be retrained.

Prerequisites

The programs presently in operation target secondary students who move to postsecondary technical schools. It is designed to prepare secondary students for entry level jobs. At present, the system impacts less

than 25% of the secondary population. There is no grandfather clause for any program. Thus, each program must undergo the system design and development standards identified above.

Certification

Students are given instructor provided certificates of competencies achieved. In addition, some trade associations provide certification through local area testing centers. The programs are also available at the post secondary level and include a warranty clause which assures that students will be retrained if not meeting specific skill competency standards after employment. The student certification and credentialing process is still under development.

Management Issues and Administration

Once a program has been industry certified, it undergoes a major review every five years, with an interim review at two and one-half years. Education agencies must manage administrative functions, financing, and compliance with established standards.

Financing

Georgia indicated that reduced state resources have made it difficult to hire qualified administrative and instructional staff, restructure curriculum, and upgrade equipment and facilities to meet the standards identified. Costs to develop and implement the programs using pre-established standards are estimated at $60,000-$80,000 per occupational area. Resources to develop the present programs have come from the Carl Perkins funds, state funds, local school budgets, and some industry support, particularly in the trades.

Barriers

The state has indicated that oftentimes the typical student found in vocational programs do not always have the academic background to accomplish competencies required in the standards. Teachers are often required to spend valuable time teaching the needed basic skills. Additionally, the special needs students frequently enrolled in vocational programs require more instructional assistance than is generally available in vocational classes as they are now configured.

Finally, there is no mandate for certification in the current state school accreditation process or budget process. Those that prefer to keep the status quo have little incentive or disincentive to pursue industry certification. In effect, if negative attitudes on the part of teachers or other administrators toward vocational programs exist, these attitudes may be the biggest barrier toward statewide implementation.

Partnerships

Partnerships presently include the state educational agency, local educational agencies, employers, and several industry associations. Site evaluations are conducted by the appropriate industry representatives as part of the development process. This is to ensure that the programs meet industry standards.

Occupational Analysis and Assessment

The standards-setting process involves teachers working with industry representatives to develop the program standards. Educational agencies design programs to meet the industry standards. Employers and industry-related associations then certify that each program meets their standards. Schools offering the programs must also meet all state and institutional standards.

Assessment Processes

Student assessment is instructor-administered through standardized or customized paper and pencil tests. Programs also utilize performance-based assessment. The appropriate assessment methods and instruments are determined as part of the program design process for each occupational area. Industry associations also have developed curriculum, instructional guides, and assessment and evaluation tools. Some associations require that their material be used in school programs; others will accept school-developed alternatives that meet their standards for certification.

Neither schools nor industry associations assess or test students individually to measure levels of accomplishment as part of high school programs. Portfolios are used in all certified programs as an assessment tool and students may take copies of the portfolio with them to show to prospective employers. Some associations also provide a certificate for completion of an accredited program while others have association occupational tests that students might qualify to take.

IDAHO

Historical Development

The Idaho Division of Vocational Education has actively pursued the development of competency-based curriculum materials since 1982. They are using industry personnel in the development of vocational task lists. Industry representation includes management representatives, incumbent workers and trade association representatives. People who serve on the committee are nominated by local administrators and serve with the approval of their employers. All of their efforts are donated time. Reimbursement for travel and per diem is provided to the Committee members. At the initial and validation process stages, the industry representatives work with the state staff and local education representatives to develop the task lists for each program.

Purpose

The purpose of the Idaho system is to assure that secondary students are provided an education necessary to obtain a job, retain a job once employed, and advance in the occupational field of choice.

Overview

The task list for an occupational area is prepared by the industry committee which has primary responsibility for these lists. All future curriculum activities are predicated on the premise that an accurate picture of industry needs are reflected in the task list.

Instructional personnel are then selected to develop the Statewide Curriculum Guide which contains performance objectives for each task and enabling objectives for each performance objective. Statewide guides are designed as the prime outline of program content. All programs must follow the established guide in order to be approved for implementation.

Fourteen technical committee reports have been developed through the Technical Committee Process. These committees have included:

a. Industrial arts
b. Agriculture
c. Marketing education core-curriculum
d. Automotive technology
e. Applied welding
f. Farm management
g. Auto body technology
h. Industrial maintenance
i. Precision machining technology

Other areas reviewed have included:

a. Drafting and design
b. Business systems
c. Printing/graphic arts
d. Electronics
e. Dental assisting
f. Manufacturing
g. Hazardous material technology
h. Practical nursing
i. Health occupations

j. Pharmacy technician and service providers for persons with Developmental Disabilities. Several other task forces at the local level have been utilized to assess curricular needs. This has been an ongoing process.

Management Issues/Administration

Local and state funds are used to finance the vocational programs. As these funds have declined certain programs have been affected. Increased graduation requirements and attendance requirements have also affected the total level of available funds. Finally, a depressed economy, in part, has discouraged some people from entering certain programs, particularly agricultural education.

Perhaps the single most important issue is that of the relationship of declining funding and a subsequently declining enrollment. This issue has been further complicated by the addition of special interest and/or special projects to enhance vocational education, but additional funding has not been provided. The result is that the amount of resources available for established vocational programs has been restricted.

Instructional Approaches

The statewide curriculum guide is designed as the prime guide of program content. Any deviation from the guide requires approval from the respective program supervisor at the State Division of Vocational Education. This is to assure that the program meets the minimum standards for operation, based on community needs, equipment, and facilities available to the local school or institution.

The Technical Committee Report does not dictate the level of instruction, as the task list has been developed to represent the entire occupational field. Schools and institutions determine what skills can be taught and what depth of instruction can be provided. They must choose the tasks to be taught from the Technical Committee Report, but are free to determine how many or which ones can be incorporated into their program. Typical programs average 1800 hours for postsecondary or 900 hours for secondary students. Multi-period blocks of instruction are utilized in many secondary programs.

The Technical Committee Report is also used as the primary list for generating student profiles. These profiles are used as a cumulative record of each student's progress. They are printed in a folder format and have levels of performance scales for each task. Student competence is recorded for individual skills or tasks attained.

An advantage of the student profiles report is that the document becomes the main component for articulation activities if the student desires to pursue additional training or education. Another advantage is that the profile can be made available to potential employers.

State Certification

State skill certification exists for several occupational areas, including welding, printing, and PSC secretarial skills. A limited electronic certification also exists.

Barriers

There has been an emphasis on additional academic classes required for high school graduation, leaving less time for electives. Likewise, students struggling to meet the "C" average in the core curriculum and higher percentages of students dropping out of high school has resulted in significant declines in enrollment.

A decline in funding levels has greatly contributed to declines in some programs, particularly those requiring "high cost" laboratory facilities.

Partnerships

The primary partnerships are 14 advisory committees who have volunteered time to develop the task lists. These committees are an ongoing process and members continue to serve as resource persons to local education agencies. Frequently, members of the statewide committee are/have been members of local area advisory committees.

Occupational Analysis and Assessment

Statewide advisory committees, along with local education staff, develop the task lists. Other special technical assistance has included the use of materials from the National Network for Curriculum Coordination. Assessment includes local level testing and actual performance tests. V-TEC materials are also utilized as well as NATEF and other comparable industry materials.

The competency profiles, and accompanying folder, are utilized to assess competency attainment and to provide a summary report which can be utilized by business/industry and educators. Instructors rate competency attainment on a scale of 0 - no exposure through 3 - skilled, can perform independently with no additional training. These reports are available for potential employer review as part of the pre-employment process.

Instructional Approaches

Materials from Idaho are made available to instructors statewide through workshops and state staff visits. As new areas are identified to develop and/or revise, state staff and local education representatives work with the appropriate industry committees to ensure that these new materials are implemented in the vocational programs.

ILLINOIS

Historical Development and General Information

In the State of Illinois, the development of occupational skill lists was a combined effort of state staff and its curriculum director and business and industry representatives. Managerial personnel, incumbent workers, and supervisors were among those representing business and industry. The state staff was involved in both the initial lists and the validation process. The incumbent workers and supervisors were involved in both initial lists and the validation process, while the managerial levels were only involved in the validation process.

Description of System and Program

Task lists were developed utilizing business and industry representatives beginning in 1986 with the process initialized by education. The competency lists developed were used as a required base for curriculum development. The initial development of task lists did not include standards. There are task lists available for

over 150 occupations. Standards for programs involved with licensure and certification were the first to go through the process.

Illinois' initiative to set skills standards are driven by the Carl D. Perkins Act performance requirements.

Standards were first emphasized during the 1990-1991 school year. At this time efforts expanded to a review of competency lists and initial development of associated standards for verification by business and industry representatives. Eventually, assessments will be developed to determine student mastery for credentialing purposes.

Overview of Existing System

The process used to establish the associated standards included DACUM, an industry process utilizing incumbent workers, supervisors and mangers, and work place skills, position descriptions, and worker shadowing. Occupational lists from V-TECS, business and industry, apprenticeship programs, and previous state and local lists are utilized as the data base for development of associated standards.

The occupational skill task and competency lists are being developed for curriculum development, guidelines for courses and programs, and in the future, certification for Mastery.

Courses of Study

Occupation and industry technical committees exist for the following occupational areas:

Occupational Area	Status
Information processing	Verification occurring
Food service	Verification occurring
Electronics	Verification occurring
Nursing	Verification occurring
Workplace Skills	Assessment development
Horticulture	Task list developed
Child and day care	Task list developed
Business ownership/mgmt	Task list developed
Rehabilitation services	Task list developed
Transportation	Task list developed

Management Issues and Administration

Financing for the standards development process is primarily from federal vocational funds with some support from state funds for CNA-IDPH licensure and certification exams. The state of Illinois is committed to use funds under its control for ongoing maintenance of the occupational skill task and competency lists. It will use the V-TECS consortium to acquire business and industry validated skills, tasks, and competencies.

The state's view of future occupational skills development involves expanding the level of effort, expanding consortium development, and expanding business and industry partnerships.

Users of the occupational task and competency lists include:

State staff

Local district administrator

Local district instructors

Postsecondary/community colleges (limited)

Job Training Partnership Act Programs (limited)

New emphasis is on expanding business and industry partnerships to obtain support for the system.

Most secondary district now use at least two of the task lists developed with both business and industry. Some of the postsecondary districts use at least two of the task lists. Articulation agreements between secondary and postsecondary programs use the task lists when appropriate.

Since 1986, local programs have been required to use competency lists for program and curriculum development. These lists were developed at the state level, validated locally and service as the foundation for curriculum. Current updating efforts will expand upon the existing task lists focusing on core competencies and associated stand identification utilizing business and industry representatives and associations across the state.

Major emphasis is focusing on business and industry partnerships at the state and local levels.

In September, 1992, the state legislature enacted SB 969, the Occupational Skills Standards Act. This act created a nine member standards and credentialing council to advise the state board of education on the development of standards and credentialing systems.

The council is made up of representatives of business, industry and labor. Its primary responsibility is the identification of occupations for which standards need to be developed. If available, nationally developed standards can be verified.

The legislation directs the state board of education in conjunction with business, labor, and other agencies to establish statewide academic, technical, and general employability skill standards for training occupations. Additionally, it establishes a credentialing system for certifying individuals' skills against these standards, publish these standards, and promote the voluntary use of the standards and credentialing systems in training programs.

The development of these standards is to be coordinated with other state and national efforts to avoid duplication and promote consistency among states.

Levels of Certification

Certification processes exist for all occupations requiring licensure and certification. The Department of Professional Regulations is responsible for the certification process. The state is moving towards an involvement of local education agencies in the certification process.

Assessment are not currently available at the state level. Developmental efforts are under way in the area ow workplace skills. This assessment process will include paper and pencil tests and performance items.

While assessments are not currently available, occupation competence will include evaluation of related applied academics, employability and technical skills. Development of the assessment process will take place over the next several years, with a planned implementation in the spring of 1994.

KENTUCKY

Historical Development

The state of Kentucky began working with industry and skill standards in the mid 1970s. Educators approached industry to develop and adopt standards for occupational areas, curriculum, and assessing student mastery at the postsecondary level. The competency-based curriculum has been accepted as the curricular foundation for postsecondary schools statewide. Some secondary schools and area vocational centers have informally adopted some of the skill standards and materials that are in use. Essential to the process is that the task lists are utilized in each program and that postsecondary completers must meet the standards.

Existing System

The existing system utilizes occupational task lists which have been developed for the Division of Adult and Technical Education and the Kentucky Tech System of schools. The lists are a combination of information from V-TECS and other state and local competency lists. The purpose of the system is to ensure that sound, realistic vocational-technical programs are provided. It assumes that if students are taught the knowledge, skills, and attitudes of specific occupations, they will enter the work place as competent employees. The task lists that are utilized are all coded to the appropriate Dictionary of Occupational Titles codes which helps ensure that students can relate the instructional goals to their individual employment goals.

Task lists are utilized by instructors to develop course syllabi. Students are evaluated for proficiency in the tasks through a statewide testing system called the Kentucky Vocational Achievement Test (KVAT) for diploma level programs. In effect, the task lists are utilized as the basis for curriculum development and provide guidelines for development of courses, programs, and the design of instructional programs.

Prerequisites

Courses of study are utilized in business technology, graphic communications, construction technology, health and human services, manufacturing technology, resource development technology, and transportation technology.

Within these various areas, several new courses of study are currently being developed or revised. This includes materials for commercial art, building maintenance, paramedical and pharmacy technology, upholstering, machine tool and die technology, aircraft maintenance technology, auto body repair, and small engine repair.

Certification

Kentucky utilizes a task-based, competency-attained approach for postsecondary programs. Students are evaluated for proficiency in the tasks by the Kentucky Vocational Achievement Test which is administered by local districts. Tests are scored by the state, and results are forwarded to students and their respective schools. All tasks are expected to be mastered by each student. Mastery certification also is the basis for a Guarantee Policy that is utilized by Kentucky.

State skill certification process exists for automotive technician (ASE) and in health occupation areas. All students must pass the KVAT exit tests. The State Vocational-Occupational Education Agency certifies attainment through certificates of mastery which are provided to students and the appropriate postsecondary institution.

Management Issues

In interviews conducted with Kentucky educators, it became apparent that the on-going strength of the competency-based, mastery approach is that there is strong support for the development and implementation process from all entities. Critical to that process is the companion process of updating and keeping the task lists current. Reduced staff at the state level has hindered this process somewhat since these staff members are responsible for reviewing, editing, and compiling any suggestions made by industry.

Barriers

Other than staffing shortages, no apparent barriers were noted.

Extent of Coverage

Task lists, mastery level testing, and certification processes are utilized by all postsecondary institutions, at both the diploma and non-diploma level programs.

Partnership Roles

Development of the task lists has been a collaborative effort of industry representatives, local districts, and the Kentucky Division of Vocational Education. Once the lists are developed, state staff provides the primary review and organization of new or revised materials. The accompanying task assessments are revised as necessary.

Local district personnel, specialized advisory committees, business and industry, and local educational agency personnel have formed an ongoing partnership to ensure that the task lists are kept current.

Occupational Analysis and Assessment

The standards setting processes involved a cooperative effort of local and state education representatives working with local industry groups. Several special interest occupation and industry technical committees were utilized. This included environmental technology, aviation technology, agriculture, and

business technology committees. These committees continue to provide guidance to the respective program areas.

The occupational task lists were developed as a joint effort between the state staff, business representatives, incumbent workers and supervisors, local education representatives and instructors representing various occupational areas. These groups were involved in developing initial lists and the validation process.

Instructional Approaches

Materials from Kentucky are made available to educational institutions through statewide distribution. The Department for Adult and Technical Education makes available all task lists. Periodic progress reports on lists undergoing revisions are provided to appropriate educational, political and industry groups. Teacher in-service and renewal efforts also utilize the task lists. Local and State level advisory committees periodically review student progress reports. In addition, progress reports of student attainment are utilized in educational public relations efforts. The goal of these activities is to continue to update, develop and publicize the competency-based approach being utilized by the postsecondary institutions while encouraging employers to hire students who can show mastery.

OHIO

Historical Development

The General Assembly of Ohio passed legislation in 1988 which called for the modernization of vocational education in the state. This legislation prompted Dr. Darrell Parks, State Director of Vocational Education, to bring together a group of business, industry, and labor leaders, with representatives of outside agencies, to address the subject of modernizing vocational education. This effort resulted in the publication of a paper titled, "Ohio's Future at Work." The paper defined an action plan which resulted in three major developments:

1. The Ohio Competency Analysis Profiles (OCAPS) which is a compilation of occupational, academic, and employability competencies derived from an expanded DACUM process which will be described in greater detail later in this document.
2. Courses were changed to reflect technology age requirements.
3. The Career Passport which identifies and describes the marketable skills a student has upon completion of training. Further, these skills are guaranteed to the employer for a two year period following completion of training.

Description of the System

The Ohio OCAP program is an expanded DACUM system. There is a substantially greater time commitment to the OCAP process than to the DACUM process. It provides future and advancing competencies, and defines the task level (referred to as competency builders) in substantially greater breadth. In fact it describes as Competency Builders items which could well be classified as Competency Areas in the DACUM process. If one examines Competency 2.0.4 in the OCAP attachment and makes a comparison with Competency Area H in the DACUM chart attached, one can readily see the difference in the level of definition in each system.

Further, the OCAP system relies upon existing literature to a much greater extent than does DACUM. The Ohio Department of Education conducted a national search for competency lists in each occupation. These lists were then given to industry groups to review. The industry groups modified the lists to ensure they were up to date and as inclusive as possible. The focus was on entry level skills necessary for a given occupation. Skills also were identified which would be required for advancement in the occupation.

Access and Certification

The system is used on a statewide basis and has a primary purpose of improving instruction. The system attempts to ensure that vocational education programs reflect changes in the work place, and provide students with essential skills necessary for job entry. Programs are available to all high school and adult students throughout the state. However, there are limitations as to offerings, depending on the particular locality. Some areas simply do not have the resources to offer a broad range of programs.

Career Passport is the credential used to certify the skills and knowledge a student has upon completion of a program. The Career Passport is designed to certify entry level skills and is based upon statewide testing which is scheduled for implementation in the fall of 1993.

For those occupations which require industry or professional certification, or state licensing, courses prepare a student to take the required exam. The certificate or license is issued by the appropriate authority.

Management Issues and Administration

The State of Ohio is divided into vocational education planning districts. Each of these districts must use OCAPS for purposes of developing courses of study. The courses then must be approved by the state Department of Education before they are funded. Each of the planning districts must certify the competencies that will be learned as a part of the program.

The state is divided into eight regions. Each region has a Business Advisory Committee set up by the school. The school submits its plan to the advisory committee setting forth the details of how vocational education will operate during the coming year. The plan first must be approved by the committee and then by the state. Lack of approval of the plan results in the withholding of federal funds.

There is a periodic program review every five years. This review is similar to an accreditation review, and includes a self assessment and on site visit examining all areas of the program.

Issues and Problems

Change is painful, and as one might expect, the Vocational Education Planning Districts and the teachers resisted this change. The ability of some Districts to offer quality programs was also limited by lack of resources necessary to meet the level of training required to address the demands of the validated competencies. This factor mitigates against building consistency in performance throughout the state.

Identifying the competencies in each of the areas did not appear to be a problem in Ohio. Agreement on performance standards has not been as easy, and performance standards have a dramatic effect upon the level of course offerings. It was pointed out that an effort such as OCAP can not possibly be successful without close cooperation between business, industry, and education.

OKLAHOMA

Historical Developments

Historically, Oklahoma has had a very strong and extensive program of competency based vocational education. They have a competency based testing system for over two hundred occupations which has been developed over the past twelve years. Owing to Perkins Legislation, substantial emphasis has been placed on the use of the tests as a basis for credentialing and licensing. In addition, there is reliance on business and industry associations for validation of testing criteria.

Currently, standards which have been endorsed by industry apply to eight occupations in the construction industry. These were developed by the state for the Associated General Contractors. These standards have been incorporated in all of the state's construction programs. In a joint project with the Department of Health, Oklahoma also coordinates the certification of seven nurses aide programs. The nurses aide tests became a part of the program in January 1993.

Vocational programs at the secondary and postsecondary non-collegiate level will be required to test all students occupationally by 1995 using state developed tests. Written tests will be administered at the completion of instruction, and performance tests will be required during instruction. At the collegiate level, the ACT will be used for academic skills assessment.

Description of the System

The system is referred to as the Occupational Duty/Task Analysis. It is the process of identifying the occupations within a program, the broad areas of performance (duties) within each occupation, the specific activities (tasks) associated with each duty, and the clarifying information that outlines what is involved in performing the tasks. It will specify topical information within the tasks and possibly define the steps. If a national standard is being adopted, such as ASE standard for automotive service, then the process may be abbreviated. The process is a joint effort of Testing (an Oklahoma division) and CIMC, the Oklahoma Curriculum Instructional Materials Center.

Purpose

The principal purpose of the joint effort is to guide the development and alignment of curriculum (developed by the CIMC) and competency tests developed by Testing. The result of the joint effort produces tests which measure competencies in specific occupations and a detailed blueprint of the curriculum development process for the project, including guidelines for instructional design.

The process has four parts:

1. Identifying occupations
2. Identifying duties
3. Identifying tasks
4. Identifying the clarifying information

Facilitation of the parts is also a joint effort, except where there are no occupational programs involved. In these cases, CIMC assumes responsibility for facilitation. Facilitation results in a series of meetings, the outcome of which is a Trial Duty Task List (DTL). This DTL is then presented to the committee composed of the following:

1. CIMC curriculum specialist
2. Testing specialist
3. Occupational division state supervisor
4. CIMC technical writer and contact writer
5. Industry representatives and vocational educators
6. Alternates
7. Recorder secretary

Prior to the actual assembly of the committee, a workshop proposal is submitted which identifies time and location of meetings. All of the participants are contacted to determine their willingness and ability to serve; and all of the housekeeping tasks are completed to ensure the efficient and effective use of all of the resource persons.

Required Outcomes

1. The program is divided into one or more occupations (Part 1). For example, the Automotive Service Series includes eight areas, each representing an occupation, i.e. engine repair specialist, automatic transmission specialist, brake specialist, etc.
2. Identification of the duties within each occupation (Part 2). A duty is defined as a broad area of performance, or a cluster of related tasks. For CIMC, each duty usually becomes an instructional unit.
3. Identification of the tasks associated with each duty (Part 3).
4. Identifying the clarifying information relating to the tasks (Part 4). This information is considered to be enabling objectives or terms delimiting the scope of the particular unit of instruction. For example, terms might be defined which may otherwise appear ambiguous, or the

limits might be defined. For example, the term "transmissions" in automotive may be limited to all General Motors transmissions, or perhaps only Chevrolet and Buick transmissions.

5. Completion of the FCDC (Frequency, Complexity, Difficulty, and Consequences) Indices for each task identified.

6. Identification of any other information that may be helpful in the development of occupational tests and units of instruction. For example, resources such as media, books, contact writers (professional writers who assist with such things as syntax and style), and contacts within the particular area of competency.

Following the actual development of the curriculum and course materials, the hard copies are produced by means of a well developed and systematic process. The entire program is ongoing and subject to continuous upgrading and revision.

OREGON

Historical Development and General Information

Comprehensive education reform legislation in Oregon mandates the development of industry-based skill standards. This legislation calls for the development of Certificates of Initial Mastery and advanced certificates matched to entry level requirements and bench-marked to world-class standards.

Overview of Existing Systems - Purpose

Oregon's new legislation is aimed at improving the competitiveness and productivity of Oregon's economy and immediately developing skill standards to improve the transition from school to work, and to make the high school curriculum more relevant to labor market needs. The standards will serve as the basis for awarding advanced certificates.

The state's work on developing skill standards has been primarily accomplished with representatives from state and local educational representatives, community colleges, the state Department of Economic Development, Job Training Partnership Act (JTPA) representatives and Private Industry Councils (PIC), trade associations, labor organizations, and individual employers.

The state efforts have been focused on public outreach, networking, and information gathering. State officials believe that a major national effort will be needed to change attitudes and get "buy-in" from employers and the general public.

The Department of Economic Development has surveyed 4,000 businesses, with responses to obtain input for occupational skill standards. In addition, 100 focus groups were conducted with employers. Many employers have skill standards, but most of these are in industries that are heavily regulated. In the service area industries, no standards had been developed by the industry.

Courses of Study and Levels of Certification

Technical Committees have been established for the following occupational areas:

Committee	Date Established
Health Occupations	1991 - 1992
Construction	1991 - 1992
Forestry (Fire Prevention)	1991 - 1992

In the change to outcome-based education, skill standards are demonstrated through performance standards. Students will master the skill through meeting performance objectives. A mastery level for all students will be implemented. Industry skill standards will be the basis of developing the performance outcomes.

Elements of Computer Instructional Materials (CIM) Assessment System

In order to measure student progress relative to each outcome, several elements need to be developed to form a complete assessment system. These elements include the following:

Extended Outcome Definition: Because the outcomes are complex, they will need to be further analyzed to reveal their component parts. Each part must be sufficiently clear so that it can be recognized when a student is performing an assessment task.

General Performance Expectation: This element provides a picture of how well a student must perform in an outcome area in order to be eligible for a CIM. Eventually this will be a description of "world Class" performance with respect to a given outcome. What constitutes "world class" performance will need to be defined throughout cross cultural research. Standards are best thought of as dynamic, periodically needing to be revised as the work force changes.

Task Guidelines: These guidelines provide the information needed to design assessment tasks so that the tasks can yield comparable judgments about performance. Instructor and others will use these guidelines to develop tasks for students to complete.

Tasks: This element specifies the actual performance that will be required of students to demonstrate capabilities relative to an outcome. These will be different kinds of tasks. Some will be required of all students at a particular point in time. Other tasks will be unique to a given teacher or student but will add depth and knowledge to the portfolio of accomplishments.

Scoring System: To judge the adequacy of performance, measuring scales, exemplars of performance, and criteria identifying the required level of performance for each outcome will have to be prepared. Measuring scales are based on performance for each outcome area that can be described on a range from not being able to perform in the outcome area to being able to perform at a superior level. The

exemplars are descriptions of performance at various levels along the scale. They provide the detail for the teacher to judge performance levels.

Management Issues and Administration

The state Department of Education is responsible for the day to day work of developing these skill standards. It is planned for the Department of Economic Development to work on the skill standards that are relevant to the existing work force.

The Workforce Quality Council will oversee the implementation of the entire system of skill standards as part of the Oregon benchmarks tracking function.

The state has expanded the membership and refocused the mission of existing vocational education technical committees. These committees are being asked to articulate skill standards in industries that are determined to be key to the state's future economic success. They are currently reflecting the existing mix of Oregon jobs. The intent is to build on the content and structure of standards that already exists within apprenticeship, V-TEC materials, and association standards.

To date, no work has been completed on the planning process for the implementation of the certification process. Work has also not yet been initiated on expanding the skill standards strategy for the existing work force.

The state considers skill standards development a priority investment and will redirect existing resources to support this effort. The state believes that they will need to have staff development activities in order to properly develop the skill standards and assessments necessary to implement the new system of Certificates of Mastery and the Advanced Certificate.

Concurrent with the development of standards, Oregon is working on creating a state-wide performance-based assessment system for the K-12 schools. This process includes the linking of individualized plans into the assessment system and the testing of options for use of authentic assessment and portfolio development as part of the system.

Ten school-based pilot efforts are positioned throughout the state to develop an assessment model which can be adopted by other sites. These models will be offered as a menu of options from which local education agencies can select. Oregon is one of 10 states working with American College Testing in developing a system for assessing work place competencies.

B. INVENTORY OF STATE'S EFFORTS TO DEVELOP SKILL STANDARDS

ALABAMA

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Responsible Person: Jim Kendrick; Coordinator, Vocational Curriculum, Research and Evaluation Unit

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES

A. **Summary of who was involved.**

State staff, subcontractors, and curriculum developers were involved in the development of the initial lists and validation processes. Business representatives, including workers and management and local education representatives on all levels also were consulted in developing these lists and processes.

B. **Definition of occupational skill standards and related processes.**

The definitions are the same as that of Vocational-Technical Education Consortium of States (V-TEC's).

C. **List of Technical committees, as required by the Perkins Act, 1984, and committees created to establish skill standards and support for vocational-technical education.** (asterisks are place before required committees.)

*Business, Labor and Industry Committee; 1992

*Curriculum and Tech Prep Committee; 1992

Industry involvement with the development of occupational skills standards began in 1973.

Industry and education initiated the movement toward the development of occupational skills standards with the establishment of a committee comprised of education and industry representatives. Occupations for which standards were first adopted are trade and industrial education. These standards were used to develop curriculum and to establish criteria for assessing student mastery of occupational skills. In addition, youth organizations used these occupational skills standards as guidelines for their competitive events.

Special populations' needs are being addressed through the linkage of occupational task lists to the development of Individual Education Plans (IEP's). In addition, Alabama has two very active pilot programs for assessment and transition of special populations. A sex equity coordinator aids in

addressing equity issues. Alabama continuously updates their efforts in dealing with these special populations and gender equity issues.

D. **Summary of process used to develop occupational skills standards.**

Dacum or a modified Dacum process, V-TECS or modified V-TECS processes were used. Task analyses were performed at the job site. A modified Dacum process was used to identify tasks lists for programs not being addressed by V-TECS.

E. **Summary of existing occupational lists used as base data.**

V-TEC'S catalogs, other consortium lists and materials, business and industry lists, and previous state and local lists were used to develop occupational skills standards. In addition, teachers, incumbent workers and continuing education contributed to this process.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to determine job entry level and to develop training agreements for co-op programs. Also, occupational skills standards were used for the certification of mastery, curriculum development and to determine guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESSES

A. **Certification processes in place.**

Carpentry and cabinetmaking are certified by Associated General Contractors (AGC). Auto mechanics and auto body are certified by Automotive Service Excellence (ASE). When associations are accrediting, it will be important to add these to the comments.

B. **Components of the assessment process on the state and local levels.**

Test bank questions are available at the local level for instructor use with students. In addition, test bank questions are available in the form of student study guides, through V-TEC'S test bank and individual states.

C. **Summary of the types of test assessments.**

Paper and pencil tests and actual performance tests are used in Alabama.

D. **Summary of academic and employment skills that are tested in assessments.**

Alabama does not assess academic competencies as a part of occupational skills testing. However, they do include in the process measurement of employment related skills such as, the resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES

A. **Funds were used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds.

B. **Cost to establish one set of occupational skills standards.**

Alabama's curricula for all program areas are developed by staff members. No specifics were described.

C. **Commitment of state to have occupational skills standards developed.**

Alabama intends to use the funds for ongoing maintenance and revision of occupational skills standards. Consortiums will be used to acquire business and industry validated occupational skills standards.

D. **Summary of the state's view of future occupational skills development.**

Alabama wants to increase the level of effort used in development of occupational skills standards by expanding consortium development and partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS

A. **Who uses the occupational skills standards.**

The state staff, local district instructors, secondary, post secondary, community college and adult education programs, the business and industry communities, labor/apprenticeship, and Job Training Partnerships Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use occupational skills standards, while only some of the post secondary districts use them. Occupational skills standards are used to develop articulation agreements in most districts.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, to create lists of skills/tasks to be mastered for certificates of mastery for students, and as the basis for tests and assessments of skills/tasks.

D. **The relationship between the performance standards and occupational skill standards.**

There is a requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged for the support of occupational skills standards.

ALASKA

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Responsible Person: Ed Obie, State Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors and curriculum developers contributed to the development of the initial lists. Business representatives, including management and workers, and local education representatives, on all levels also were consulted while developing both the initial lists and validation processes.

B. **Definition of occupational skills standards and related processes.**

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Tourism, 1990
Childcare givers; 1987
Food Service; 1987
Health Occupations; 1991

Industry involvement with the development of occupational skills standards began in 1987.

Industry and government initiated the movement toward the development of occupational skills standards. These standards were used during the development of curriculum and to establish criteria for assessing student mastery.

Special populations' needs are surveyed and then addressed. In the design phase, special populations' needs are a consideration. Sex equity coordinators are involved in the process of developing occupational skills standards to ensure equity.

D. **Summary of the processes used to develop occupational skills standards.**

Other industry processes utilizing workers and others were reviewed during the development of Alaska's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

Business and industry lists and apprenticeship lists were used to develop state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

There are some programs in place at this level at the state level. Business and industry groups have two pilot programs for Alaska youth. These programs help to prepare students for the school to work transition. Two school districts offer courses that certify for job entry level positions. There are two local vocational education centers that provide certification for the mastery of occupational skills. In addition, there are certification processes available for health aides and other selected technical fields.

B. **Components of the assessment process on the state and local levels.**

Applied academics are used statewide.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, actual performance tests and combinations of them are used to determine the level of competency of students and to provide a method of assessing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal vocational education funds.

B. **Cost to establish one set of occupational skill standards.**

It costs $24,000 to establish one set of occupational skills standards for home economics.

C. **Commitment of the state to have occupational skills standards developed.**

No answer provided.

D. **Summary of the state's view of the future of occupational skills standard development.**

Alaska intends to maintain the current level of effort used toward the development of occupational skills standards. The Alaska 2000 Education Reform proposals will define the state's ability to develop occupational skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

Local district administrators and instructors and Job Training Partnership Act programs use the occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are sometimes used a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, to create lists of occupational skills that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards only when it is a Perkins project.

ARIZONA

Address: Arizona Department of Education
1535 West Jefferson
Phoenix, AZ 85007

Responsible Person: Charles Losh, State Administrator

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, and researchers were involved in the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels were consulted during the development of the validation processes.

B. **Definition of occupational skills standards and related processes.**

In Arizona, the equivalent of skill standards are competency lists for various programs. These competency lists have been developed using Vocational-Technical Education Consortium of States (V-TEC'S) and other less rigorous sources for occupational task lists (industry-based skill lists), and then converting the task lists to competency lists. Arizona differentiates competencies from task lists as follows:

Task: A task is an observable workplace activity involving one or more steps, with a standard of acceptable performance that can be described and assessed.

Competency: A competency is an educational construct or concept, an abstraction derived from a workplace knowledge, skill or attitude requirement. Acceptable performance is not always directly observable, and assessment of competency may require demonstration of knowledge in a classroom setting. The activities or competency indicators to be performed must be defined for developing instruction and assessment of competence.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish occupational skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

* Electronics
* Hospitality

Business and industry have always been involved in the development of occupational skills standards.

Education initiated the movement for the development of occupational skills standards. The industry that first adopted these standards is unknown. These standards were used to develop curriculum (competencies) and to establish criteria for assessing student mastery, especially in curriculum products. In addition, occupational skills standards were used as a means to communicate with employers.

Special populations do not receive preferential treatment and their job requirements are not modified. However, the method of delivery may be modified through an Individual Vocational Education Program. Arizona assures that the competencies are not biased in any fashion.

D. **Summary of the process used to develop occupational skills standards.**

The Vocational-Technical Education Consortium of States (VTEC'S) process or a modified V-TEC's process was used to develop Arizona's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

V-TEC's catalogs, other consortium lists and materials, such as Illinois' materials, business and industry lists, and previous state and local competency lists were used in the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The only certifying agencies in Arizona are the Local Education Agencies (LEA's). These agencies provide competency certificates to program completers.

B. **Components of the assessment process on the state and local levels.**

Arizona has test items available, but there is no policy or process for utilizing them.

C. **Summary of the types of test assessments.**

Paper and pencil, simulation, situational, and actual performance tests are used to determine the level of competency of students and provide assessment of their performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal vocational education funds and "in-kind" funding, in the form of personnel, from business and industry.

B. **Cost to establish one set of occupational skill standards.**

The average cost to establish an occupational skills standard list is approximately $11,000, with monies from the Perkins fund.

C. **Commitment of the state to have occupational skills standards developed.**

Arizona intends to use the funds for ongoing maintenance and revision of the occupational skills standards. In addition, Arizona wants to use consortiums to acquire business and industry validated occupational skills standards.

D. **Summary of the state's view of future occupational skills standard development.**

Arizona intends to expand the level of effort to develop skills standards through consortium development and through business and industry partnerships.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards lists.**

State staff, local district administrators and instructors, secondary, post secondary and community college education programs, the business and industry communities and Job Training Partnerships Act programs use the occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. However, few of the post secondary districts do the same. During the development of articulation agreements, only some of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as the basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses and to create lists of occupational skills that are necessary to master in order to obtain a certificate of mastery. Occupational skills standards are also used as the basis for the development of tests and assessments of skills and tasks.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. Partnerships with business and industry are encouraged to support the development and/or use of occupational skills standards.

ARKANSAS

Address: #3 Capitol Mall
Vocational & Technical Education Division
Little Rock, AR 72201
Responsible Person: Jean McEntire, Associate Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developers and researchers contributed to the development of the initial lists and validation processes. Business representatives, including both management and workers, as well as local education representatives, on all levels were consulted while developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act. 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before these required committees)**

Associated General Contractors; 1987.
National Automotive Technical Education Foundation; 1987.
Mid-American Vocational Curriculum Committee (MAVCC); 1979.
Bureau of Apprenticeship Training; 1990.

The beginning of industry involvement in the development of occupational skills standards is unknown.

Education initiated the movement toward the development of occupational skills standards. Occupations for which skills standards were first adopted were the skilled trades. Arkansas uses occupational skills standards to develop curriculum and to establish criteria for assessing student mastery.

Special populations' needs and equity issues are addressed in occupational skills standards.

D. **Summary of the process used to develop occupational skills standards.**

Dacum or a modified Dacum process, other industry processes utilizing workers, Vocational-Technical Education Consortium of States (V-TEC'S) process or a modified V-TEC's process and labor-apprenticeship processes were reviewed during the development of Arkansas's occupational skills standards lists.

E. **Summary of existing occupational lists used as base data.**

V-TEC's catalogs, MAVCC lists, business and industry lists, and apprenticeship lists were reviewed during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

Arkansas uses occupational skills standards lists for programs that certify for the mastery of occupational skills, in curriculum development, and to help create guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

Arkansas has state skill certification processes for the automotive, building trades, and Bat. Registered Programs in 800 occupational areas. The state vocational-occupational education agency certifies Bat. programs. The business and industry groups certify through NATEF and AGC. Lastly, the labor/apprenticeship programs certify through the Bureau of Apprenticeship Training.

B. **Components of the assessment process on the state and local levels.**

Arkansas uses test banks of questions that are validated at both the state and local levels. Test bank questions for assessing student mastery are held at the state level. Test bank questions are available at the local level for instructors use with students.

C. **Summary of the types of test assessments.**

Paper and pencil, simulation, situational, and actual performance tests are used to determine the level of competency of students and provide a method of assessssing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. Employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal vocational education funds.

B. **Cost to establish one set of occupational skills standards.**

None described.

C. **Commitment of the state to have occupational skills standards developed.**

Arkansas does not have the funds available to commit to the development of occupational skills standards. Consortiums are used to acquire business and industry validated occupational skills standards.

D. **Summary of the state's view of future occupational skills standards development.**

Arkansas plans to expand skills standards development through consortium development and by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district instructors, secondary, post secondary and community college programs and labor and apprenticeship programs use the occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary school districts use at least two skill standards, but only some of the post secondary school districts use them. Some districts use occupational skills standards during the development of articulation agreements.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as the basis for articulation between secondary and post secondary programs and courses; as the basis for the development of syllabi for courses; in programs that certify for mastery of occupational skills and as the basis for tests and assessments of skills/tasks.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. Partnerships with business and industry are encouraged or required to support the development and/or use of occupational skills standards.

CALIFORNIA

Address: Career and Vocational Education
721 Capitol Mall, 4th Floor
Sacramento, CA 94244-2720

Responsible Person: Susan Reese, State Director of Career-Vocational Education

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Summary of who was involved.**

State staff, subcontractors, program managers by subject areas and researchers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, and local Education representatives, on all levels also were consulted during the development of these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

California Plan Steering Committee has work in progress.
Health Careers Cluster
Home Economics and Child Care
Building Construction

There was no date indicated as to when skills standards began to get used in California.

Both education and industry initiated the movement toward the development of occupational skills standards.

Agriculture was the first industry to use skills standards. These standards were used to develop curriculum, and help establish assessments for student mastery.

Special populations are assessed with a different review process. Equity issues were not described.

D. **Summary of process used to develop occupational skills standards.**

DACUM or modified DACUM process, Vocational-Technical Education Consortium of States or a modified V-TEC's model, labor apprenticeship process, and task analyses were performed at the job site to help develop occupational skills lists. Initially, across subject areas, different combinations of processes were used.

E. **Summary of existing occupational lists used as base data.**

V-TEC's catalogs, other consortium lists and material, business and industry lists, apprenticeship lists, previous state and local competency lists and/or a combination of these lists were used during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purpose for developing occupational skills standards were to develop certification programs for student mastery, for formal certification systems for the state, to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The state skill certification process exists in the business arena. Other programs are currently in progress of being created. State vocational-occupational education agencies certify through program certification and WASC. The business and industry groups have certification programs in the automotive and medical clerical fields. Local Education Agencies, like the ROP, give certification of completion of programs. There is also a statewide certification program.

B. **Components of the assessment process on the state and local levels.**

None described.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, and actual performance tests are used to determine the level of competency and provide an assessment of performance. New assessments are still being developed that represent a spectrum of different tasks

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume

and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from various industries.

B. **Cost to establish one set of occupational skills standards.**

None described.

C. **Commitment of the state to have occupational skills standards developed.**

California intends to use the funds for ongoing maintenance and revision of the standards. It also intends to use consortiums to acquire business and industry validated occupational skills standards. The state views this as a district issue.

D. **Summary of the state's view of future occupational skills standard development.**

California intends to expand the level of effort to develop skills standards through consortium development and by increasing the number of partnership with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college and adult education programs, as well as the business and industry communities, labor and apprenticeship programs and Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. However, only some of the post secondary districts do the same. During the development articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create

lists of occupational skills that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. Partnerships with business and industry are required/encouraged to support the development and/or use of occupational skills standards.

COLORADO

Address: 1391 North Speer Boulevard, Suite 600
Denver, CO 80204-2554
Responsible Person: Judy Fernandez, Director of Career & Technical Education.

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATE PROCESSES.

A. **Summary of who was involved.**

State staff, curriculum developers, subcontractors, and researchers contributed to the development of the initial lists and validation processes. In addition, business representatives, including management and workers, and local education representatives, on all levels were consulted during the development of these lists and processes.

B. **Definition of occupational skills standards and related processes.**

A task is a unit of work associated with a specific job which results in the completion of a process and/or when competently performed. A task analysis is the process of identifying task conditions and standards, enabling objectives and expected outcomes. The basis for competency-based/outcome-based curriculum and instruction. Competency is an action which a person performs in an occupation which is both observable and measurable and which forms the basis of competency-based/outcome-based curriculum.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before required committees)**

Health Occupations State Technical Committee
Automotive Mechanics; 1991
Auto Body; ongoing
Welding; 1991

Industry involvement with the development of occupational skills standards began in 1978.

Education initiated the movement for the development of occupational skills standards. Occupations for which standards were first adopted are in the trades and technical fields. These standards were used to develop curriculum (CAST) and to establish criteria for assessing student mastery. In addition, occupational skills standards were used during the development of articulation

agreements between secondary and post secondary programs, and between community colleges and four year programs.

Special populations' needs are ensured a voice because the group has representatives on the committees. Equity issues are also dealt with in this manner.

Comments: The skill standards in health occupations programs are based on the national accreditation organizations' guidelines for each program and federal and state laws for some HOE areas (i.e. Nursing).

D. **Summary of the process used to develop occupational skills standards.**

A modified Vocational-Technical Education Consortium of States model (V-TEC'S), other industry processes utilizing workers and others, Dacum or a modified Dacum process, and labor apprenticeship processes were reviewed while developing Colorado's occupational skills standards. In addition, the committee considered performing task analyses at the job site and the structured group interview method (SGI).

E. **Summary of existing occupational lists used as base data.**

V-TEC's catalogs, other consortium lists and materials, such as MAVCC, NWCC,and MARKED, business and industry lists, apprenticeship lists and previous state and local competency lists (Colorado State University developed lists, Dacum studies and task lists) and accrediting organization's lists were used during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to aid in the development of curriculum, to provide guidelines for courses and programs, to aid in the development of articulation agreements between secondary and post secondary districts and for state level program approval.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The state skill certification process exists for nursing assistants, teacher induction programs and accrediting skills validation. Local Education Agency certification programs certify for AAS (Assoc. of Applied Science) degrees. The state approves, reviews and renews the programs.

B. **Components of the assessment process on the state and local levels.**

Colorado has test bank questions available at the local level for instructor use with students. In addition, there are state and national certification programs, licensure or registration as in the health care occupations, and V-TEC's test bank questions which are available through the Colorado Vocational Resource Center.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, and actual performance tests are used to determine the level of competency and provide assessment of performance. The testing varies at the local level.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds, state community college funds for CAST articulation projects, and business and industry funds, such as corporations (Mark Ed).

B. **Cost to establish one set of occupational skills standards.**

To establish an occupational skill standards list in welding, the cost is $3,000; funding is from Carl Perkins monies. For Auto Mechanics, the cost is $6,500 with funds from the state articulation funds.

C. **Commitment of the state to have occupational skills standards developed.**

Colorado intends to use the funds for ongoing maintenance and revision of the standards. In addition, Colorado will use consortiums to acquire business and industry validated occupational skills standards.

D. **Summary of the state's view of future occupational skills standard development.**

Colorado intends to expand the level of effort to develop occupational skills standards through consortium development and by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college, adult and private education programs use occupational skills standards during the development of their programs and curricula. In addition, the business and industry communities, labor and apprenticeship and Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occcupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to help create lists of occupational skills that must be mastered in order to obtain certification of mastery and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. Partnerships with business and industry are required or encouraged to the support development and/or use of occupational skills standards.

General Comments of the State:

Skill/task lists developed at state level for:

-- Dental Assisting
-- Physical Therapy Aide
-- Veterinary Aide
-- Nursing Assistant
-- Health Occupations Cluster
-- Automotive Mechanics
-- Welding, Brazing, & Soldering
-- Early Childhood Education
-- Custodial Services
-- Drafting
-- Electronics
-- Machining
-- Appliance Repair
-- Vocational Teacher

Curriculum developed for:

-- P.T. Aide

-- Veterinary Aide

-- Health Occupation Cluster

-- Nursing Assistant (in progress)

-- JETRO (Japanese Trade Organization) cooperating with Marketing Education.

United Airlines donated tickets to send DECA students or Marketing Education teachers to professional development activities.

Accountability and outcomes of instruction are established by T & I and Tech Program Managers with input from technical committees.

CONNECTICUT

Address: 25 Industrial Park Road
Middletown, CT 06457

Responsible Person: Leslie Averna, Chief, Bureau of Applied Curriculum, Technology, and Career Information

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES:

A. **Summary of who was involved.**

Researchers, business representatives, including management and workers, and local education administrators were consulted during the development of the initial lists. State staff, subcontractors and instructors in the occupational field contributed to the development of both the initial and validation processes.

B. **Definition of occupational skills standards and related processes.**

Performance measures are measurable outcomes or relevant variables such as labor market or learning outcomes. The Connecticut Performance Measures and Standards for the comprehensive high schools consist of generic performance measures designed to assess school wide vocational programs and program-specific measures considered to be core requirements for each program area.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Committee on Performance Measures and Standards; 1991-1992
Committee to Study Academic Measures and Standards; 1991-1992

Industry involvement with the development of occupational skills standards began with license testing and apprenticeship.

Education, health and consumer protection agencies initiated the movement toward the development of occupational skills standards. Trade and industry, machine tool, hairdressing and the building trades were the first to adopt the use of occupational skills standards. Occupational skills standards are also used to determine employability.

Special populations' are given special assistance to ensure that their needs are being met.

D. **Summary of the processes used to develop occupational skills standards.**

Groups of subject specific teachers developed Connecticut's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

No answer provided.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to aid in the development of curriculum, to provide guidelines for courses and programs and comply with the Perkins mandate.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

No answer provided.

B. **Components of the assessment process on the state and local levels.**

Applied academics are used statewide.

C. **Summary of the types of test assessments.**

Paper and pencil, simulation, situational, actual performance tests and combinations of them are used to determine the level of competency of students and to provide a method of assessing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds.

B. **Cost to establish one set of occupational skill standards.**

No answer provided.

C. **Commitment of the state to have occupational skills standards developed.**

Connecticut views this as a local district issue.

D. **Summary of the state's view of the future of occupational skills standard development.**

Connecticut intends to maintain the current level of effort used toward the development of occupational skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary and community college education programs use the occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, a few of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are sometimes used a basis of articulation agreements between secondary and post secondary programs and courses and during the development of syllabi for courses.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards.

DELAWARE

Address: State Department of Public Instruction
P.O. Box 1402
Dover, Delaware 19903
Responsible Person: Tom Welch, State Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, curriculum developers, subcontractors, contract supervisors and local education representatives, on all levels contributed to the development of the initial lists and validation processes. Researchers were used to review literature from other states. Business representatives, including management and workers, contributed to the development of the validation processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

Agriculture; 1/1/94
Business and Office Education; 1/1/94

Industry involvement with the development of occupational skills standards began in 1987.

Education initiated the movement toward the development of occupational skills standards. All occupational standards are done on an implementation schedule. These standards were used to develop curriculum on an on-going basis and are now being used to establish criteria for assessing student mastery (beginning in 1995).

Special populations' needs and equity issues were addressed during the development of occupations skills standards and programs.

D. **Summary of the process used to develop occupational skills.**

A combination of the Dacum process and other industry processes utilizing workers and others was used to develop Delaware's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

New occupational skills standards were built upon the base of old curriculum standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The state vocational-occupational education agency is responsible for certification.

B. **Components of the assessment process on the state and local levels.**

None described.

C. **Summary of the types of test assessments.**

Paper and pencil, computer cognitive, simulation, situational, and actual performance tests are used to determine the level of competency of students and a method to assess their performance (at the local level).

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds.

B. **Cost to establish one set of occupational skills standards.**

None described.

C. **Commitment of the state to have occupational skills standards developed.**

Delaware intends to use the funds for ongoing maintenance and revision of the standards.

D. **Summary of the state's view of future occupational skills standard development.**

Delaware intends to maintain the level of effort to develop occupational skills standards and will increase the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors of secondary education programs use the occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the occupational skill standards lists. However, only some of the post secondary districts do the same. During the development of articulation agreements, most districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses and during the development of syllabi for courses.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry either require or encourage support for the development and/or use of occupational skills standards.

FLORIDA

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Responsible Person: F. Patricia Hall, Bureau Chief, Vocational Education Programs
Michael P. Brawer, Program Coordinator for Tech Prep

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

Curriculum developers, business representatives, including management and workers, and local education representatives, on all levels contributed to the development of the initial lists and validation processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of Technical Committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Committees are developed annually.

Industry involvement with the development of occupational skills standards began in the late 1970's.

Education and industry initiated the movement toward the development of occupational skills standards. Occupations for which standards were first adopted are business, agriculture, health and industrial occupations. These standards were used in the development of curriculum and to establish criteria for assessing student mastery. In addition, occupational skills standards were used in program reviews and institutional material development. Representatives of special populations are present on all committees and curriculum content is again reviewed by special populations committees.

D. **Summary of the process used to develop occupational skills.**

Dacum or modified dacum for industry workers, other industry processes utilizing workers and others, and Vocational-Technical Education Consortium (V-TEC's) processes were used to develop occupaticnal skills standards in Florida.

E. **Summary of existing occupational lists used as base data.**

V-TEC'S catalogs (locally validated for Florida use) and business and industry lists were used to develop state occupaticnal skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to determine baseline skills for entry level and to develop training agreements for co-op programs. In addition, occupational skills standards are used to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

Local Education Agencies (LEA'S) certify vocational program completers. Licensure and certification programs include: law enforcement officer, corrections officer, cosmetology, nursing assistant, EMT, paramedic, optician, LPN, RN, all health technology fields and fire fighters.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are validated at the state level. There are also test bank questions available at the local level for instructor use with the students. Florida developed 30 plus test item banks coded to the statewide curriculum frameworks.

C. **Summary of the types of test assessments.**

Paper and pencil tests and actual performance tests are used to determine the level of competency of students and provide a method of assessment.

D. **Summary of academic and employment skills that are tested in assessments.**

Academic competencies are just beginning to get addressed. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from state and federal vocational education funds. Business and industry have donated monetary funding, a great deal of time and some equipment that is used in the occupational skills standards programs.

B. **Cost to establish one set of occupational skill standards.**

A health occupational skills standards list costs approximately $289,000 of state funds to create.

C. **Commitment of the state to have occupational skills standards developed.**

Florida intends to use the funds for ongoing maintenance and revision of occupational skills standards. Consortiums are used to acquire business and industry validation of occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

Florida intends to maintain the current level of effort used in the development of occupational skills standards In addition, Florida wants to expand consortium development and partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, adult, private, community college and post secondary education programs use the occupational skills standards. In addition, members of the business and industry communities, labor and apprenticeship programs, and Job Training Partnership Act programs use the occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the districts use skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of skills that must be mastered in order to obtain a certificate of mastery and as the basis for

tests and assessments of skills/tasks. The standards for classes are used in teacher education programs in college.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards.

Partnerships with business and industry are required or encouraged to support or encourage the development and/or use of occupational skills standards.

GEORGIA

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Responsible Person: William P. Johnson, Director of Education for the State of Georgia

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developers, and researchers contributed to the development of both the initial lists and validation processes. Industry and Vocational-Technical Education Consortium of States (V-TEC's) representatives, business representatives, including management and workers, and local education representatives, on all levels, were consulted during the development these lists and processes. Business educators worked closely with the Language Arts Institution.

B. **Definition of occupational skills standards and related processes.**

See current guides.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

Forestry Committee
Construction
Auto Mechanic
Horticulture Committee
Child Care
Auto Body
Marketing
Business Education
Building Trades
Graphic Arts
Consumer Home Economics

The beginning of industry involvement in the development of occupational skills standards began in 1987.

Education initiated the movement for the development of occupational skills standards. Occupations for which skills standards were first adopted were in the auto mechanic trade. These standards were used to develop curriculum and to establish criteria for assessing student mastery.

Special populations' needs were addressed by modifications to the curricula, i.e. for the handicapped. Equity reviews and annual vocational reviews are performed to ensure that equity issues are being addressed.

D. **Summary of process used to develop occupational skills standards.**
Vocational-Technical Education Consortium of States(V-TECS) process or a modified V-TEC's model, other industry processes utilizing workers, and task analyses were reviewed during the development of Georgia's occupational skills standards.

E. **Summary of existing occupational lists used base data.**
V-TEC's catalogs, other consortium lists and materials, and current guides and industry lists were used to develop the state and local occupational skills standards.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skills standards were to develop a program for that provides certifications for mastery of occupational skills, to develop a formal certification system for the state, to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**
The certifying groups in Georgia are located in the business and industry sector. In addition, there are state skill certification processes in place for one or more occupational areas.

B. **Components of the assessment process on the state and local levels.**
Test banks of questions are validated at the state and local level. There test bank questions available at the local level for instructor use with students. Test bank questions are available on the computer and also on paper and pencil tests.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, and actual performance tests are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to establish occupational skills standards.**

Funding for occupational skills standards comes from federal and state vocational funds, federal and state funds other than vocational funds, business and industry in trade funds, and combinations of the sources.

B. **Cost to establish one set of occupational skills standards.**

Unable to answer at the present time.

C. **Commitment of the state to have occupational skills standards developed.**

Georgia intends to use the funds for ongoing maintenance and revision of the standards. In addition, Georgia will use consortiums to acquire business and industry validated occupational skills standards.

D. **Summary of the state's view of future occupational skills standard development.**

Georgia intends to expand the level of effort to develop skills standards through consortium development and by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, post secondary, community college and adult education programs, as well as the business and industry communities, labor/apprenticeship and Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Some of the secondary and post secondary districts use at least two of the occupational skill standards lists. During the development of articulation agreements, only some of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, to create lists of skills/tasks that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of skills/tasks.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. Partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

HAWAII

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. Summary of who was involved.

The Coordinator of Planning and Evaluation was instrumental in the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels were consulted during the development of the validation processes.

B. Definition of occupational skills standards and related processes.

None described

C. List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)

Human Services/ Child Care; 1987
Human Services/ Adult Care; 1987
Computer Programming; 1988
Bookkeeper; 1989
Diversified Agriculture; 1989
Food Service; 1990
Drafting; 1990
Secretarial (Administrative Assistant);1991
Nurse Aide; forthcoming

Due to the requirements of the Perkins Act of 1984, Hawaii's industry began to get involved with the development of occupational skills standards.

Education initiated the movement for the development of occupational skills standards. The health occupations were the first to adopt occupatonal skills standards. These standards were used to develop curriculum and to establish criteria for assessing student mastery.

Hawaii is in the preliminary phase of developing industry standards and connecting those standards with curriculum.

D. **Summary of the process used to develop occupational skills standards.**
Other industry processes that utilize workers and others were reviewed during the development of occupational skills standards in Hawaii. An individual developed draft task inventories for subject matter expert validation. In addition, incumbent subject matter experts validated task lists using group and job analysis brainstorming techniques.

E. **Summary of existing occupational lists used as base data.**
Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, other consortium lists and materials, and curriculum guides from other states were used during the development of Hawaii's occupational skills standards.

F. **Purpose of occupational skills standards.**
The purpose for developing occupational skills standards lists was to comply with the law, the Perkins Act.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**
The only certifying agencies in Hawaii are the Local Education Agencies (LEA's) and they are currently in the process of being developed.

B. **Components of the assessment process on the state and local levels.**
Hawaii has test bank questions available at the local level for instructor use with students.

C. **Summary of the types of test assessments.**
Paper and pencil and actual performance tests are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested are currently being developed. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to establish occupational skills standards.**

Funding for occupational skills standards comes from federal and state vocational education funds.

B. **Cost to establish one set of occupational skills standards.**

The establishment of an occupational skills standards list for the health occupations costs approximately $5,000. A list of occupational skills standards for nurse aide costs approximately $10,000. The funds came from federal and state Perkins monies and in-kind contributions of job incumbents time.

C. **Commitment of the state to have occupational skills standards developed.**

Hawaii intends to use the funds for ongoing maintenance and revision of the standards.

D. **Summary of the state's view of future occupational skills standard development.**

Hawaii intends to expand the level of effort to develop skills standards by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, secondary, post secondary, community college and adult education programs, as well as the business and industry communities use the occupational skills standards.

B. **How widely used are these standards.**

Few of the secondary and post secondary districts use at least two of the occupational skills standards lists. During the development of articulation agreements, few of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, to create lists of skills/tasks that must be mastered in order to obtain certificates of mastery and as the basis for tests and assessments of skills/tasks.

The extent to which this is being done is limited at the present time. Hawaii envisions improvement in each of the four areas mentioned above.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. However, both secondary and post secondary programs are moving toward this requirement as tasks and standards become validated. Partnerships with business and industry are encouraged to support the development and/or use of occupational skills standards.

IDAHO

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, curriculum developers, program supervisors, subcontractors, and researchers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, trade association representatives and local education representatives, on all levels were consulted during the development of these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (asterisks are placed before required committees)

*Blue Ribbon Committee for Industrial Arts; 1985
*Future Directions for Secondary Agriculture; 1986
*Idaho Marketing Education Core Curriculum; 1988
*Automotive Technology; 1986
*Applied Welding Technology; 1986
*Idaho Farm Management Curriculum;1986
*Autobody Technology; 1985
*Industrial Maintenance Technology; 1986
*Precision Machining Technology; 1987
*Drafting and Design Technology; 1988
*Business Systems Specialist; 1989
*Printing/Graphic Arts Technology; 1989
*Electronics Technology; 1990
*Fundamentals of Dental Assisting; 1990

*Manufacturing Technology; 1990

*Hazardous Material Technology; 1989

*Practical Nursing; 1991

*Health Occupations for Secondary Schools; 1991

*Pharmacy Technician; 1992

*Service Providers for Persons with Developmental Disabilities; 1992

Business and industry standards have been involved in competency and related activities since 1982. Competency-based goals were established at that time.

Education initiated the movement for the development of occupational skills standards. Occupations for which skills standards were first adopted were in trade and industry. These standards were used to develop curriculum. Idaho is looking into establishing criteria for assessing student mastery.

Idaho used occupational skills standards to establish standard curriculum outlines. Idaho does not differentiate in the lists, only in methods for special populations. When possible, non-traditional members serve on the committees. Idaho has always utilized Local Advisory Committees and still requires them for all programs. Idaho has used representatives of special populations to assist in the standards process. The curriculum guides were designed to assist the local personnel in upgrading their program content and to provide a statewide standard for the program area.

D. **Summary of process used to develop occupational skills standards.**

Vocational-Technical Education Consortium of States (V-TECS) lists are used when possible, but not to the depth that V-TEC's goes. A structured group interview process using task lists from other states or trade associations is Idaho's prime method. The committee adds to or deletes from the tasks to modify for Idaho needs. They have found it helpful to have some educational personnel available during the development of the task lists. It helps to keep the lists shorter and less detailed.

E. **Summary of existing occupational lists used as base data.**

V-TEC's catalogs, other consortium lists and materials,(such as MAVCC, Oklahoma's and Florida's lists, IDECC/Marked lists), and business and industry lists (PrintEd, NATEF, and other similar lists when possible) were reviewed during the development of occupational skills standards. Idaho uses lists available from National Networks for Curriculum Coordination. Personal contacts and networking are also used.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to aid in the development of curriculum and to provide guidelines for courses/programs. Task lists were used to develop student competency profiles. Eventually, Idaho wants to establish state program certification where national standards are not available or when industry prefers local standards.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

State skill certification agencies that certify are NATEF, welding, PrintEd, and PSC Secretarial. State Vocational-occupational education agencies certify for the electronics industry through NATEF and NOCTI. There are limited electronic certifications because Idaho does not have state certification except for for teacher endorsements. The business and industry groups certifies for the welding and electronics industries. NATEF also fits into this category of certification. Local Education Agencies exist for teacher certification at the State level. Idaho is pursuing state certification but does not have de facto standards or process established.

B. **Components of the assessment process on the state and local levels.**

Idaho has just become a member of V-TECS and plans to develop testing questions with them. Idaho hopes to be a test site for V-TECS Test Item Banks in the near future and will adopt these for Idaho use where appropriate. They anticipate validating the banks at the local level but have state level management. State level management will be limited to coordination and identification of program needs as they fit into statewide initiatives.

C. **Summary of the types of test assessments.**

Paper and pencil and actual performance tests are used to determine the level of competency of students and provide a method to assess performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The testing is a local level activity and is not specific to any one program. The employment related skills that are tested include the resume and application process and human relations on the job. Again, testing activities are not across all areas.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding to develop occupational skills standards comes from federal and state vocational education funds and "in-kind" funding from business/industry, mainly in the form of time and effort along with meeting costs.

B. **Cost to establish one set of occupational skills standards.**

The creation of the printing industry's task list cost $5,500. The creation of the welding industry's task list cost $4,300. The funding for both industry's lists came from federal and state sources.

C. **Commitment of the state to have occupational skills standards developed.**

Idaho intends to use the funds for ongoing maintenance and revision of the standards. In addition, Idaho intends to use consortiums to acquire business and industry validated occupational skills standards.

D. **Summary of the state's view of future occupational skills standard development.**

Idaho intends to expand the level of effort to develop skills standards through consortium development and by increasing the number of partnerships with the business and industry community.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILL STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college, private and adult education programs, as well as the business and industry communities, labor and apprenticeship and Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

Idaho has developed 13 Technical Committee Reports which have come out of the Technical Committee Process. These reports are the Task Lists used to develop Curriculum Guides. Idaho has also conducted several task forces to assess curricular needs. Industry is the base of all of Idaho's curriculum development. Now that Idaho is a member of V-TECS, they anticipate additional program areas needs to be met by using existing curriculum catalogs or guides.

ILLINOIS

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILL STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff,subcontractors and curriculum developers contributed to the development of the initial lists and validation processes. In addition, business representatives, including management and workers were consulted during the development of these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

Information Processing (standard verification occurring)
Food Service (standards verification occurring)
Electronics (standard verification occurring)
Nursing (standard verification occurring)
Workplace Skills (assessment under development)
Horticulture (task list developed)
Child and Day Care (task list developed)
Business Ownership/Management (task list developed)
Rehabilitation (task list developed)
Transportation (task list developed)

Business and industry involvement in the development of occupational skills standards began in 1986. Occupational skills standards were emphasized during the 1990-1991 school year with the committees mentioned above.

Education initiated the movement for the development of occupational skills standards. Occupations for which skills standards were first adopted are those requiring licensure or certifications. Competency lists were required for curriculum development.

Special populations students addressed the same occupational skills standards for individual occupations. The key is steering the individual in the direction of an appropriate occupation. The current approach is not to vary standards for special populations. The initial development of competency task lists did not include associated standards. These task lists were developed as a basis for curriculum. Task lists are available for over 150 occupations. In 1990-91 Illinois's efforts expanded to a review of its competency lists and initial development of associated standards for verification by business and industry. Eventually assessments will be developed to determine student mastery for accrediting purposes.

D. **Summary of the process used to develop occupational skills standards.**
Dacum or modified Dacum, other industry's processes utilizing workers and others, task analyses, and worker shadowing were reviewed during the development of Illinois's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**
Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, business and industry lists, apprenticeship lists and previous state and local competency lists were used during the development of Illinois's state occupational skills standards.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skills standards were to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**
The state Department of Professional Regulations certifies at the state level. Illinois is looking to develop Local Education Agencies for certification purposes. The state certifies for all occupations that require licensure/certification.

B. **Components of the assessment process on the state and local levels.**
None described.

C. **Summary of the types of test assessments.**

Paper and pencil and actual performance tests are used to determine the level of competency and provide assessment of performance. Assessments are currently not available at the state level. Developmental efforts are under way in this area of workplace skills. This assessment includes paper and pencil performance items. This will be implemented in the Spring of 1994.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills. While assessments are not currently available, occupational competency will include evaluation of related, applied academics, employability and technical skills. These assessments will be developed over the next several years.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds (CNA-IDPH Licensure/Certification Exams).

B. **Cost to establish one set of occupational skills standards.**

None described

C. **Commitment of the state to have occupational skills standards developed.**

Illinois intends to use the funds for ongoing maintenance and revision of the standards. In addition, Illinois will use consortiums to acquire business and industry validated occupational skills standards lists (V-TECS).

D. **Summary of the state's view of future occupational skills standard development.**

Illinois intends to expand the level of effort to develop skills standards through consortium development and by increasing the number of partnerships with the business and industry community.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary and some post secondary (community colleges) education programs, as well as some of the JTPA programs use the occupational skills standards. New emphasis is on the expansion of partnerships with the business and industry community and obtaining 'buy-in' to the use of assessments being developed.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. However, only some of the post secondary districts do the same. During the development of articulation agreements, only some of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of skills necessary to master in order to obtain a certificate of mastery and as the basis for tests and assessments of skills/tasks.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

Since 1986, local programs have been required to use competency lists for program/curriculum development. These lists were developed at the state level, validated locally and serve as the foundation for curriculum. Current updating efforts will expand upon the existing task lists focusing on core competencies and associated standard identification utilizing business and industry representatives/associations across the state.

** Major emphasis is focusing on business and industry partnerships at the state and local levels.

INDIANA

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developers and researchers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels were consulted during the development of these lists and processes.

B. **Definition of occupational skills standards and related Processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

Agriculture; 1988
Technology Forecasting; 1989
Industrial Education; 1990
Home Economics; 1988

There was no specific date provided signifying the beginning of industry involvement with the development of occupational skills standards. Local level standards are already established, state standards are in the process of being developed.

Education initiated the movement for the development of occupational skills standards. The occupation that first adopted skills standards is unknown. These standards were used to develop local curriculum. Occupational skills standards are also used in employment.

Special needs of individuals with disabilities will be identified with each state standard, i.e. identify what equipment would allow a person with a disability to achieve the standard.

D. **Summary of the process used to develop occupational skills standards.**

Vocational-Technical Education Consortium of States (V-TEC'S) or a modified V-TEC's model and other industry's processes utilizing workers and others were considered during the development of Indiana's occupational skills standards. The process Indiana will use is being developed and a combination of the above will be used.

E. **Summary of existing occupational lists used as base data.**

V-TEC's catalogs, other consortium lists and materials, and business and industry lists were used during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards lists were to develop certifications of mastery and formal certification systems for the state, to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The state skill certification process is SOCATS, which is currently being updated. Local competency based processes are used in licensing. State vocational-occupational education certification agencies are in the process of being created. If certification exists for the business and industry community, it is being used (i.e. Health Boards). Apprenticeship programs are sponsored by organized labor. Combinations of the certifying processes above are being used.

B. **Components of the assessment process on the state and local levels.**

Test bank questions are available at the local level for instructor use with students (V-TECS).

C. **Summary of the types of test assessments.**

Paper and pencil, simulation, situational, and actual performance tests (SOCATS) are used to determine the level of competency and provide assessment of performance. The testing is not yet a state system.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skill standards comes from federal and state vocational education funds. There are also "in-kind" funding from business and industry. Job Training Partnership Act funds have also been used.

B. **Cost to establish one set of occupational skills standards.**

None described

C. **Commitment of the state to have occupational skills standards developed.**

Illinois intends to use the funds for ongoing maintenance and revision of the standards.

D. **Summary of the state's view of future occupational skills standard development.**

Illinois intends to expand the level of effort to develop occupational skills standards through consortium development.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college and adult education programs, as well as Job Training Partnership Act programs use the occupational skills standards.

B. **How widely used are these standards.**

The standards will be required for all secondary and post secondary, tech ed and tech prep programs.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, to develop lists of occupational skills that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

Indiana is in the process of developing a statewide system of skill standards/assessments. State and local funding of technical education will be based on achievement of standards.

IOWA

Address: Bureau of Technical and Vocational Education
Grimes State Office Building
Des Moines, IA 50319-0146
Responsible Person: Mary Peterson, Consultant

DESCRIPTION OF STATE LEADERSHIP ON OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developers, researchers and local education representatives, on all levels contributed to the development of the initial lists. Business representatives, including management and workers, were consulted while developing the validation processes.

B. **Definition of occupational skills standards and related processes.**

Occupational Skills: no definition given in state documents

Tasks: Unit of work with a definite beginning and ending which is measurable and observable; consists of two or more definite steps.

Competencies: are learned student performance statements which can be accurately repeated and measured to predetermine standards.

Standards: Criteria which specify what constitutes successful completion of a prescribed performance.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before required committees)**

Health; 1991

Emergency Care
Health Occupations
Non-Certified Occupations
Nurses Aide
Practical Nursing

Agriculture; 1991

- Agricultural Business, Service and Supply
- Agricultural Mechanics
- Agricultural Production
- Agricultural Products and Processing
- Natural Resources

Marketing; 1991

Business/Office Education

Home Economics

- Family and Consumer Service
- Occupational Child Care
- Occupational Clothing, Apparel, and Textiles
- Occupational Food Production and Services
- Occupational Home Furnishings
- Occupational Institutional Home Management

Industrial Education

- Construction
- Engineering Related
- General Mechanics
- Graphic Communications
- Manufacturing
- Technical Service

The legislature passed S.F. 449 requiring minimum competency lists that contained competencies validated by statewide technical committees, composed of representatives from appropriate businesses, industries, agriculture and organized labor.

The industries that first adopted the occupational skills standards were agriculture, health, business, marketing, home economics, and industrial education. Occupational skills standards are used during the development of curriculum. It was a legislative decision that brought about the development of competencies in vocational programs. Competencies function as the basis for building the instructional programs to be offered.

D. **Summary of the process used to develop occupational skills standards.**

Dacum or a modified Dacum process was used to develop Iowa's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of State's (V-TEC'S) catalogs and MAVCC lists were used during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to develop programs that certify for the mastery of occupational skills, to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The only certifying agencies in Iowa are the Local Education Agencies (LEA's).

B. **Components of the assessment process on the state and local levels.**

None described

C. **Summary of the types of test assessments.**

The Iowa reference test provide students with an assessment of their competency levels in a given course by identifying their strengths and weaknesses.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. There are no employment related skills that tested. The Iowa Vocational Standards and Requirements established minimum competencies that address the following: new and emerging technologies, job getting, job keeping, and other employment skills, entrepreneurial skills and reflect current industry standards, leadership skills and labor market needs and the strengthening of basic academic skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards come from federal and state vocational education funds.

B. **Cost to establish one set of occupational skills standards.**
There was no example provided. Iowa noted that it uses the $60,000 Federal Perkins leadership funds in the creation of occupational standards lists.

C. **Commitment of the state to have occupational skills standards developed.**
Iowa intends to use the funds for ongoing maintenance and revision of the standards.

D. **Summary of the state's view of future occupational skills standard development.**
Iowa intends to maintain the current level of effort to develop skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**
State staff, local district administrators and instructors, secondary, post secondary, community college, adult and private education programs, as well as Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**
Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the districts use occupational skills standards.

C.**Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**
Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of skills and tasks that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**
There is a requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

KANSAS

Address: Kansas Competency-Based Curriculum Center
Washburn University-SAS
1700 College
Topeka, KS 66621

Responsible Person: Ben Clay, Coordinator

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

Curriculum developers, business representatives, including management and workers, and local education representatives, on all levels were consulted during the development of the initial lists and validation processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before required committees)**

Profile development committees are established as needed: committees include Department of Education representatives as well as instructors, and representatives from business and industry.

Industry involvement in the development of occupational skills standards began in 1984.

Education initiated the movement toward the development of occupational skills standards. Occupations which first adopted skills standards were in the agriculture industry. Occupational skills standards were used to develop curriculum and to establish criteria for assessing student mastery.

Special populations' needs and equity issues are dealt with by infusion.

D. **Summary of the process used to develop occupational skills lists.**

Dacum or a modified Dacum process was used while developing the state level occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of States' (V-TEC'S) catalogs, other consortium lists and materials, such as MAVCC, and business and industry lists were reviewed during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to develop a certification of mastery program and a formal certification system for the state, to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The state vocational-occupational education agency (all occupational areas), labor (incumbent workers are surveyed) and Local Education Agencies (LEA's) provide certification for the mastery of occupational skills.

B. **Components of the assessment process on the state and local levels.**

Test bank questions are available at the local level for instructor use with students.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, and actual performance tests are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, workplace basics and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds.

B. **Cost to establish one set of occupational skills standards.**

The average cost for establishing an occupational skills standard list for IV Therapy is approximately $475.00, with the main source of funding being Perkins monies.

C. **Commitment of the state to have occupational skills standards developed.**

Kansas intends to use the funds for ongoing maintenance and revision of the standards.

D. **Summary of the state's view of future occupational skills standard development.**

Kansas intends to maintain the current level of effort to develop skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college, adult and private education programs, as well as the business and industry communities, labor and apprenticeship and Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of occupational skills that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development of occupational skills standards.

KENTUCKY

Address: 500 Mero Street
Frankfort, Kentucky 40601
Responsible Person: John Horton, Director, Division of Instructional Support

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developers and researchers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels were consulted during developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisk placed before the required committees)**

- Environmental Technology Committee; 1991
- Aviation Technology Committee; 1992
- Agriculture Committee; 1992
- Business Technology Committee; 1991/1992

Industry involvement in the development of occupational skills standards began during the mid-1970's.

Education initiated the movement for the development to occupational skills standards. There were several industries that first adopted these standards. These standards were used to develop curriculum and to establish criteria for assessing student mastery. The occupational skills standards are also used to determine the scope of instruction.

Special populations' must fulfill the occupational skills and learning standards that are specially designed for them. All programs are equitably accessible and maintain active enforcement of that access.

D. **Summary of the processes used to develop occupational skills standards.**

A modified Dacum process was used to develop Kentucky's occupational skills standards. Vocational-Technical Education Consortium of States (V-TEC'S) process or a modified version of V-TEC's were also reviewed during the development of Kentucky's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of States (V-TEC'S) catalogs and previous state and local competency lists were used during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards was aid in the development of curriculum and to provide guidelines for courses, programs and instruction.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

ASE certifies for auto technicians. There are also state certification processes for several of the health occupations. All must pass the KVA. State vocational-occupational education agency certify, contingent on the successful completion of the KVA exit test.

B. **Components of the assessment process on the state and local levels.**

Kentucky's test bank questions are validated and test bank questions at the state level for assessing student mastery.

C. **Summary of the types of test assessments.**

Paper and pencil tests are used to determine the level of competency and provide assessment of performance. Actual performance tests are currently being developed.

D. **Summary of academic and employment skills that are tested in assessments.**

Math related skills are the only academic competencies that are tested. Kentucky stated that testing for science related, communication related, and reading related skills are not needed as much. The employment related skills that are tested include: resume and application process, human relations on the job (need more testing), problem solving (need much more testing), thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds.

B. **Cost for establishing occupational skills standards.**

The average cost for establishing one set of occupational skills standards was not stated. Kentucky stated that there is approximately one million dollars available from federal sources to be used toward the development of occupational skills standards.

C. **Commitment of the state to have occupational skills standards developed.**

Kentucky does not have the funds for ongoing maintenance and revision of the standards. Kentucky is very committed to the use of occupational skills standards, but lacks the funds.

D. **Summary of the state's view of future occupational skills standard development.**

Kentucky will have to diminish its level of effort to develop occupational skills standards due to the lack of funds. It will attempt to expand usage of standards through consortium development.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILL STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college and adult education programs, as well as Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of skills/tasks that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of skills/tasks.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. Post secondary schools are required to use task lists but it is only recommended at the secondary level. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

LOUISIANA

Address: Louisiana State Department of Education
626 No. 4th Street
Capitol Station, Box 94064
Baton Rouge, LA 70804-9064

Responsible Person: Chris Strother, State Director for Vocational Education

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

Secondary supervisors and vocational education supervisors were involved in the creation of initial lists. The competency lists are their current guides. Almost all committees had representatives from business and industry to assist during the development of the occupational skills standards lists.

B. **Definition of occupational skills standards and related processes.**

None described, Louisiana stated that the secondary level does not have any of these definitions.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

None described

Industry involvement in the development of occupational skills standards began in 1989.

To comply with the law, the education community initiated the movement toward the development of occupational skills standards. Trade and industry occupations were the first to adopt occupational skills standards.

D. **Summary of the process used to develop occupational skills standards.**

Committees of teachers and SDE developed occupational skills standards without validation.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of States' (V-TEC'S) catalogs, other consortium lists and materials, previous state and local competency lists and combinations of them were used during in the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The only state certifying agencies in Louisiana, if any, are SOCAT and NOCIT. There are no certifying agencies for secondary education.

B. **Components of the assessment process on the state and local levels.**

There are test questions available for secondary level education programs.

C. **Summary of the types of test assessments.**

Paper and pencil, actual performance tests and combinations of them are used to determine the level of competency of students and provide a method of assessing their performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills, are all included in curriculum development.

DESCRIPTION OF FINANCING OF OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal vocational education funds.

B. **Cost to establish one set of occupational skills standards.**

No answer.

C. **Commitment of the state to have occupational skills standards developed.**

No answer.

D. **Summary of the state's view of future occupational skills standard development.**

No answer.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILL STANDARDS.

A. **Who uses the occupational skills standards.**

No answer.

B. **How widely used are these standards.**

No answer.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of occupational skills that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of occupational skills. The current guides are used to determine appropriate occupational skills standards.

D. **The relationship between performance standards and skills standards.**

No answer.

MAINE

Address: Department of Education
State House Station #23
Augusta, Maine 04333
Responsible Person: Dr. Horace P. Maxcy, Jr., Senior Planner

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, business representatives, including management and workers contributed to the development of the initial lists and validation processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

Activities Coordinator
Agriculture
Air Conditioning/Refrigeration
Building Maintenance
Carpentry
Child Care
Computer Information Program
Co-op Program
Diesel
Drafting
Electricity
Electronics
Food Service
Forestry
Graphics Arts
Heavy Equipment and Maintenance Occupation
Hospitality

Machine Tool
Marine Technology
Marketing
Masonry
Metal Fabrication
Plumbing/Heating
Small Engine
Truck Driving
Wood Harvesting

Industry involvement in the development of occupational skill standards began in 1970.

Education and industry initiated the movement toward the development of occupational skills standards. The licensed occupations were the first to adopt occupational skills standards. These standards were used to develop curriculum and to establish criteria for assessing student mastery. Occupational skills standards were also used for industry promotion.

Special populations' needs are assured consideration because they have equal access to programs and standards. There is targeted recruitment to ensure that equity issues are addressed.

D. **Summary of the process used to develop occupational skills lists.**
The Dacum or modified Dacum process, occupational analysis, labor-apprenticeship process, and onsite analysis and verification with incumbent workers were reviewed during the development of state level occupational skills standards.

E. **Summary of existing occupational lists used as base data.**
Business and industry lists, apprenticeship lists, previous state and local competency lists and combinations of them were used during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skills standards were to develop a certification program of mastery of skills, to aid in the development of curriculum and to provide guidelines for courses and programs and licensing requirements.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

A state skill certification process exists for licensing programs, i.e. CA, electrical, welding, etc. There are state vocational-occupational education agencies that certify. Individuals who acquire business and industry skills are certified through the National Professional Accrediting Group. Labor certifies through apprenticeship programs. Local Education Agencies also provide certification.

B. **Components of the assessment process on the state and local levels.**

None described

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, (not statewide) simulation, situational, and actual performance tests are used to determine the level of competency of students and provide a method of assessing their performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. Maine Educational Assessment (MEA) as well as the Perkins Pre-Test Post-Test requirements are used. The employment related skills that are tested include: resume and application process, human relations on the job,(JMB testing used) problem solving, thinking skills, and team skills (TOM related --local).

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Fund used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds, federal and state funds other than vocational education (Federal ABE, Special Education and Integration with academics), business and industry funds in the form of youth apprenticeship/partnerships. Maine also has State level partnerships with L.L. Bean, UNUM, BIW, etc.

B. **Cost to establish one set of occupational skills standards.**

The average cost for establishing a skills standard list is approximately $4,000, with the main source of funding coming from federal and state sources.

C. **Commitment of the state to have occupational skills standards developed.**

Maine does not have the funds available for a commitment to expand the use and development of occupational skills standards. Consortiums are used to acquire business and industry validated occupational skills standards. State leadership will also be used as a resource to encourage the use of skills standards.

D. **Summary of the state's view of future occupational skills standard development.**

Maine intends to maintain the current level of effort to develop occupational skills standards. It is having difficulty because of the decrease in state and federal Perkins funds.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college and adult education programs, as well as the business and industry community, labor and apprenticeship programs and Job Training Partnership Act programs use the occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. However, only some of the post secondary districts do the same. During the development of articulation agreements, only some of the districts use skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, lists of occupational skills that must be mastered in order to obtain a certificate of mastery of occupational skills and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

MARYLAND

Address: Division of Career and Technology Education
Maryland State Department of Education
200 West Baltimore Street
Baltimore, MD 21202

Responsible Person: Doris Sharkey, Curriculum Management Specialist

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, and curriculum developers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels were consulted while developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before the required committees)**

Business

Executive Secretary; DACUM; 1986
Legal Secretary; DACUM; 1987
Business Data Processing; DACUM; 1986

Construction

Residential Electrician; DACUM; 1987
Residential Electrician; TAP; 1988
Building Maintenance; DACUM; 1986
Building Maintenance; TAP; 1987
Carpentry; TAP; 1988
Bricklayer; TAP; 1988
Heating, Ventilation, Air Conditioning; TAP; 1988
Plumbing; TAP; 1988

Electronic Technology

Electronic Technician; DACUM; 1988

Horticulture

Landscape Technician; TAP; 1989

Retail Florist; TAP; 1989

Nursery/Greenhouse Worker; TAP; 1989

Garden Center Worker; TAP; 1989

Interior Landscaper; TAP; 1989

Graphic Communications; Tech Scan; 1989

Press Operator; TAP; 1990

Pre-Press Imager/Assembler; TAP; 1989

Electronic Publishing and Design; DACUM; 1990

Graphic Communications Employee; TRU; 1990

Graphic Communications Model for Articulation; TRU; 1990

Workplace Basics; TRU; 1991

Life Sciences; Tech Scan; 1992

Research Laboratory Assistant; DACUM; 1992

Laboratory Technician; TRU; 1992

Life Sciences Curriculum Planning Process; TRU; 1992

Health Occupations; Tech Scan; 1992

State-level occupational skills standards have not been developed in Maryland.

D. **Summary of the process used to develop occupational skills standards.**

The modified Dacum process and Vocational-Technical Education Consortium of State's (V-TEC'S) lists after validation are being used to develop of occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

V-TEC's catalogs, other consortium lists and materials (such as Illinois', Ohio's and Michigan's materials), business and industry lists, and Dacum's revalidated list using a modified Dacum process are being used to develop Maryland's occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards was to aid in the development of curriculum and to provide guidelines for courses and programs (at the local level).

DESCRIPTION OF THE ASSESSMENT AND CURRICULUM PROCESSES.

A. **Certification processes currently in place.**

The only certifying agencies in Maryland are the Local Education Agencies (LEA's) that provide competency certificates to program completers.

B. **Components of the assessment process on the state and local levels.**

None described.

C. **Summary of the types of test assessments.**

Not available.

D. **Summary of academic and employment Skills that are tested in assessments.**

Not available.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal vocational education funds and Carl Perkins Title IIA Curriculum Development funds.

B. **Cost to establish one set of occupational skills standards.**

Not available.

C. **Commitment of the state to have occupational skills standards developed.**

Maryland does not have the funds for a commitment to occupational skills standards. It intends to use consortiums to acquire business and industry validated occupational skills standards. Maryland views this as a local district issue. Funds are committed to the technical committees projects. A committee may produce one task list or five depending on what is needed.

D. **Summary of the state's view of future occupational skills standard development.**

Maryland intends to maintain the current level of effort to develop occupational skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff (in technical assistance efforts), local district administrators and instructors, secondary, post secondary, community college and adult education programs, as well as labor and apprenticeship use occupational skills standards.

B. **How widely used are these standards.**

Few of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, only few of the programs use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Maryland is starting to develop model articulation programs using validated task lists. Many local agencies and teachers have adopted the state task lists and used them as the basis of curriculum development. Maryland has no formal way of counting this use.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards (on the local level).

MASSACHUSETTS

Address: Division of Occupational Education
135 Hancock Street
Quicy, Massachusetts 02169
Responsible Person: Diane Rhoten; Policy Analvst for Workforce Development

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILL STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

None stated

B. **Definition of occupational skills standards and related processes.**

None defined

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks placed before required committees)**

Automotive technical committee; 1986
Electromechanical technical committee; 1987
Graphic communications technical committee; 1991

Occupational skills standards are set at each community college. Industry input varies by campus and program.

No date was provided indicating the beginning of the use of occupational skills standards in Massachusetts.

D. **Summary of the process used to develop occupational skills standards.**

The Dacum process will be used to develop Massachusetts's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of State's (V-TEC'S) catalogs and business and industry lists will be used during the development of occupational skills standards.

F. **Purpose of occupational skills standards.**

The purpose for developing occupational skills standards is to evaluate the Perkins Act grants during the fiscal year 1994 and beyond.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

There are occupational skills standards, for several career areas, under development for use in the 1993-1994 fiscal year. These standards are being created to comply with the Perkins Act requirements.

B. **Components of the assessment process on the state and local levels.**

Not available

C. **Summary of the types of test assessments.**

None currently at the state level.

D. **Summary of academic and employment skills that are tested in assessments.**

Not available

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skill standards comes from federal vocational education funds. During the fiscal year 1993, some Perkins Act funds will be used to research some career areas.

B. **Cost to establish one set of occupational skills standards.**

Not available

C. **Commitment of the state to have occupational skill standards developed.**

Some Perkins Act funds will be used to perform statewide validation in career areas to create statewide measures and standards for Perkins Act grants.

D. **Summary of the state's view of future occupational skills standard development.**

Massachusetts intends to expand the used and development of occupational skill standards by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary and adult education programs, as well as Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. However, none of the post secondary districts do the same. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

MICHIGAN

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developer, state program consultants and researchers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, were consulted during the development of the validation processes. Local education representatives, on all levels, including teacher educators in vocational education and academics were consulted during the development of both the lists and processes.

B. **Definition of occupational skills standards and related processes.**

Occupational Skills: Job-specific skills which encompass the proficiency to perform tasks and technical functions required by occupations.

Tasks: A unit of work with a definite beginning and ending which is measurable and observable. A task consists of two or more definite steps.

Competency: An educational 'construct/concept' or abstraction derived from workplace task, knowledge, skill or attitude requirements.

Performance Standard: The criteria to determine if a task has been successfully or unsuccessfully performed.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education. (asterisks are placed before required committees)**

Employability Skills; 1989
Trade and Industry Clusters; 1990
Business Services and Technology; 1989

Hospitality and Food Services
Child and Adult Care Services; 1989'
Agriscience and Natural Resources; 1989

Industry involvement in the development of occupational skills standards began in 1980.

Education initiated the movement toward the development of occupational skills standards. The business services, food management and T&I industries were the first to adopt occupational skills standards. These standards were used to develop curriculum and to establish criteria for assessing student mastery (program planning and implementation).

Special populations' needs are addressed by mainstreaming with the help of paraprofessionals. Non-traditional enrollments are encouraged. There are equity reviews on all curricula development. Michigan developed and disseminated resources for local educational agencies: Classroom Adaptations and Instructional Strategies for Handicapped Students in Vocational Education Programs and Successful Life Skills Curriculum for Single Parents and Homemakers.

D. **Summary of the process used to develop occupational skills standards.**
Dacum or modified dacum process, Vocational-Technical Education Consortium of State's (V-TEC'S) or a modified V-TEC's, task analysis, and combinations of them were used to develop Michigan's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**
V-TEC's catalogs, other consortium lists and materials, such as Marketing Research Education Resource Center materials, business and industry lists, apprenticeship lists and previous state and local competency lists (trade and industry, child care, and food service) and combinations of them were used during the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skills standards are to aid in the development of curriculum, to provide guidelines for courses and programs and to establish common grounds for communication with business and industry.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The Omnibu Reconciliation Act of 1989 (OBRA) and National Automotive Technician Education Foundation (NATEF) are the state skill certification processes in place in Michigan. There is a state vocational-occupational education agency that certifies for cosmetology and manicuring. In addition, a few local agencies award certificates of completion in various occupational areas.

B. **Components of the assessment process on the state and local levels.**

Michigan has test bank questions that are held at the state level for assessing student mastery. There are also test bank questions available through SOCRATS, NOTCI, and V-TECS. Michigan Test Item Bank is a microcomputer-based program to provide teachers with test items directly related to the curriculum taught in their programs. The test item bank allows the user to randomly select test items for tasks they have identified and for which there are items. Test items are written, multiple choice, four-stem questions. Test items for Consumer Home Economics/Life Management Education are also available at the Michigan Center for Career and Technical Education which is a Michigan Department of Education funded project to provide information and curriculum related vocational education to vocational educators throughout the State. The Center is located at Michigan State University.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, actual performance tests and combinations of them are used to determine the level of student competency and provide a method of assessing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funding used to develop occupational skills standards.**

Funding used for the development of occupational skills standards comes from federal vocational education funds.

B. **Cost to establish one set of occupational skills standards.**

The average cost for establishing a skills standard list for child and adult care is approximately $10,000, with the main source of funding being federal monies. The average cost for establishing a skills standards list for business services is $7,000, with the main source of funding being federal monies.

C. **Commitment of the state to have occupational skills standards developed.**

Michigan does not have the funds for a commitment to occupational skills standards. The state intends to

use consortiums to acquire business and industry validated occupational skills standards. Michigan views this as a local district issue.

D. **Summary of the state's view of future occupational skills standard development.**

Michigan foresees diminishing the level of effort to develop occupational skills standards. However the state will attempt to expand consortium development and by increasing the number of partnerships with business and industry as a means to increase occupational skills standards development and use.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college and adult education programs, as well as business and industry programs and Job Training Partnership Act programs use occupational skills standards. Adult Education Alternative Training also uses the occupational skills standards.

B. **How widely used are these standards.**

None described.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of skills/tasks that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of skills/tasks.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards.

Both educators and business/industry utilize the Automated Cross-Referencing Occupational System (ACROS) - a computer-based program designed to search and interrelate several large sets of occupational data. It enables vocational program developers to assemble computer generated lists of duties and tasks in specific occupational content areas. It also enables users to retrieve lists of titles from the "Dictionary of Occupational Titles" to identify jobs associated with occupational areas and to obtain specific worker characteristics and educational requirements for occupational titles.

The program includes three major, inter-relatable databases: 1) a comprehensive list of occupational duties and tasks from curricula developed by the Michigan Department of Education and Vocational-Technical Education Consortium of States. 2) a set of keyword-task combination derived from the "Handbook of Occupational Keywords," a U.S. Employment Service publication, and 3) data from the "Vocational Preparation Occupations (VPO)," published by the National Occupational Information Coordinating Committee.

MINNESOTA

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developer and researchers were all involved in the development of the initial lists and validation processes. Business representatives, including management and workers, local education representatives, on all levels, and special needs instructors were also consulted while developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (asterisks are placed before the required committees)

Horitculture; 1990

Farm Business Management; 1990

Child Care and Education; 1992

Manufacturing - No skill standards available at this point; 1992-1993

Industry involvement with the development of occupational skills standards began in the 1970's.

Education initiated the movement toward the development of occupational skills standards. Occupations for which standards were first adopted are automotive, business, foods, and carpentry. These standards were used to develop curriculum and to establish criteria for assessing student mastery of the occupational skills. In addition, occupational skills standards were used by employees to justify the scope of job for salary increases.

During 1987-1990, special needs instructors were included in state level curriculum development activities. Special attention was directed to eliminating artificial curriculum barriers which limited the access of special needs students to the program.

D. **Summary of the processes used to develop occupational skills standards.**

Dacum or a modified Dacum, other industry processes utilizing workers and others, Vocational-Technical Education Consortium of States (VTEC'S) process or the modified V-TEC's process and on-site analysis for new occupations have been used to establish state level occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, other consortium lists and materials, business and industry lists, apprenticeship lists and previous state/local lists were used during the development of state occupational skills standards. In addition, Armed Services task lists were reviewed. In most cases, existing task lists were collected and used as a base. However, frequently, Minnesota found that existing task lists were not adequately comprehensive.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The only certifying agency in Minnesota is in the labor sector.

B. **Components of the assessment process on the state and local levels.**

Minnesota has test bank questions available at the local level for instructor use with students. Test banks are available in technical colleges for some programs. This is a local process. The state has provided test development software but use of this software is not mandatory.

C. **Summary of the types of test assessments.**

Paper and pencil, simulation, and actual performance tests are used to determine the level of competency of students and to provide a method of assessing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills. Assessment of occupational skills is a local technical college process.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds. In addition, the business and industry communities provide funding as well.

B. **Cost to establish one set of occupational skill standards.**

The average cost for establishing one set of occupational skills standard list for child care is approximately $65,000. The state covers the cost of task lists, task analyses, course syllabi and career ladder program structure.

C. **Commitment of the state to have occupational skills standards developed.**

Minnesota intends to use the funds for ongoing maintenance and revision of the standards. It also intends to use consortiums to acquire business and industry validated occupational skills standards. Minnesota views this issue as one that should be dealt with by local districts.

D. **Summary of the state's view of future occupational skills standards development.**

Minnesota intends to maintain the current level of effort to develop occupational skills standards. The state wants to expand the use of occupational skills standards through business and industry partnerships.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, post secondary education programs, technical colleges, as well as business and industry community programs and Job Training Partnership Act programs use the occupational skills standards.

B. **How widely used are these occupational skills standards.**

Few of the secondary districts use at least two of the skill standards lists. However, most of the post secondary districts do the same. During the development articulation agreements, only some of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary, post secondary and community college programs and courses, during the development of syllabi for courses, to create lists of occupational skills that must be mastered in order to obtain certificates of mastery and the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and occupational skills standards.**

There is a requirement for local programs to use occupational skills standards. Also, partnerships with business and industry are required/encouraged to support the development and/or use of occupational skills standards.

MISSISSIPPI

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

Curriculum developers and local education instructors in specific occupational fields contributed to the development off the initial lists. Researchers, service area supervisors, teachers educators and business representatives, including management and workers were consulted while developing the validation processes.

B. **Definition of occupational skills standards and related processes.**

In order to meet the demands of state legislation and Board of Education policy and to make most efficient use of limited time, personnel and resources; Mississippi has elected to develop model curricula for vocational and technical education programs, rather than concentrating solely on the development of task listings. From 1986 through 1991, efforts concentrated on initial development of secondary and post secondary curricula. In 1991, the initial development of secondary and post secondary model curricula was completed and efforts are now devoted to revision of existing curricula and development of model curricula for new program areas.

Model curricula for secondary vocational programs consist of a sequential series of vocational courses. Each course consists of a series of instructional units. Each unit of instruction consists of a set of student performance objectives, suggested minimum performance standards, and evaluation procedures for each objective, suggested instructional procedures for teaching the unit, and suggested instructional resources. Student performance objective are classified as either essential or enrichment. By State Board of Education policy, all essential objectives must be mastered in order for a student to receive a passing grade in a course. Approximately 70 percent of the objectives in each course are classified as essential. A comprehensive listing of all objectives in each program is included in each model curricula to assist teachers in developing competency profiles for individual students. Each model curricula should represent approximately 75 percent of the content of a course, allowing schools to adopt additional units or objectives which are unique to local needs.

Post secondary model curricula consist of a program description and a suggested sequence of vocational-technical courses. For technical programs leading to an Associate of Applied Science Degree, 15 semester credit hour academic core is also identified in the suggested sequence. For each vocational and technical course, a uniform course name, course abbreviation, course description and semester credit hour classification and set of suggested student objectives were developed.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (asterisks are placed before these required committees)

1. Standing Technical Committee on Model Curricula for Vocational and Technical Education - There are currently three standing technical committees on model curricula, representing the following areas: (a) trade and agriculture, (b) business and commerce, and (c) personal services. Each committee consists of 12 active members and three alternates from business, industry, or the service occupations. The committees meet as required to review and comment on proposed drafts of model curricula.

2. Working Committee on Measures and Standards- The committee composed of twenty people representing secondary and post secondary vocational-technical and academic education at the state and local level and business, industry, and commerce. The Working Committee is charged with the initial development of a state-wide system of measures and standards of performance for vocational and technical programs and the continuing review and revision of this system.

3. Joint Committee on Vocational Education - This committee is composed of three representatives of the State Board of Education and three representatives of the Board of Community and Junior Colleges. It serves to review items including model curricula and the state-wide system of measures and standards which jointly affect secondary and post secondary programs.

Industry involvement with the development of occupational skills standards began on a state-wide basis in 1987, with the appointment of Standing Technical Committees.

Education initiated the movement toward the development of occupational skills standards. Occupations for which standards were first adopted are all secondary vocational programs. These standards were used to develop curriculum and to establish criteria for assessing student mastery.

Special populations' needs are being addressed through the linkage of occupational task lists to the development of Individual Education Plans (IEP's).

D. **Summary of process used to develop occupational skills standards.**

Development of model curricula began with a writing team composed of five to seven teachers from the program area and a curriculum specialist from the Research and Curriculum Unit at Mississippi State University. Teachers selected to serve on the writing teams were selected from programs identified as being above average in overall program quality. The writing team met for two to three days and compiled an initial draft. This initial draft was submitted by mail to a validation committee composed of other instructors, educational administrators at the state level, teacher educators, and business, industry and commerce personnel. Results of this mail validation were used to revise each curriculum.

The revised draft of the curricula were submitted to a Standing Technical Committee composed of business, industry, and commerce personnel. Drafts were mailed thirty days in advance of the Committees' meeting dates to allow time for members to thoroughly review and comment on the curricula. Technical committee meetings lasted two to three days and each curricula was reviewed on a page-by-page basis. Examples of recommendations made by the Standing Technical Committees included:

(a) Totally revising the post secondary business education programs to bettereflect the needs of industry;

(b) Adding objectives to automotive mechanics and other program areas to reflect growing concern over the use, storage, and disposal of hazardous materials;

(c) Closing programs such as shoe and boot repair and service station retailing which no longer reflected occupations in high demand areas;

(d) Reducing the amount of time required to complete some programs such as welding and masonry;

(e) Eliminating duplication of course content among and between program areas;

(f) Revising the content of specific courses to better reflect current needs of business/industry/commerce.

Following the review of the Standing Technical Committee, the revised draft curricula were submitted to the State Council on Vocational Education for further comments. Final drafts were submitted to the State Board of Education for approval.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, other consortium lists and material, such as Oklahoma CIMC, Georgia Department of Education, MAVCC, Missouri, IML, AAVIM, AGG, etc., and NNCCTVE resources were used in the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to aid in the development of curriculum, to provide guidelines for courses/programs and to respond to state legislation.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

There are state skill certification processes for practical nursing, barbering and cosmetology. State Vocational-Occupational boards exist for these same occupations. In addition, Local Education Agencies (LEA's) are responsible for assessment, there is no state effort at this time.

B. **Components of the assessment process on the state and local levels.**

Mississippi has test bank questions available at the local level for instructor use with students. V-TECS also have test item banks available to local instructors.

C. **Summary of the types of test assessments.**

Paper and pencil, limited computerized cognitive use on the local level, and actual performance tests are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job. problem solving, thinking skills, and team skills. These skills are strictly tested on a local district basis only.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds. There are also other state funds that are used in the creation of occupational skills standards--Mississippi State University, College of Education Funds.

B. **Cost to establish one set of occupational skills standards.**

The average cost for establishing one set of occupational skills standard for secondary auto mechanics is $8,500, with funding from state and federal vocational education monies.

C. **Commitment of the state to have occupational skills standards developed.**

Mississippi intends to use the funds for ongoing maintenance and revision of the standards.

D. **Summary of the state's view of future occupational skills standard development.**

Mississippi intends to maintain the current level of effort to develop occupational skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college and private education programs, as well as labor/apprenticeship programs, and Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. However, some of the post secondary districts do the same. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, to create lists of skills/tasks that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of skills/tasks.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. Secondary programs are required by state law to follow model curricula. Post secondary programs are currently in the process of field testing their model curricula on a voluntary basis. Partnerships with business and industry are neither required nor encouraged to support the development of occupational skills standards.

* At the present time, model curricula have been developed from 51 secondary program areas and 87 post secondary program areas.

MISSOURI

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, and curriculum developers contributed to the development of the initial lists and validation processes in Missouri. Business representatives, including management and workers, and local education representatives, on all levels, were consulted during the development initial lists and validation processes.

B. **Definition of occupational skill standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skill standards for vocational-technical education. (asterisks are placed before the required committees)**

Advanced Crop; 1986
Agribusiness; 1986
Agriculture Structure I and II; 1986
Advanced Livestock; 1986
Agriculture Power I and II; 1986
Agriculture Machinery; 1986
Consumer Education; 1986
Consumer and Homemaking; 1986
Electronics; 1986
Electrical Trades; 1987
Agriculture Construction; 1987
Agriculture Science I Supplement; 1987
Agriculture Science I Animal; 1987
Data Processing; 1987

Core Employment Skills; 1987

Home Economics I; 1987

Diesel Mechanic; 1987

Entrepreneurship; 1987

Free Enterprise; 1987

Small Engine; 1988

Health Service Assistant; 1989

Child Development Care and Guidance; 1989

Clothing and Textiles (Advanced); 1989

Clothing and Textiles (Intermediate; 1989

Contemporary Living; 1989

Exploratory Homemaking; 1989

Family and Individual Health; 1989

Food Service Worker; 1989

Food and Nutrition (Advanced); 1989

Food and Nutrition (Intermediate); 1989

Home Management; 1989

Home Economics II; 1989

Building Maintenance; 1989

Masonry; 1989

Professional Cosmetology; 1989

Cabinet Making; 1989

Agriculture Greenhouse Management; 1990

Fish and Wildlife; 1990

Landscaping and Turf; 1990

Agriculture Welding; 1990

Accounting I and II; 1990

Microcomputers Application; 1990

Child Care Worker; 1990

Housing/Home Furnishings/Equipment 1990

Auto Body; 1990

Auto Mechanics; 1990

Building Trades; 1990

Commercial Art; 1990

Drafting; 1990

Machine Shop; 1990

Welding; 1990

Marketing Education; 1990
Fundamentals of Marketing; 1990
Office Technology; 1991
Keyboarding and Keyboarding; 1991
Personal Characteristics; 1991
Advanced Marketing; 1991
Cooperative Industrial Education; 1991
Introduction to Business; 1992
Practical Nursing; 1992
Family Living and Parenthood; 1992
Air Conditioning, heating, & Refrigeration; 1992
Offset Lithography; 1992
Management Competency Profile; 1992
Pre-Employment and Work Maturity; 1992

In fiscal year 1977, the Missouri initiated a vocational education curriculum development project which included competency listings with the assistance of educators and business and industry representatives. In fiscal year 1986, the Missouri initiated a statewide Vocational Instructional Systems (VIMS) which began the process of separately developing competency profiles, curriculum/instructional materials, criterion referenced test banks and student performance appraisals, and student mastery tracking systems.

Education initiated the movement toward the development of occupational skills standards. Agricultural Education and Industrial Education (Automotive and Carpentry) were the first occupations to adopt occupational skills standards. These standards were used to develop curriculum. In the beginning the standards were not used to establish criteria for assessing student mastery, but they now are. Occupational skills standards are used for vocational education program approval.

The competency profiles were developed without regard to special populations' needs. They are general program title occupational skill listings from which individualized listings for IEP's (disabled and IEP's (disadvantaged) are developed. Specialized modified curriculum/instructional materials have been developed to aid learning and understanding by individuals who are categorized as members of special populations groups. In addition, supplemental curriculum and instructional materials have been developed in most program areas for individuals who are members of special populations groups. Students who are enrolled in programs that are considered to be nontraditional for their gender make use of supplemental curriculum and instructional materials.

D. **Summary of the processes used to develop occupational skills.**

The Dacum or modified dacum process, Delphi and the Vocational-Technical Education Consortium of States (VTECS) process and combinations of them were used to establish the state level occupational skill standards.

E. **Summary of existing occupational lists used as base data.**

V-TECS catalogs, regional vocational education curriculum development consortia and materials, business and industry lists, apprenticeship lists and existing occupational lists were used as the base data for the development of state occupational skills standards. The state gathered all existing materials available for each project.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skill standards were to provide for vocational education program approval, to assist in the development of certification of mastery programs, to aid in the development of curriculum and establish guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

Sometimes local education agencies involve business and industry representatives in student mastery certification programs. Vocational education teachers certify using criterion referenced tests and student performance appraisals.

B. **Components of the assessment process on the state and local level.**

Test banks of questions are validated at both the state and local levels. Test bank questions are available at the local level for instructor use with students. In addition, local education agencies may acquire test questions from other curriculum development sources, from business and industry representatives or develop them locally.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, actual performance tests and combinations of them are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math and science related skills. The employability related skills that are tested include: resume and application processing, human relations on the job, problem solving, thinking skills, team skills, career opportunities and entrepreneurship awareness.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards. lists.**

Funding for the development of occupational skills standards comes from federal vocational education funds.

B. **Cost to establish one set of occupational skills standards.**

The estimated cost to develop one set of occupational skills standards for the auto mechanics industry was $6,500. The funding source was federal vocational education funds.

C. **Commitment of the state to have occupational skills standards developed.**

Missouri intends to used the funds for ongoing maintenance and revision of occupational skills standards. Consortiums will be used to acquire business and industry validated occupational skills standards. Missouri views this as a local district issue.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff (including State Council on Vocational Education), local district administrators and instructors, secondary, post secondary, community college, adult and private education programs, (limited—materials available through Job Training Partnership Act contacts), business and industry (particularly customized training), and labor/apprenticeship (through Local Education Agencies, statea and labor funded apprenticeship programs) use the occupational skill standards.

B. **How widely used are these standards.**

Most secondary districts use at least two of the skill standards lists. Some post-secondary district use at least two of the occupational skills standards list. During the development of articulation agreements, most of the districts use occupational skill standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis for articulation agreements between secondary and post secondary programs and course, during the development of syllabi for courses, to create lists of occupational skills that must be mastered in order to obtain certificates of mastery and as a basis for tests and assessments of skills and tasks. The development of curriculum material were used and/or modified at the local agency level.

D. **The relationship between performance standards and skills standards.**

Local Education Agencies (LEA's) are not required to utilize the state developed competency profile, however LEA's must utilize a competency list that is validated by a local program advisory committee. In addition, LEA's must identify and certify student mastery of essential occupational skills as part of the Missouri's performance standards. The state agency encourages the use of vocational program advisory committee input to validate and/or modify occupational competency lists.

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DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

Curriculum developers and state supervisor staff contributed to the development of the initial lists and validation processes. Business representatives, including management, workers and owners, and local education representatives, on all levels were consulted during the development of the validation processes.

B. **Definition of occupational skills standards and related processes.**

Occupational skills: Tasks a person must be able to do in order to seek and keep a job. These are observable and measurable, and include skills in the affective domain, the cognitive domain and the psychomotor domain. They include job skills, workplace skills and academic skills.

Tasks: Unit of work with a definite beginning and ending which is measurable and observable.

Competency: A learned behavior which can be repeated to a predetermined standard.

Standard: Criteria which specifies exactly what constitutes successful completion of a prescribed performance.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Agriculture Sales Occupation; 1987

* Agriculture Education Technical Committee; in progress

* Auto Collision Technical Committee; in progress

Automotive Electrical Technician; 1984

Automotive Alignment Technician; 1984

Automotive Drive Train Technician; 1984

Automotive Engine Performance Technician; 1984

Automotive Engine Repair Occupation; 1984

Automotive Brake Technician; 1984

Automotive Body Technician; 1986

Automotive Electrical Systems Specialist; 1990

Automotive Engine Repair Specialist; 1990

Automotive Automatic Transmission and Transaxle Specialist; 1990

Automotive Suspension and Steering Specialist; 1990

Automotive Engine Performance Specialist; 1990

Automotive Manual Train and Axles Specialist; 1990

Automotive Heating and Air Conditioning Specialist; 1990

Automotive Brake Specialist; 1990

* Automotive Technology Technical Committee; 1992

Bookkeeper/Accountant;1985

Career Maturity Sales; 1987

* Certified Medication Aide Technical Committee; in progress

Child Care Provider; 1985

Combination Welder; 1984

Commercial Cook; 1986

Computer Operator; 1986

Computer Programmer; 1986

* Construction Technology Technical Committee; 1991

Diesel Technician; 1987

* Drafting Technical Committee; in progress

Electronics Technician, 1984

Eligibility Worker; 1991

Financial Management Skills for Farmers and Ranchers; 1989

* Health Careers Technical Committee; 1990

Home Health Aide; 1986

International Marketing Curriculum Committee; in progress

Legal Secretary; 1987

Marketing Occupations Core Skills, 1986

Mechanics Tasks for Farmers and Ranchers; 1986

Medical Secretary; 1987

Nursing Assistant; 1984

Office Clerk; 1985

* Print Ed Technical Committee; in progress
Residential Carpenter; 1984
* Secondary Electronics Technical Committee; 1992
Secretary; 1985
Small Grain Producer; 1988
Vocational-Technical Education Teacher; 1989
* Welding Technical Committee; in progress

Industry involvement with the development of occupational skills standards began in 1983.

Education initiated the movement toward the development of occupational skills standards. Welding was the first occupation to adopt occupational skills standards in North Dakota. These standards were used in the development of curriculum and to establish criteria for assessing student mastery. In addition, occupational skills standards were used as a way to differentiate between approved and not approved equipment purchases. Standards for validated tasks (performance objectives) are not included in the task lists, but are included in the curriculum guides and other curriculum materials.

Special populations' needs are ensured by the involvement of a special needs' supervisor. Educational Equality Administrators are involved to assure that equity issues are addressed.

D. **Summary of the processes used to develop occupational skills standards.**
Dacum or modified dacum for industry workers and the Vocational-technical Education Consortium of States process or a modified version of it were used to develop occupational skills standards in North Dakota.

E. **Summary of existing occupational lists used as base data.**
Vocational- Technical Education Consortium of States (V-TEC'S) catalogs, MAVCC and AVIM lists, business and industry lists, previous state and local lists that had been revised and updated and validated lists from other agencies were reviewed during the development of North Dakota's occupational skills standards.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skills standards were to develop programs that provide for the certification of mastery of occupational skills, to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION THE OF ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

State skill certification processes exist for automotive technology and welding technology. Other occupational skills standards certification process are in the progress of being developed. In addition, there are state vocational-occupational education agencies and local education agencies (these are local options). Automotive Service Excellence certification is built into auto tech programs.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are held at the state level for assessing student mastery. There are also test bank questions available at the local level for instructor use with the students. The curriculum unit at the State Board accesses test bank items from a multitude of sources and makes them available to state-wide curriculum committees and local teachers who work on their own instructional materials.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, actual performance tests and combinations of them are used to determine the level of competency of students and to provide a method of assessing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, self management and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from a combination of federal and state vocational education funds. Local agencies also provide some funding.

B. **Cost to establish one set of occupational skill standards.**

An auto technology occupational skills standards list costs $22,852.87 of Perkins fund monies to create.

C. **Commitment of the state to have occupational skills standards developed.**

North Dakota intends to use the funds for ongoing maintenance and revision of occupational skills standards.

Consortiums will be used to acquire business and industry validation for occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

North Dakota intends to expand the level of effort used toward developing occupational skills standards by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, adult, private, community college and post secondary education programs use the occupational skills standards. In addition, members of the business and industry communities, labor/apprenticeship, and Job Training Partnership Act programs use occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the programs use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of occupational skills that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of occupational skills. The occupational skills standards for classes are used in teacher education programs in college. Occupational skills standards are the basis for program certification and evaluation.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. Partnerships with business and industry are either encouraged or required to support the use and/or development of occupational skills standards.

The state program and staff standards were updated by the state board in August, 1992.

The State Vocational Curriculum Coordinator was a member of the Standards and Measures Development Committee.

OHIO

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Center on Education and Training for Employment
1900 Kenny Road
Columbus, Ohio 43210

Responsible Person: Cathy Scruggs, VIML Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors and curriculum developers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers were consulted while developing these lists and processes. Local education representatives contributed to the development of the validation process.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of Technical Committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Agriculture Business Feed and Grain Worker; 1991
Agriculture Industrial Mechanical Technician; 1992
Agriculture Production
Agriculture Products Sales with Service Worker;1991
Animal Management Technician; 1992
Crop Producer; 1991
Dairy Producer; 1991
Fertilizer/Chemical Sales and Service Worker; 1991
Floriculture and Greenhouse Worker; 1992
Forest Industry Worker; 1992
Horticulture
Meat Processor; 1992
Natural Resources
Nursery and Garden Worker; 1992

Poultry Producer; 1991

Resource Conservation; 1992

Swine Producer; 1991

Turf and Landscape Worker; 1991

Accounting; 1991

Administrative/Secretarial Services; 1990

Business Administration and Management; 1991

Business Information Systems; 1991

Entertainment Marketing; 1991

Entrepreneurship; 1991

General Marketing; 1991

Travel and Tourism Marketing; 1992

Clothing and Interiors,Production and Services; 1992

Early Childhood Education and Care; 1991

Food Production, Management and Service; 1991

GRADS (Teenage Parenting); 1990

Hospitality and Facility Care Services; 1991

Middle School Home Economics; 1991

Work and Family Life; 1992

Dental Assistant; 1991

Diversified Health Occupations

Medical Assistant; 1991

Nurse Aide; 1991

Practical Nursing; 1991

Auto Collision Technician; 1991

Auto Mechanics; 1991

Building and Property Management; 1992

Carpentry; 1991

Commercial Art; 1991

Cosmetology; 1991

Diesel Mechanics; 1991

Drafting; 1991

Electrical Trades; 1991

Electronics; 1991

Graphic Communications: Commercial Photography; 1991

Graphic Communications: Graphic Arts; 1991

Heating, Ventilation, Air Conditioning and Refrigeration; 1992

Industrial Maintenance; 1991
Machine Trades; 1991
Masonry; 1991
Law Enforcement; 1991
Power Equipment Technology; 1991
Welding; 1990
Occupational Work Adjustment; 1991
Occupational Work Experience; 1991
Applied Communications; 1992
Applied Mathematics; 1992
Employability skills; 1991

Industry involvement with the development of occupational skills standards began in 1990.

Education initiated the movement toward the development of occupational skills standards. The occupations that first adopt occupational skills standards are unknown. These standards are used during the development of curriculum, at the local level and to establish criteria for assessing student mastery. In addition, occupational skills standards are used to create career passports and to determine program completion.

Both equity issues and special populations' needs are addressed in the programs.

D. **Summary of the processes used to develop occupational skills standards.**
OCAP is a modified Dacum process. It provides futuring and advancing competencies and it goes down to the competency builder (task) level.

E. **Summary of existing occupational lists used as base data.**
NNCCVTE materials and lists, business and industry lists, curriculum guides and occupational skills standards lists from across the nation were used to compile common competencies as draft documents.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skills standards were to develop programs that provided for the certification of mastery of occupational skills, to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

State skill certification processes exist for nurse aides, cosmetology, auto mechanics, dental assistants, and medical assistants. There is also a state vocational-occupational education agency, the State Board of Nursing (OBRA compliance). Business and industry groups certify through the State Board of Cosmetology and Automotive Service Excellence (ASE). In addition, there are the Certified Ohio Dental Assistants program and the Ohio Certified Medical Assistants programs.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are validated at the state level for assessing student mastery.

C. **Summary of the types of test assessments.**

Paper and pencil tests at the state level, actual performance tests, ACT Work Keys and combinations of them are needed to determine competence on Career Passport.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related (reading , writing, speaking and listening), and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, team skills, balancing work and family, entrepreneurship, leadership , citizenship, job retention, job advancement, economic education, lifelong learning, and technology in the workplace.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal vocational education funds.

B. **Cost to establish one set of occupational skill standards.**

The cost of an occupational skills standards list varies, but the funding consistently is drawn from Perkins II funds.

C. **Commitment of the state to have occupational skills standards developed.**

Ohio intends to use the funds for ongoing maintenance and revision of occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**
Ohio intends to maintain the current level of effort used toward the development of occupational skills standards. However, Ohio wants to increase the number of partnerships with business and industry as a means of increasing the usage and effectiveness of occupational skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**
State staff, local district administrators and instructors, secondary, adult, community college and post secondary education programs use occupational skills standards. In addition, members of the business and industry communities, labor/apprenticeship, and Job Training Partnership Act programs use occupational skills standards lists.

B. **How widely used are these standards.**
Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**
Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of skills/tasks that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of skills/tasks. The standards for classes are used in teacher education programs in college.

D. **The relationship between performance standards and skills standards.**
There is a requirement for local programs to use occupational skills standards. Partnerships with business and industry are either required or encouraged to support the use and/or the development of occupational skills standards.

OKLAHOMA

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1500 West Seventh
Stillwater, Oklahoma 74074

Responsible Person: Kimberly Sadler, Coordinator of Testing

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developers and testing staff contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, local education representatives on all levels, were consulted during the development of the lists and processes. Instructors in related academic fields assisted in coding.

B. **Definition of occupational skill standards and related processes.**

See competency attainment handbook.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skill standards for vocational-technical education. (asterisks are placed before the required committees).**

The required committees by the Perkins Act and created to establish occupational skill standards for vocational-technical education are: adult day care, agriculture(advanced), agriculture, air conditioning & refrigeration, accounting (applied), auto collision, auto service technician automated manufacturing technician, aviation avionics, aviation maintenance, banking & financial services (coop), banking & financial services, brick masonry, building & grounds maintenance, business & computer tech, business & computer intern, business & office, business/industrial/school coop, cabinetmaking, carpentry, cashier checker, child care, clerical clothing production & management, commercial art, commercial photography, communication, computer repair, construction, construction trades, cosmetology, custodial service, dental assisting, dental lab assisting, diesel service, drafting, electricity, electro-mechanic, electronics, emergency medical technician, farm business management, farm equipment repair, fashion merchandising, fashion merchandising (coop), floral design, food management, food management (coop), food service, health, heavy equipment operator, home economics, home furnishings, horse production & management, horticulture, industrial chemistry, industrial electricity, industrial maintenance technician, information/data processing, institutional home services, instrumentation, law enforcement

training, major appliance repair, marine service, marketing, meat processing, medical assisting, motorcycle service, nursing assisting, paralegal studies, physical therapy assistant, plumbing, power products, practical nursing, precision machining, printing radiologic technician, respiratory therapy technician, sheet meatal fabrication, small business management, small engine repair, surgical technician, horticulture, trade & industrial, upholstery, welding

Occupational skill standards were established in Oklahoma in 1980.

Vocational education initiated the movement toward the development of occupational skills standards. The standards were first adopted by the business and office clusters. Occupational skill standards are used to develop curriculum for assessing student mastery and to develop curriculum. In addition, occupational skills standards are used to assess students readiness and needs for remediation in preparation for occupational preparation.

Special populations' needs address testing consistent with IEP and low level occupations. An equity check sheet was devised to address equity issues.

D. **Summary of the process used to develop occupational skills standards.**
Other industry processes utilizing workers and others, Vocational-Technical Education Consortium of States (V-TECS) or modified V-TECS process and labor and apprenticeship processes were reviewed during the development of occupational skills standards.

E. **Summary of existing occupational lists used as base data.**
There was limited use of V-TECS catalogs. Business and industry lists were used heavily when they were state or national lists. In addition, apprenticeship lists and updated state and local lists were used.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skill standards lists was to assess occupational readiness and serve as a guide for remediation.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**
State skill certification process are available for all occupations for which task list exists. There is a joint certification with the State Department of Health for the health certification project. The

business and industry groups have a joint certification with AGC for residential carpentry, commercial carpentry, and brick/stone masonry.

B. **Components of the assessment process on the state and local level.**
Tests are randomly generated at state level, requested by local level, and returned to state. Test bank questions are validated at the state level and are used to assess student mastery of occupational skills.

C. **Summary of the types of test assessments.**
Paper and pencil, simulation, situational, and actual performance tests are used to determine students' levels of competency and to provide a method of assessment. There are two components of test assessment, written (cognitive and scenario) and performance.

D. **Summary of academic and employment skills that are tested in assessments.**
The academic competencies that are tested include: math related, science related, communication related, and related skills. The employability competencies that are tested include: resume and application processing, human relations on the job, problem solving, thinking skills, team skills, career opportunities and entrepreneurship awareness.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES

A. **Funds used to develop occupational skills standards.**
Funding for the development of occupational skills standards comes from state vocational education funds, funding from the State Department of Health and business and industry funds from AGC are used to develop skills standards.

B. **Cost to establish one set of occupational skills standards.**
It costs $1,500 dollars of the health department's funds to develop a set of occupational skills standards for health occupations. It costs $2,400 to develop one set of occupational skills standards for the electronics occupations. Funding comes from the state department of vo-tech funds.

C. **Commitment of the state to have occupational skills standards developed.**
Funds under the states control are committed to ongoing maintenance and revision with limited consortiums involvement. In the future Oklahoma will be expanding its level of efforts with more involvement through consortium development and by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS

A. **Who uses the occupational skills standards.**

Occupational skills standards are widely used by state staff, local district administrators and instructors, post secondary, secondary, community college, adult and private education programs. In addition, the business and industry communities, labor and apprenticeship and Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**

Most secondary and post secondary districts use at least two of the occupational skill standards. Some of the districts use occupational skills standards during the development of articulation agreements.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used for the state curriculum development and are the basis for articulation between secondary and post secondary programs and courses. They are the basis for the development of the syllabi for courses and must be mastered by students for certification. Occupational skills standards are the basis for tests and assessments.

D. **The relationship between performance standards and occupational skills standards.**

Local programs are encouraged to use skills standards in a partnership with business and industry. Partnerships with business and industry are encouraged or required to support the development and/or use of occupational skills standards.

PENNSYLVANIA

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Bureau of Vocational-Technical Education
333 Market Street
Harrisburg, PA 17126-0333

Responsible Person: Ferman Moody, State Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

Vocational Education program specialists (state staff and subcontractors), V-TEC's curriculum developers, special program researchers contributed to the development of the initial lists and validation processes. Mid America, Oklahoma and Texas curriculum materials were reviewed. Business representatives, including management and workers, and local education representatives, on all levels also were consulted while developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of Technical Committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

State Board for Vocational Education; before 1960
Local General Advisory Committee; before 1960
Local Occupational Advisory Committee; before 1960
Scientific Data Processing
Graphic Communication
Food Management Production and Service
Electronic Technology
Diesel Mechanics
Business Data Processing
Building Trades Maintenance
Building Construction Occupations
Auto Body Repair
Automotive Mechanics

Carpentry
Secretarial
Welding

Industry involvement with the development of occupational skills standards began in 1960.

Education initiated the movement toward the development of occupational skills standards. Across the board, occupations adopted occupational skills standards in 1960.

Special populations' needs are addressed because they are required to meet standards unless they are covered by an Individual Education Plan (IEP). Equity issues are addressed through OCR reviews, Affirmative Action and Special Promotion Programs.

D. **Summary of the processes used to develop occupational skills standards.**
The Dacum or modified dacum process, other industry processes utilizing workers and others, Vocational-Technical Education Consortium of States (V-TEC's) process or a modified process, Local Apprentice Councils, task analysis that are required for all approved programs, Mid America, Oklahoma and Texas materials, and Apprenticeship Councils and National Organizations Task Lists were reviewed during the development of Pennsylvania's occupational skills standards.

E. **Summary of existing occupational lists used as base data.**
Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, Local Occupational Advisory Committees' lists, Local Councils' lists, Mid America, Oklahoma and Texas's lists were used to develop state occupational skills standards. The old list was used as a baseline. Task lists are required to be updated every year.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skills standards were provide for local certification of mastery, formal certification through NOCTI and SOCAT (optional, to aid in the development of curriculum and program approval, and to provide guidelines for courses and programs. Task lists are required to be updated every year by the Local Occupational Advisory Committees.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**
The state skill certification processes that exist are NOCTI and SOCAT. There are also state vocational-occupational education agencies that provide the Pennsylvania Skill Certificate.

Automotive Service Excellence, Print-Ed., Air Conditioning and Refrigeration Institute are business and industry groups that certify. The Pennsylvania Apprenticeship Council and the Bureau of Apprenticeship and Training also provide certification programs. In addition, the local mastery list and certification program certifies.

B. **Components of the assessment process on the state and local levels.**
Test banks of questions are provided by V-TEC's and Mid America. There are test bank questions held at the state level for assessing student mastery provided by NOCTI and SOCAT. There are also test bank questions available at the local level for instructor use with the students. In addition, there are also business and industry sample questions available.

C. **Summary of the types of test assessments.**
Paper and pencil, computerized cognitive in the form of trade specific software, simulation, situational, and actual performance tests (outcome based education requirements) are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**
The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**
Funding for the development of occupational skills standards comes from state and federal vocational education funds and local level funds. Job Training Partnership Act funds are also used.

B. **Cost to establish one set of occupational skill standards.**
An engineering related technology occupational skills standards list costs approximately $100,000 of state curriculum funds to create.

C. **Commitment of the state to have occupational skills standards developed.**
Pennsylvania intends to use the funds for ongoing maintenance and revision of occupational skills standards.

Consortiums will be used to acquire business and industry validated occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**
Pennsylvania intends to expand the level of effort used in the development of occupational skills standards by expanding consortium development and partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**
State staff, local district administrators and instructors, secondary, adult, private, community college and post secondary education programs use the occupational skills standards and/or lists. In addition, members of the business and industry communities, labor and apprenticeship, and Job Training Partnership Act programs use occupational skills standards.

B. **How widely used are these standards.**
Most of the secondary and post secondary districts use at least two of the occupational skill standards. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**
Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of occupational skills to be mastered for certificates of mastery of students and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**
There is a direct relationship between performance standards and skill standards. Students are required to meet local academic and skill standards plus state performance standards in reading, math, advanced academic skills, completion and employment.

Partnerships with business and industry are required. The Youth Apprenticeship program promotes support for business and industry partnerships.

RHODE ISLAND

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Rhode Island Department of Education
22 Hayes Street
Providence, Rhode Island 02908

Responsible Person: John F. Keough, Jr., Education Specialist

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developers, teachers in occupational areas and researchers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, trade and professional organizations and local education representatives, on all levels, were also consulted while developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

None described.

Industry involvement with the development of occupational skills standards began in 1985.

Education initiated the movement toward the development of occupational skills standards. Occupations for which standards were first adopted are auto mechanics and carpentry. These standards were used to develop curriculum and to establish criteria for assessing student mastery of occupational skills. In addition, minimum competencies were created for occupational areas from these standards.

Special populations' needs are being addressed through the linkage of occupational task lists to the development of Individual Education Plans (IEP's). IEP's address very specific competencies and are neutral to equity issues.

D. **Summary of process used to develop occupational skills standards.**

Dacum or a modified dacum process was used to develop occupational skills standards.

E. **Summary of existing occupational lists used as base data.**

Other consortium lists and materials, such as Oklahoma's skills standards materials, business and industry lists, and apprenticeship lists are used in the development of state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to determine job entry level and to develop training agreements for co-op programs. Also, occupational skills standards are used in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

Local Education Agencies provide certification for the completion of occupational skills programs in addition to a high school diploma.

B. **Components of the assessment process on the state and local levels.**

Test bank questions are held at the state level for assessing student mastery. At the local level, there are test bank questions available for instructor use with students.

C. **Summary of the types of test assessments.**

Paper and pencil and practical performance tests are used in Rhode Island.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, and communication related skills. The employment related skills that are tested include: problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop skills occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds.

B. **Cost for one set of occupational skill standards.**

The average cost to establish an occupational skills standards list for any occupational area is $5,000. Funding for these lists comes from federal monies.

C. **Commitment of the state to have occupational skills standards developed.**

Rhode Island intends to use the funds for ongoing maintenance and revision of occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

Rhode Island wants to maintain the current level of effort toward the development of occupational skills standards. The state intends to revise the existing standards and integrate them with academics.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary education programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. During the development of articulation agreements, only some of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, to create lists of occupational skills that must be mastered in order to obtain a certificate of mastery (at the local level) and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. In addition, partnerships with business and industry are required or encouraged to support the development of occupational skills standards.

SOUTH CAROLINA

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Office of Occupational Education
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Responsible Person: Roger Goupil, Education Associate

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, program consultants and state supervisors contributed to the development of the initial lists and validation processes. Business representatives, including management and workers were consulted during the development of the validation processes. Local education representatives, on all levels also were consulted while developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

* Carl Perkins Technical Committee; 1985
Program areas state advisory committee; 1983

Industry involvement with the development of occupational skills standards began in 1983.

Education initiated the movement toward the development of occupational skills standards. The trade and industrial occupations were the first to adopt occupational skills standards. These standards are used in the development of curriculum. In addition, occupational skills standards are used in the evaluation of programs.

D. **Summary of the processes used to develop occupational skills standards.**

Vocational-Technical Education Consortium of States (V-TEC'S) or a modified V-TEC's model and other industry processes utilizing workers and others were used to develop occupational skills standards in South Carolina.

E. **Summary of existing occupational lists used as base data.**

Vocational- Technical Education Consortium of States (V-TEC'S) catalogs and business and industry lists were used to develop state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

The only certifying agencies in South Carolina are the Local Education Agencies (LEA's). These agencies provide competency profiles and certificates of competence for occupational skills.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are validated a both the state and local level. There are test bank questions held at the state level for assessing student mastery.

C. **Summary of the types of test assessments.**

Paper and pencil are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds.

B. **Cost to establish one set of occupational skill standards.**

Not available at this time.

C. **Commitment of the state to have occupational skills standards developed.**

South Carolina intends to use the funds for ongoing maintenance and revision of occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

South Carolina intends to expand the level of effort used in the development of occupational skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, and secondary education programs use occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. However, none of the post secondary districts do the same. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary programs and courses, during the development of syllabi for courses, to create lists of occupational skills that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards.

SOUTH DAKOTA

Address: 700 Governors Drive
Knore Building
Pierre, SD 57501

Responsible Person: Larry Zikmund, State Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors and local education representatives, on all levels contributed to the development of the initial lists and validation processes. Business representatives contributed to the development of the validation processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

* Technical Committee for Agriculture Education; 1985
* Technical Committee for Vocational Home Economics; 1985
* Technical Committee for Vocational Special Needs; 1985
* Technical Committee for Vocational Curriculum; 1985

Industry involvement with the development of occupational skills standards began in 1985.

Education initiated the movement toward the development of occupational skills standards. The occupation that first adopted occupational skills standards was agriculture education. These standards were used in the development of curriculum and to establish criteria for assessing student mastery of occupational skills. In addition, occupational skills standards were used to determine at what grade level competencies were taught.

Special populations' needs are addressed through data collection. Equity issues are also considered and addressed during the development of occupational skills standards.

D. **Summary of the processes used to develop occupational skills standards.**

Vocational-Technical Education Consortium of States (V-TEC'S) or a modified V-TEC's model and task analyses of occupational skills performed at the work site are reviewed during the development of occupational skills standards in South Dakota.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, business and industry lists and previous state and local lists were used to develop state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to determine entry level and to develop training agreements for co-op programs. Also, occupational skills standards aid in the development of curriculum.

DESCRIPTION OF THE ASSESSMENT AND CERTIFICATION PROCESSES.

A. **Certification processes currently in place.**

State skill certification processes exist for agriculture education, automotive and home economics. There are also state vocational-occupational education agencies that certify. Business and industry groups have certifications programs for the automotive and agriculture education occupations.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are validated at the local level. There are test bank questions available at the local level for instructor use with students.

C. **Summary of the types of test assessments.**

Paper and pencil are used to determine the level of competency of students and to provide a method of assessing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, and communication related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds.

B. **Cost to establish one set of occupational skill standards.**

For agriculture education, a set of occupational skill standards costs approximately $10,000 to develop. The funding is provided by state and federal vocational education funds.

C. **Commitment of the state to have occupational skills standards developed.**

South Dakota intends to use the funds for ongoing maintenance and revision of occupational skills standards. Consortiums will be used to acquire business and industry validated occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

South Dakota intends to expand the level of effort used toward developing occupational skills standards. In order to expand the use of occupational skills standards, the state will promote the expansion through consortium development and partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, post secondary, community college and adult education programs use occupational skills standards.

The business and industry communities also use these standards.

B. **How widely used are these standards.**

Some of the secondary districts use at least two of the skill standards lists. However, most of the post secondary districts do the same. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, and the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards.

Programs are required to identify competencies.

TENNESSEE

Address: 200 Cordell Hull Building
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Responsible Person: Jim Vinson, Director, Planning and Development

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**
Curriculum developers, researchers, business representatives, including management and workers, and local education representatives, on all levels contributed to the development of the initial lists and validation processes.

B. **Definition of occupational skills standards and related processes.**
None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)
Ad Hoc Industrial Committee; 1990
All program areas curriculum committees; 1984

Industry involvement with the development of occupational skills standards began in 1984.

Education initiated the movement toward the development of occupational skills standards. The health occupations were the first to adopt occupational skills standards. These standards were used during the development of curriculum and to establish criteria for assessing student mastery of occupational skills. In addition, occupational skills standards were used for licensure.

Special populations' are guaranteed equal access to all programs. Equity issues are addressed through RFP's.

D. **Summary of the processes used to develop occupational skills standards.**
Vocational-Technical Education Consortium of States (V-TEC'S) or a modified V-TEC's model, Dacum or a modified Dacum process, other industry processes utilizing workers and others, labor-apprenticeship programs (labor is involved in task identification), task analyses of occupational

skills, and combinations of the above were used to develop occupational skills standards in Tennessee.

E. **Summary of existing occupational lists used as base data.**

Vocational- Technical Education Consortium of States (V-TEC'S) catalogs, other consortium lists and materials, previous state and local lists and business and industry lists were used to develop state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to determine job entry level and to develop training agreements for co-op programs. Also, standards are used to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

There are state skill certification agencies and state vocational-occupational education certification agencies. Business and industry groups have agencies that are used for validation of curriculum. Local education agencies and combinations of the groups mentioned above provide certification for workers and students in Tennessee.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are held at the state level for assessing student mastery. There are also test bank questions available at the local level for instructor use with students. Test bank questions are available from other sources as well.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, actual performance tests and combinations of them are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds. There is additional funding available from state funds other than vocational education funds.

B. **Cost to establish one set of occupational skill standards.**

Not available at this time.

C. **Commitment of the state to have occupational skills standards developed.**

Tennessee intends to use the funds for ongoing maintenance and revision of occupational skills standards. Consortiums will be used to acquire business and industry validated occupational skills. The state views this issue as a local district issue.

D. **Summary of the state's view of the future of occupational skills standard development.**

Tennessee intends to expand the level of effort used during the development of occupational skills standards through the expansion of consortium development and partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, adult and private education programs, business and industry,labor and apprenticeship, and Job Training Partnership Act programs use the occupational skills standards and/or lists.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. In development of articulation agreements, most of the programs use skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, lists of occupational skills standards to be mastered for certificates of mastery of students and as the basis for tests and assessments of skills/tasks.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards.

Partnerships with business and industry are required or encouraged to promote support for the development and/or use of occupational skills standards.

TEXAS

Address: Texas Education Agency
1701 Education Agency
Austin, TX 37243-0383
Responsible Person: Lorraine Merrick

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, curriculum developers, university professors and researchers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels were consulted during the development of these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Agriculture Education
Vocational Home Economics
Vocational Office Economics
Health Occupations
Trade and industrial arts
Marketing education
Technical education
Industrial arts

Education and industry initiated the movement toward the development of occupational skills standards. Occupations for which standards were first adopted are agriculture education, vocational home economics, vocational office economics, health occupations, trade and industrial arts, marketing education, technical education and industrial arts. These standards were used in the development of curriculum and to establish criteria for the assessment of student mastery.

Special populations' needs are addressed by local adjustment of standards, programs, etc. Equity issues are addressed through a series of special projects.

D. **Summary of the processes used to develop occupational skills standards.**

The Dacum process or a modified Dacum process and other industry processes utilizing workers and others were reviewed during the development of occupational skills standards in Texas.

E. **Summary of existing occupational lists used as base data.**

Business and industry lists were used to develop state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

The only certifying agencies in Texas are the Local Education Agencies (LEA's).

B. **Components of the assessment process on the state and local levels.**

Not available at this time.

C. **Summary of the types of test assessments.**

A combination of several forms of testing are used to determine the level of competency of students and provide a method of assessing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal vocational education funds.

B. **Cost to establish one set of occupational skill standards.**

Not available at this time.

C. **Commitment of the state to have occupational skills standards developed.**

Texas intends to use the funds for ongoing maintenance and revision of occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

Texas intends to expand the level of effort used toward the development of occupational skills standards by expansion of consortium development and partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

Local district administrators and instructors use the occupational skills standards.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the occupational skills standards lists. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, and as the basis for tests and assessments of skills/tasks.

D. **The relationship between performance standards and skills standards.**

In the future there is a requirement for local programs to use occupational skills standards. There is much work that continues to be done toward this effort of occupational skills standards.

UTAH

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Applied Technology Education Services
250 East 500 South
Salt Lake City, UT 84111

Responsible Person: R. Russell Whitaker, Acting Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors and curriculum developers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels also were consulted during the development of these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Business occupations; 1983
Critical workplace skills; 1989
Automotive; 1990

Industry involvement with the development of occupational skills standards began in 1983-1984.

Together, education and industry initiated the movement toward the development of occupational skills standards. The business occupations were the first to adopt occupational skills standards. These standards were used during the development of curriculum and to establish criteria for assessing student mastery. In addition, occupational skills standards were used as a pre-requisite for short-term custom fit.

Special populations' needs and equity issues are addressed in Utah's programs. There is equal access to programs, regardless of gender. There are also workshops set up to deal with equity issues.

New state standards require that all new curriculum be developed to respond to business and industry needs and be competency-based.

D. **Summary of the processes used to develop occupational skills standards.**
The dacum process or modified dacum for industry workers, other industry processes utilizing workers and others were reviewed while developing Utah's occupational skills standards. In addition, a few individuals developed some standards that were so logical that validation was unnecessary. Utah found that it was necessary for industry to define its needs in order

E. **Summary of existing occupational lists used as base data.**
Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, business and industry lists, previous state/local lists (Florida, New York, Wyoming and bits and pieces from other states), and combinations of them were used to develop state occupational skills standards. A nation-wide search was performed by business specialists to avoid duplication of efforts. Materials collected were used to develop occupational skills standards lists.

F. **Purpose of occupational skills standards.**
The purposes for developing occupational skills standards were to determine baseline skills for entry level and to develop certification programs for the mastery of occupational skills. In addition, occupational skills standards aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**
State skill certification processes exist for all areas using competency-based curriculum (accounting, data processing, word processing, auto mechanics). There are also state vocational-occupational education agencies and local education agencies at the secondary level that provide certification processes.

B. **Components of the assessment process on the state and local levels.**
Test banks of questions are validated for the business occupations and are held at the state level for assessing student mastery. There are also test bank questions available at the local level for

instructor use with the students. These questions test critical workplace skills. Test bank questions are also available through the Automotive Service of Excellence (ASE). The testing is performance based and a scantron format is often used.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, actual performance tests and combinations of the situational and simulation tests are used to determine the level of competency of students and provide a method of assessing performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from state vocational education funds and local funds.

B. **Cost to establish one set of occupational skill standards.**

A business occupational skills standards list costs approximately $504,000 of Perkins fund monies to create. A workplace occupational skills standards list costs approximately $10,000 of Perkins fund monies to create.

C. **Commitment of the state to have occupational skills standards developed.**

Utah intends to use its funds for ongoing maintenance and revision of occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

Utah intends to expand the level of effort used in the development of occupational skills standards by expanding consortium development and partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, adult, private, community college and post secondary education programs use the occupational skills standards. In addition, members of business, industry, labor, apprenticeship, and Job Training Partnership Act programs use occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the occupational skill standards lists. However, only some of the post secondary districts do the same. During the development of articulation agreements, some of the districts use skills standards. Utah is planning a significant increase of the use of occupational skills standards during the development of articulation agreements.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, lists of occupational skills that must be mastered in order to obtain a certificate of mastery of students and as the basis for tests and assessments of skills and tasks. The standards for classes are used in teacher education programs in college.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards.

VERMONT

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Vermont Department of Education
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Montpelier, VT 05620-2501

Responsible Person: Donald E. King, Technical Curriculum Specialist

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors, researchers, and curriculum developers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, were consulted during the development of the validation processes. Education representatives were consulted during the development of the initial lists. Curriculum resources from NNCCVTE were used in the process. An advisory committee was established for each program.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

* Electronics; 1985
* Marketing; 1985
* Building Trades; 1985
* Automotive Technology; 1986
* Bookkeeping, Accounting and Microcomputer accounting; 1986
* Dairy Production; 2986
* Graphic Arts; 1986
* Machine Trades; 1986
* Office Occupations; 1986
* Auto Body Repair; 19B7
* Culinary Arts; 1987
* Drafting/CAD; 1987

* Health Occupations; 1987
* Industrial Mechanics; 1987
* Aircraft Mechanics; 1988
* Dental Assisting; 1988
* Diesel/Truck Mechanics & Truck Operation; 1988
* Forestry and Natural Resources; 1988
* Stone trades; 1988
* Welding/Metal Fabrication; 1988
* Diversified Agriculture; 1988
* Human Services; 1988
* Millwork/Cabinetmaking; 1988
* Agriculture Mechanics; 1988
* Horticulture; 1990
* Heavy Equipment; 1990
* Performing Arts; 1990
* Hospitality: Travel, Tourism, and Recreation; 1992
* Video Production; 1992

Industry involvement with the development of occupational skills standards began with the first project in 1983, but 1985 is considered the first year that occupational skills standards were used.

Education initiated the movement toward the development of occupational skills standards. The occupations that first adopted occupational skills standards are electronics, marketing, and building trades. These standards were used during the development of curriculum. Occupational skills standards are currently being used to establish criteria for assessing student mastery. In addition, occupational skills standards are used in the standardization of program core statewide.

Special populations' needs and equity issues are addressed
in compliance with the law.

D. **Summary of the processes used to develop occupational skills standards.**
A modified Dacum process and other industry processes utilizing workers and others, including post secondary instructors, were used to develop occupational skills standards in Vermont. An instructor curriculum roundtable meeting was used to define program areas and to create rough drafts of competency lists. Those lists are then taken to a state technical committee for validation.

E. **Summary of existing occupational lists used as base data.**

NNCCVTE searches were conducted and some of the materials found were adopted in Vermont's occupational skill standards lists. A review of business and industry lists was conducted, but no information was used. Previous state/local lists were used when available and appropriate.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to determine baseline skills for entry level and to develop training agreements for co-op programs. In addition, standards aid in the development of curriculum and provide guidelines for courses and programs and to create curriculum consistency.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

There are state vocational-occupational education agencies that certify. ASE certified for automotive occupations; AGC certifies for the building trades. Other business and industry certification agencies are still pending.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are available from private sources. They are also using a portfolio review assessment. Vermont noted that there is still a lot of fine tuning that needs to be done.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, and actual performance tests are used to determine the level of competency and provide assessment of performance. Most of the testing is done on a local basis. There is also portfolio testing that is used to test assessments.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, social studies related and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from state and federal vocational education funds; federal funds other than vocational education (JTPA until 1988) and the donation of the technical committee members' time.

B. **Cost to establish one set of occupational skill standards.**

An approximate cost for any of the programs if $3,000 +/- some. The funding for the occupational skills standards comes from both federal and state monies. The funds used to develop these lists were not specified.

C. **Commitment of the state to have occupational skills standards developed.**

Vermont intends to use the funds for ongoing maintenance and revision of occupational skills standards. Consortiums will be used to acquire business and industry validation of occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

Vermont intends to expand the level of effort used in the development of occupational skills standards by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, adult, private, community college and post secondary education programs use occupational skills standards. In addition, members of the business and industry communities, labor and apprenticeship, and Job Training Partnership Act programs use occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary districts use at least two of the skill standards lists. However, only some of the post secondary districts do the same. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, to create lists of skills/tasks that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of skills/tasks. The standards for classes are used in teacher education programs in college.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. Partnerships with business and industry are either required or encouraged to support the development or creation of occupational skills standards.

VIRGINIA

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P.O. Box 2120
Richmond, VA 23216-2060

Responsible Person: Dr. Kay B. Brown, Associate, Marketing Education and Curriculum Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors researchers, and curriculum developers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, were consulted during the development of the validation processes. Local education representatives, on all levels were consulted while developing both the lists and processes.

B. **Definition of occupational skills standards and related processes.**

Occupational skill standards are the abilities to perform the primary tasks of a specific occupation. Occupational skills and tasks are used synonymously in Virginia. Virginia has standards for competency-based education, including the requirement of stating a performance objective for each task/competency that includes criteria and conditions.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Critical workplace skills; 1989
Automotive; 1990

Industry involvement with the development of occupational skills standards began approximately around 1974.

Education initiated the movement toward the development of occupational skills standards. These standards were used during the development of curriculum and to establish criteria for assessing student mastery. In addition, occupational skills standards were used during instructional design. All curriculum guides have been competency-based since 1974; technical committees or Dacum process were applied during all task lists development.

Special populations' needs are addressed in specific guides created for this group. A gender equity coordinator is a member of the curriculum team to ensure that equity issues are addressed. Discrimination of any type is forbidden by law and so stated on all curriculum guides.

D. **Summary of the processes used to develop occupational skills standards.**

Dacum or modified dacum, other industry processes utilizing workers and others, Vocational-Technical Education Consortium of States (V-TEC'S) or modified V-TEC'S, labor apprenticeship processes being developed by the Departments of Labor and Industry were reviewed during the development of Virginia's occupational skills standards. Researchers and writers contributed to the development occupational skills standards in Virginia.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, other consortium materials such as East Central Network for Curriculum Coordination, business and industry lists, and apprenticeship lists are used to develop state occupational skills standards. The current process receives tentative lists from all available sources and then must be validated by the industry.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to create programs for the certification of mastery of occupational skills. In addition, standards are used to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

State skill certification processes exist for cosmetology, LPN, nursing assistant, auto mechanics, electricity, and plumbing. State vocational-occupational education agencies that certify are found in the Departments of Commerce and Labor and Industry (apprenticeship). Business and industry groups that certify are the Virginia Welding Society and Associated General Contractors. Only NOCTI certifies for teachers.

B. **Components of the assessment process on the state and local levels.**

Test bank questions are held at the state level for assessing student mastery. Test bank questions are available at the local level for instructor use with students. All test bank information is at the Virginia Vocational Curriculum and Resource Center.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, and actual performance tests are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal and state vocational education funds. Occasionally there are partnerships activities with business and industry.

B. **Cost to establish one set of occupational skill standards.**

Not available at this time

C. **Commitment of the state to have occupational skills standards developed.**

Virginia intends to use the funds for ongoing maintenance and revision of occupational skills standards. Consortiums will be used to acquire business and industry validated occupational skills standards. In addition, to state guidelines, there is local validation of state occupational task lists.

D. **Summary of the state's view of the future of occupational skills standard development.**

Virginia intends to expand the level of effort used in the development of occupational skills standards by expanding consortium development and partnerships with business and industry. A recent workforce study revealed what were the 'critical competencies' for secondary through graduate education.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, adult, and secondary education programs use the occupational skills standards. In addition, members of the business and industry communities, labor and apprenticeship, and Job Training Partnership Act programs use occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the programs use skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses (articulated and tech prep course) and as the basis for tests and assessments of occupational skills. Localities may develop their own validated task lists, but most of the school divisions use the state task lists as a basis.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards.

Partnerships with business and industry are required or encouraged to support the development and/or use of occupational skills standards. The state, in most instances, cannot force localities to use state lists, but it does require a locally validated competency list.

WASHINGTON D.C.

Address: Browne Adminstrative Unit
26th Street and Benning Road N.E.
Washington D.C. 20002
Responsible Person: Otho E. Jones, State Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

Curriculum developer and researchers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels, were consulted during the developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

Occupational skills: are abilities acquired by observation, study or experience in mental and/or physical performance basis to the mastery of school work or other activity. Tasks are activities by an individual worker in order to accomplish some component of the occupational role; concise descriptions of units of work as the worker functions in his/her occupation.

Competencies: are identified ranges of skill, knowledge or ability.

Standards: are acknowledged criteria used to determine the strengths and weaknesses of a program.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (asterisks are placed before the required committees)

Technical Committee A
Technical Committee B

Education initiated the movement for the development of occupational skills standards.

Practical Nursing was the first occupation to adopt occupational skills standards. These standards were used to develop curriculum (competencies) and to establish criteria for assessing student mastery, especially in curriculum products.

Special populations' and equity issues are addressed through occupational competencies and placement.

D. **Summary of the process used to develop occupational skills standards.**
Dacum or modified Dacum processes were used to develop Washington D.C.'s occupational skills standards.

E. **Summary of existing occupational skills standards used as base data.**
Other Consortium lists and materials, such as list acquired from NNCCTVE were used in the development of State skills standards/competencies.

F. **Purpose of Occupational Skills Standards/Tasks/Competencies.**
The purpose of developing occupational skills standards/tasks/competency lists was to aid in the development of curriculum.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**
The only certifying agency in Washington D.C. are the State Skill certifying processes for practical nursing, barbering and cosmetology.

B. **Components of the assessment process on the State and Local levels.**
None described

C. **Summary of the Types of Test Assessments.**
Paper and pencil, simulation, and actual performance tests are used to determine the level of competency and provide assessment of performance.

D. **Summary of Academic and Employment Skills that are tested in assessments.**
The academic competencies that are tested include: math related, science related, communication related, and reading related. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **What funds were used to develop skills standards/tasks/competency lists.**

The main sources of funding are from Federal and State vocational education funds.

B. **The cost for one set of skill standards to be developed.**

None described

C. **Commitment of the State to have skills standards/task/competencies developed.**

Washington D.C. intends to use the funds for ongoing maintenance and revision of the standards.

D. **Summary of the State's view of future occupational skills standard development.**

Washington D.C. intends to maintain the level of effort to develop skills standards.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS

A. **Who uses the occupational skills standards and/or skills/tasks/competency lists.**

Local district administrators and instructors and secondary education programs use the occupational skills standards and/or lists.

B. **How widely used are these standards.**

None described.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, the development of syllabi for courses, lists of skills/tasks to be mastered for certificates of mastery of students and the basis for tests and assessments of skills/tasks.

D. **The relationship between Performance Standards and Skills Standards.**

There is a requirement for local programs to use skills/tasks/competency lists or skills standards. Also, partnerships with business and industry are required/encouraged for the support of skills standards.

WISCONSIN

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310 Price Place
P.O. Box 7874
Madison, WI 53707-7874

Responsible Person: R. Russell Whitaker, Acting Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors and curriculum developers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, labor representatives, curriculum directors and specialists and local education representatives, on all levels also were consulted while developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

Fire Service Technical and Curriculum Committee; 1986

State Millwright Curriculum Committee;1988

Industry involvement with the development of occupational skills standards began in 1906.

Education initiated the movement toward the development of occupational skills standards. Occupations for which standards were first adopted are plumbing and patternmaking. These standards were used in the development of curriculum and to establish criteria for assessing student mastery. In addition, occupational skills standards are used as a basis for occupational programming.

Special populations' needs are met with basic skills courses, peer tutoring and remedial courses. There are systemwide initiatives to address equity issues.

D. **Summary of the processes used to develop occupational skills standards.**

The following processes and lists were reviewed during the developmental process of Wisconsin's occupational skills standards: Dacum or modified Dacum process; other industry processes utilizing workers and others; Vocational-Technical Education Consortium of States process (V-TEC'S) or a modified V-TEC's process; program advisory boards and professional associations' lists; task analyses of occupational task performed at the job site and single individuals developed lists with or without validation. The Dacum is the primary process used by Wisconsin.

E. **Summary of existing occupational lists used as base data.**

Vocational-Technical Education Consortium of States (V-TEC'S) catalogs, business and industry lists, apprenticeship lists, curriculum center provided materials (i.e. Humber College lists), previous state/local lists, professional association's lists and combinations of them were used to develop state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards were to determine baseline skills for entry level and to develop training agreements for co-op programs. In addition, standards are used to aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

State skill certification processes exist for EMT, nursing, barber/cosmetology, nursing assistants, insurance, AODA, real estate, apprentice, department of regulation and licensing, DILHR and H&SS. There are also state vocational-occupational education agencies that certify for fire service. Local Area Network Management certifies for the computer industry. Several associations certify AODA counselors, para-legals and court reporters.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are validated at the state level and are used for assessing student mastery. This applies for fire service education.

C. **Summary of the types of test assessments.**

Paper and pencil, computerized cognitive, simulation, situational, actual performance tests and combinations of them are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from state and federal vocational education funds; state and federal funds not from vocational education; business and industry funding (i.e. Wisconsin Restaurant Association) and combinations of them.

B. **Cost to establish one set of occupational skill standards.**

A barber/cosmetology occupational skills standards list costs approximately $23,000 of state funding sources monies to create.

C. **Commitment of the state to have occupational skills standards developed.**

Wisconsin intends to use its funds for ongoing maintenance and revision of occupational skills standards. Consortiums will be used to acquire business and industry validated occupational skills standards. The state initiated the use of occupational skills standards using consortiums of Local Education Agencies.

D. **Summary of the state's view of the future of occupational skills standard development.**

Wisconsin intends to expand the level of effort used toward the development of occupational skills standards by expanding consortium development and partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, adult, private (barber schools), community college and post secondary education programs use occupational skills standards. In addition, members of business and industry, (Wisconsin Restaurant Association) labor and apprenticeship, and Job Training Partnership Act programs use the occupational skills standards lists.

B. **How widely used are these standards.**

Few of the secondary districts use at least two of the skill standards lists. However, most of the post secondary districts do the same. During the development of articulation agreements, most of the districts use occupational skills standards.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs and courses, during the development of syllabi for courses, and as the basis for tests and assessments of occupational skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. Partnerships with business and industry are required or encouraged to support to use and/or development of occupational skills standards.

The Technical College System is involved in on-going curriculum development utilizing the business community, labor, the university, and the secondary system.

Most curriculum has been revised using a part of, or all of, the above-mentioned contributors since 1984.

WEST VIRGINIA

Address: West Virginia Department of Education
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Charleston, WV 25305

Responsible Person: Dr. Adam J. Sponaugle, Assistant State Supervisor

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

State staff, subcontractors and curriculum developers contributed to the development of the initial lists and validation processes. Business representatives, including management and workers, and local education representatives, on all levels also were consulted while developing these lists and processes.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

* Electronic Technology; 1991
* Health Assistant; 1991
* Culinary Arts; 1991
* Information Processing; 1991
* Horticulture; 1991
* Physical Therapist Assistant; 1991

Agriscience; 1992
Agricultural Science; 1992
Forest Technology; 1992
Grounds Maintenance; 1992
Business Education; 1992
Adult Roles and Functions; 1992
STEPS (Surviving Today's Experiences and ProblemsSuccessfully); 1992
Parenting Education; 1992
Dental Assistant; 1992

Medical Assistant; 1992

Entrepreneurship; 1992

Diversified Cooperative Training; 1992

Marketing Education; 1992

Food Management, Production and Service; 1992

Care and Guidance of Children; 1992

Textile Production and Fabrics; 1992

Hospitality Education; 1992

Civil Technology; 1992

Principles of Technology; 1992

Computer Integrated Manufacturing; 1992

Communications Technology; 1992

Computer Systems and Operational Support; 1992

Wood Products Technology; 1992

Air Conditioning and Refrigeration Technology; 1992

Auto Body Technology; 1992

Automotive Technology; 1992

Commercial Art/Advertising Design; 1992

Interior Design; 1992

General Guilding Construction; 1992

Carpentry; 1992

Operations and Servicing/Heavy Equipment; 1992

Masonry; 1992

Facilities Maintenance; 1992

Diesel Equipment Technology; 1992

Conventional Computer Aided Drafting; 1992

Electrical Technology; 1992

Electronics; 1992

Fabric Maintenance Services/Technology; 1992

Graphic Communications; 1992

Machine Tool Technology; 1992

Metal Trades Combined; 1992

Sheet Metal; 1992

Welding Technology; 1992

Cosmetology; 1992

Hazardous Waste Management; 1992

Quantity Foods Occupations; 1992

Small Engine Repair; 1992
Power Mechanics; 1992
Textile Production and Fabrics; 1992
Millwork and Cabinetmaking; 1992
Agricultural and Industrial Maintenance; 1992
Forestry Technology; 1992
Materials Handling and Inventory Control; 1992
Industrial Equipment Maintenance; 1992
Truck Driving Training; 1992
Piano Tuning and Repair; 1992
Construction Technology; 1992
Transportation Technology; 1992
Manufacturing Technology; 1992
Communication Technology; 1992

Industry involvement with the development of occupational skills standards began in 1990.

Education initiated the movement toward the development of occupational skills standards. Occupations for which standards were first adopted are physical therapist, electronics, culinary arts, horticulture, and information processing. These standards were used in the development of curriculum and to establish criteria for assessing student mastery. In addition, occupational skills standards were used for student profiles as course guidelines in certification of mastery programs.

Special populations' needs are addressed in Individual Education Programs (IEP'S).

D. **Summary of the processes used to develop occupational skills standards.**
The Dacum or modified Dacum process, other industry processes utilizing workers and others, and Vocational-technical education consortium of states (V-TEC'S) or modified V-TEC's program were reviewed during the development of occupational skills standards in West Virginia.

E. **Summary of existing occupational lists used as base data.**
Vocational- Technical Education Consortium of States (V-TEC'S) catalogs, business and industry lists, apprenticeship lists and previous state/local lists were used to develop state occupational skills standards.

F. **Purpose of occupational skills standards.**

The purposes for developing occupational skills standards are to determine baseline skills for entry level and to develop training agreements for co-op programs. In addition, occupational skills standards aid in the development of curriculum and to provide guidelines for courses and programs.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

State skill certification processes exist for welding, automotive mechanics, auto body, and licensed practical nursing. There are also state vocational-occupational education agencies that have certification processes.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are validated at the state and local levels. Test bank questions are held at the state level for assessing student mastery. There are also test bank questions available at the local level for instructor use with the students.

C. **Summary of the types of test assessments.**

Paper and pencil tests are used to determine the level of competency and provide assessment of performance.

D. **Summary of academic and employment skills that are tested in assessments.**

The academic competencies that are tested include: math related, science related, communication related, and reading related skills. The employment related skills that are tested include: resume and application process, human relations on the job, problem solving, thinking skills, and team skills.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from state and federal vocational education funds. There are also joint committees of legislature that provide state funds other than vocational education monies.

B. **Cost to establish one set of occupational skill standards.**

An electronic technology occupational skills standards list costs approximately $11,200 of state funding sources' monies to create. An information processing occupational skills standards list costs approximately $10,300 of federal funding sources' monies to create.

C. **Commitment of the state to have occupational skills standards developed.**

West Virginia intends to use the funds for ongoing maintenance and revision of occupational skills standards.

D. **Summary of the state's view of the future of occupational skills standard development.**

West Virginia intends to expand the level of effort used toward the development of occupational skills standards by increasing the number of partnerships with business and industry.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

State staff, local district administrators and instructors, secondary, adult, private, community college and post secondary education programs use occupational skills standards. In addition, members of the business and industry communities, labor/apprenticeship, and Job Training Partnership Act programs use occupational skills standards lists.

B. **How widely used are these standards.**

Most of the secondary and post secondary districts use at least two of the skill standards lists. During the development of articulation agreements, most of the districts use skills standards. West Virginia is planning a significant increase of the use of occupational skills standards during the development of articulation agreements.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Occupational skills standards are used as a basis of articulation agreements between secondary and post secondary programs/courses, during the development of syllabi for courses, to create lists of occupartional skills that must be mastered in order to obtain a certificate of mastery and as the basis for tests and assessments of skills.

D. **The relationship between performance standards and skills standards.**

There is a requirement for local programs to use occupational skills standards. Partnerships with business and industry are either required or encouraged to support the use and/or development of occupational skills standards.

WYOMING

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Cheyenne, WY 82002

Responsible Person: Ellen Mellott, Unit Director

DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILLS STANDARDS AND RELATED PROCESSES.

A. **Summary of who was involved.**

Not available at this time.

B. **Definition of occupational skills standards and related processes.**

None described.

C. **List of technical committees, as required by the Perkins Act, 1984, and committees created to establish skills standards and support vocational-technical education.** (Asterisks are placed before required committees.)

* Agriculture; 1992
* Business; 1992
* Market; 1993-1994
* Technical; 1993

D. **Summary of the processes used to develop occupational skills standards.**

Not available at this time.

E. **Summary of existing occupational lists used as base data.**

Wyoming used Perkins I lists to upgrade Perkins II technical skills.

F. **Purpose of occupational skills standards.**

Not available at this time.

DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESS.

A. **Certification processes currently in place.**

The certification department certifies teachers. That was the only certification program noted.

B. **Components of the assessment process on the state and local levels.**

Test banks of questions are validated at the local level for instructor use with students. Each district runs its program individually.

C. **Summary of the types of test assessments.**

Not available at this time.

D. **Summary of academic and employment skills that are tested in assessments.**

Not available at this time. The unit director strongly feels that these skills should be tested.

DESCRIPTION OF FINANCING OCCUPATIONAL SKILLS STANDARDS AND RELATED ACTIVITIES.

A. **Funds used to develop occupational skills standards.**

Funding for the development of occupational skills standards comes from federal vocational education funds. In addition, the Local Education Agencies provide some funding to be used toward the development of occupational skills standards.

B. **Cost to establish one set of occupational skill standards.**

Not available at this time.

C. **Commitment of the state to have occupational skills standards developed.**

Wyoming views this issue as a local district issue.

D. **Summary of the state's view of the future of occupational skills standard development.**

Wyoming noted that its state agency does not have a view on this issue.

DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILLS STANDARDS.

A. **Who uses the occupational skills standards.**

Local district administrators and instructors, secondary, private, community college and post secondary education programs use occupational skills standards.

B. **How widely used are these standards.**

Not available at this time.

C. **Local secondary and post secondary districts use of skills standards as a basis for the development of programs and courses of study.**

Not available at this time.

D. **The relationship between performance standards and skills standards.**

There is no requirement for local programs to use occupational skills standards.

Wyoming is a local control state with no industry, therefore nothing to the unit director's knowledge has been done with occupational skills standards.

APPENDIX A

Source

Investing in Youth: A Compilation

of Recommended Policies and Practices of V-TECS

THE NEW V-TECS DEVELOPMENTAL SYSTEM FOR CREATING OR REVISING MATERIALS

The following is a step by step explanation of how the current V-TECS process can be modified for immediate application to the identification and validation of national standards for competencies in business and industry for any occupation or group of occupations. The system allows for the identification of skill standards, related academic and reasoning skills, and the development of criterion-referenced test item banks for the vocational-technical education institutions. In addition, the system provides for the development of assessment and feedback procedures to continually update the materials by identifying changes in materials, technology, procedures, and job-relevant skills in an industry or trade that will become a part of the database.

1.0 IDENTIFYING AND VALIDATING NATIONAL TASKS, OUTCOME STANDARDS, AND SKILLS

1.1 Determine Consortium Priority

Priority areas for development and/or revision will be identified on an annual basis by the V-TECS board of directors from business-industry areas that need additional development and/or refinement. To start the process, staff have identified four areas to initiate immediately, assuming adequate resources are available.

1.2 Identify and Compile Relevant information, Materials, and Resources for Specified Job Titles

Project staff will identify and compile relevant information about the industry(s) being studied. Information will be compiled about the industry, products, markets, the job titles associated with the industry, any available tool and task lists, performance standards, and other relevant educational information. This information will be used to select specific job titles to be included in the project and to ensure that the Business-Industry-Education Technical Advisory Committee is composed of an appropriate cross section of the industry being studied. Resources such as V-TECS DIRECT, ACROS, ERIC, and the NNCCVTE will be consulted as a part of this step.

1.3 Select and Orient Business-Industry-Education Technical Advisory Committee

Employing the information gathered during the previous activity, the project staff, in conjunction with industry and educational advisors, will select a National Technical Advisory Committee. The composition and number of committee members will depend on the characteristics of the industry, association representation, and the number of job titles for which performance standards and other materials are to be developed. Traditionally, six to twelve industry experts comprise a committee. This committee will assist the project staff in identifying the tasks performed by workers in each job title included in the study, the tools the workers use, and the performance standards and performance steps for tasks performed by the workers.

1.4 Identify and Develop Task and Tools Lists and Performance Standards, Conditions, and Performance Steps

Using the V-TECS DIRECT and ACROS software packages, and the knowledge and expertise of the National Technical Advisory Committee, the project staff will identify tasks and tools associated with the specified job titles. The National Technical Advisory Committee will provide the information upon which the performance standards, conditions, and performance steps will be developed for each of the tasks.

1.5 Validate Task and Tools Lists and Performance Standards, Conditions, and Performance Steps

The task statements and tool list will be compiled into a document that will be used to survey a national sample of workers within the specified job titles to validate that the tasks identified by the National Technical Advisory Committee and project staff are actual tasks performed by the workers. The workers included in the sample will be requested to list additional tasks they perform and tools they use in their jobs. An ad hoc group of technical experts will be convened to review and validate the performance standards, conditions, and performance steps developed by the National Technical Advisory Committee and project staff. V-TECS technical coordinators will participate in this process by helping to run the National Technical Advisory Committee Meeting and by surveying their respective states to gain consensus regarding the tasks and standards.

1.6 Review and Edit Task and Tools Lists and Performance Standards, Conditions, and Performance Steps

Results of the national survey and the review of the ad hoc group of technical experts will be analyzed and used by the National Technical Advisory Committee and project staff to review and edit the task and tool lists and performance standards, conditions, and performance steps. The final validated task and tool list, performance standards, conditions, and performance steps will be entered into the V-TECS DIRECT database and management system.

1.7 Analyze Performance Standards and Performance Steps to Identify Cognitive Knowledge, Psychomotor Skills, and Work-Related Behaviors

A task analysis team will be selected and trained to conduct an indepth analysis of the performance standards, conditions, and performance steps for each of the validated tasks to identify cognitive knowledge, psychomotor skills and work-related behaviors (e.g., employability skills, safety skills, teamwork skills, decision-making skills, etc.). The composition and number of committee members will be determined by project staff and the National Technical Advisory Committee. The level of expertise and communication skills of those selected for this committee are directly correlated with the quality of the outcomes of the task analysis process and all subsequent writing activities that are based on the outcomes.

1.8 Identify Enabling Competencies and Related Academic Skills

Using the task analysis information and other resources previously developed or identified, enabling competencies and related academic skills are identified for each task and entered into V-TECS DIRECT. Major emphasis will be placed on expanding this concept to encompass ASTD and SKANS skills.

2.0 DEVELOPING CRITERION-REFERENCED TEST ITEM BANKS

2.1 Write Criterion-Referenced Test Items

A Criterion-Referenced Test Item Committee made up of instructional designers, test item writers, instructors, supervisors, and/or workers will write, review, and edit test items using the task analysis data, a set of specifications, and accepted test item construction guidelines. These items will be coded to each task so that assessment vehicles can be customized in a variety of ways.

2.2 Review and Edit Test Items

The review process consists of a review of each item by four groups of experts. After each review, the test items are revised by project staff so that successive groups of reviewers can react to a progressively refined product. Items are first reviewed by the committee as they are developed. Next, each item is reviewed by a person, other than the writer, who has expertise in test item construction. For the third review, an ad hoc group of instructors is identified to assess the adequacy of each item. Finally, an ad hoc group of workers is convened to provide a final check on job-related accuracy and relevance.

2.3 Compile Criterion-Referenced Test Item Banks

When the test item review is complete, the project staff assembles the items and formats the item bank for inclusion in the item bank management module of V-TECS DIRECT.

2.4 Field Test Item Bank and Perform Item Analysis

All written and performance items are field tested in order to provide item analysis data necessary to make final revisions of the items. Item analysis data includes item difficulty index, item discrimination, and distractor response data.

2.5 Review and Edit Test Item Bank Using Item Analysis Results

Based upon the item analysis and review of the field test results, the item bank is finalized. Changes in any of the items is entered into V-TECS DIRECT. The bank is now available for the generation of tests based upon specific test blueprints. To facilitate this, V-TECS staff are currently negotiating to add a test construction/generation/reporting module to V-TECS DIRECT.

3.0 COLLABORATING WITH ASSESSMENT PROVIDERS

3.1 Identify Assessment Collaborations

Once the national standards are validated, staff will identify possible collaborating organizations/agencies, such as ACT and NOCTI, the military, and/or states such as Arkansas, Kentucky, North Carolina, and Oklahoma. They will then negotiate a plan for developing assessment/certification vehicles based on the V-TECS standards. The occupational areas to be included in the project will be identified and a project schedule will be developed.

3.2 Compile Assessment Instruments

* Following the guidelines laid out in the assessment plan and in conjunction with established testing procedures, the project staff and the collaborating entity will compile forms for the assessment instruments.

3.3 Administer and Score Assessment Instruments

* In accordance with the administrative procedures formulated through the collaboration agreement and specified in the assessment plan, assessment instruments will be administered and scored.

3.4 Compile and Report Assessment Results

* Results of the assessment will be analyzed and reported to project staff and the National Technical Advisory Committee. Individual results will be reported to each person who has taken the test.

* These steps are only applicable where actual assessment instruments are developed in collaboration with other entities.

4.0 DEVELOPING AND UPDATING INSTRUCTIONAL ELEMENTS

4.1 Develop or Update Instructional Elements

The instructional elements are a bridge between the analysis of the workplace and the instructional milieu. Using the validated task and tool list, performance standards, conditions, performance steps, enabling competencies list, related academic skills list, and the task analysis data, as well as any other pertinent resources, such as an existing guide already in V-TECS DIRECT, the Instructional/Training Elements Committee will identify or develop instructional activities (suggested methods and/or procedures for the delivery of instructional content to students or trainees) and instructional resources (materials used to develop or update instruction and/or learn specific objectives). In the new V-TECS this will become a review and updating function rather than a new product development priority.

4.2 Review, Edit and Compile Instructional Elements

Performing an ongoing internal evaluation and review of the instructional elements as they are being written is vital in determining the quality of the material and in correcting problems. An ad hoc group of instructors and instructional designers will review the instructional elements. Following the final review, the Instructional/Training Elements Committee will compile the instructional elements and the project staff will format the material for inclusion in V-TECS DIRECT. The elements are then available for developing the curriculum for an instructional or training program of study.

5.0 DISTRIBUTION AND MARKETING

5.1 Disseminate Materials

Using the dissemination networks of V-TECS and the cooperating business, industry, and education associations and agencies, relevant information and materials will be distributed to interested individuals and groups.

6.0 PROVIDING FEEDBACK

6.1 Identify Changing and Evolving Skills, Technology, and Materials

The National Technical Advisory Committee and project staff will select an ad hoc committee of experts from industry, labor, and education to keep the staff informed of changes and expected changes in the industry, its materials, procedures, and regulations that affect needed skills and knowledge of the industry's workers. After these proposed changes have been reviewed and accepted, they will be entered into V-TECS DIRECT and made available to interested parties. If this is implemented as intended, it will serve as a vehicle for continual updating and revision of all V-TECS materials.

APPENDIX B

OCCUPATIONAL SKILL STANDARDS DEVELOPED BY BUSINESS, INDUSTRY AND EDUCATION IN 12 SELECTED STATES

California
Agriculture
Animal Science
Computer Science and Information Systems
Health Careers
Medical Insurance and Billing
Medical Records Clerk
Transcriptionist
Home Economics
Child Care, Child Care Aide
Teacher Aide
Preschool Teacher
Family Child Care Provider
Building Construction
Carpentry, Masonry

Georgia
Forestry Comm., Construction
Auto Mechanics, Auto Body
Horticulture Comm.
Child Care
Marketing, Business Ed.
Building Trades
Graphic Arts
Consumer Home Economics

Hawaii
Human Services/Childcare
Human Services/Adultcare
Computer Programming
Bookkeeper
Diversified Agriculture
Food Service
Drafting
Secretarial (Administrative Assistant)
Nurse Aide

Idaho
Blue Ribbon Committee for Industrial Arts
Future Directions for Secondary Agriculture
Idaho Marketing Education Core Curriculum
Automotive Technology
Applied Welding Technology
Idaho Farm Management Curriculum
Auto Body Technology
Industrial Maintenance Technology
Precision Machining Technology

Drafting & Design Technology
Business Systems Specialist
Printing/Graphic Arts Technology
Electronics Technology
Fundamentals of Dental Assisting
Manufacturing Technology
Hazardous Material Technology
Practical Nursing
Health Occupations for Secondary Schools
Pharmacy Technician
Service Providers for Persons with Developmental Disabilities

Illinois

Agricultural Business & Management
Salesperson, Animal-Feed Products
Salesperson, Farm Equipment & Supplies
Fertilizer/Chemical Service Worker
Farmer, General
Scout/Pest Control Worker/Agriculture
Field Service Technician
Manager, Food Processing
Inspector, Agriculture
Grain Buyer (Grain Elevator Operator)
Veterinarian Aide/Animal Caretaker (Veterinary Assistant)
Livestock Buyer
Salesperson, Parts (Agricultural Equipment)
Dairy Processing Equipment Operator

Agricultural Power & Machinery
Farm Equipment Mechanic
Farm Machinery Set-up Mechanic
Tractor Mechanic

Horticulture
Landscape Laborer
Landscape Gardener, Landscaper
Horticultural Worker
Salesperson, Horticulture & Nursery Products
Manager, Nursery
Lawn-Service worker
Greenhouse/Nursery Worker (Greenhouse/Nursery Operator)
Retail Florist
Salesperson, Lawn & Garden Equipment & Supplies
Sprayer, Hand (Horticultural)
Gardeners & Groundskeepers

Agricultural Resources
Park Aide (Technician)
Forester Aide

Accounting-Bookkeeping Cluster
Bookkeeper
Bookkeeping-Machine Operator
Payroll Clerk
Payroll Clerk, Data Processing
Accounting Clerk
Accounting Clerk, Data Processing

Computer Operation & Programming Cluster
Computer Operator
Computer Programmer (Business Computer Programmer)
Computer Programmer Manager
Computer Operations Supervisor

Information Processing Cluster
Word Processor
Information Specialist
Terminal Operator
Information Processing Manager
Records Manager (Records Management Analyst)

Secretarial Cluster
Stenographer
Secretary, Legal Secretary, Medical Secretary
Office Manager (Mgr/Supvsr-Clerical & Adm Supp Occups)
Court Report
Administrative Assistant
Administrative Secretary, Executive Secretary
Legal Assistant
Library Technical Assistant

General Office Clerk Cluster
Receptionist
Typist, Clerk-Typist
File/Records Clerk
Office Manager (Mgr/Supvsr-Clerical & Adm Supp Occups)
Records Manager (Records Management Analyst)
Production Clerk
Claims Clerk
Insurance Policy Processing Clerk/Insurance Claims Clerk
Shipping & Receiving Clerk (Traffic, Shpg & Recv Clerk)
Traffic Clerk
Rate Clerk
Routing Clerk
General Office Clerk

Correspondence Clerk
Stock Clerk
File Clerk

Product Oriented Marketing Cluster
Sales Clerk
Salesperson, General Merchandise
Salesperson, Women's Apparel & Accessories
Salesperson, Infants' & Children's Wear
Salesperson, Men's & Boys' Wear
Salesperson, Automobile Accessories
Salesperson, Jewelry
Stock Clerk, Self-Service Store
Cashier I, Cashier II
Cashier/Checker
Stock Control Clerk
Loss Prevention Specialist
Fashion Merchandiser
Display Manager
Display Designer
Demonstrator
Customer Relations Clerk (Customer Service Representative)
Wholesaler
Buyer, Retail and Wholesale
Telemarketing Representative
Adjustment Clerk

Service Oriented Marketing Cluster
Teller
Credit Analyst
Sales Representative Technical: Financial Services, Insurance Services, Recreation Services, Real Estate (Agent & Broker), Claims Manager, Hotel/Motel Manager, Conference Sales Representative, Travel Agent, Transportation & Traffic Manager, Securities & Commodities, Telemarketing Representative
Dispatcher
Warehouse Traffic Supervisor
Material Handling Supervisor
Transportation Agent
Property Manager
Transportation Services Broker
Underwriter
Estate Planner
Classified Ad Clerk
Advertising Sales Representative
Copywriter
Customer Relations Clerk (Customer Service Representative)
Adjustment Clerk

Business Ownership/Management Cluster
Store Manager
Buyer, Retail & Wholesale
Purchasing Agent
Small Business Owner/Operator (Entrepreneurship)
Auto Parts Manager
Inventory control Manager
Sales Manager
Parts Manager
Distribution Center Manager
Shift Manager
Sales Promotion Manager
Sales Manager, Retail Trade
Supermarket Department Head
Hotel/Motel Manager
Apartment Complex Manager
Property Manager
Terminal Manager
Restaurant Manager
Advertising Manager
Physical Distribution Manager
Customer Relations Manager
Personnel Manager
Service Station Owner/Manager
Merchandise Manager

Medical Assisting Services
Medical Assistant
Electrocardiograph Technician
Podiatric Assistant
Chiropractic Assistant

Medical Records Services
Health Unit Clerk (Ward Clerk)
Health Unit coordinator
Medical Records Assistant
Medical Records Technician

Nursing Services
Home Health Aide
Geriatric Aide
Nurse Assistant
Licensed Practical Nurse
Associate Degree Nurse

Ophthalmic Services
Optometric Assistant
Dispensing Optician

Rehabilitation Services
Activity Aide, Occupational Therapy Aide
Occupational Therapy Assistant
Psychiatric Aide
Physical Therapy Aide
Rehabilitation Aide
Physical Therapist Assistant
Exercise Physiology
Speech/Hearing Clinician
Therapeutic Recreation Technician

Stand Alone Occupations
Dental Assistant
Dental Laboratory Aide
Respiratory Therapy Aide
Radiologic Aide
Surgical Aide
Emergency Medical Technician (Ambulance)
Medical Laboratory Aide/Phlebotomist
Central Supply Aide
Pharmacy Clerk

Homemaker

Child & Day Care Services
Child Care Worker/Instructor
Preschool Teacher
Child Care Manager/Administrator
Child Care Attendant/Aide
Elder Care Aide/Adult Day Care Worker
Teacher Aide/Educational Assistant
Infant & Toddler Care Worker
Child Care Worker, Private Household (Nanny)
Child Care Provider - Family Day Care Home

Clothing & Apparel Services
Fashion Sales Clerk (Fashion Salesperson)
Fashion Store Manager
Fashion Sales Manager, Retail
Fashion Buyer, Retail & Wholesale
Fashion Coordinator
Fashion Sales Representative
Alteration Tailor
Custom Tailor
Designer

Food Services
Dining Room Attendant
Counter Attendant

Wait Person (Food Server)
Cook's Helper/Kitchen Helper
Cook, Short-Order
Baker's Helper
Baker
Cook, Institutional
Cook Restaurant/Chef
Manager, Food Service (Manager, Food Service & Lodging)
Food Preparation & Service Worker, Fast Service
Caterer
Dietetic Technician
Food Inspector
Food Tester
Cake Decorator

Interior Furnishings Services
Designer
Furnishing Sales Clerk (Interior Furnishings Salesperson)
Furnishings Sales Manager
Furnishings Sales Representative
Furnishings Buyer, Retail & Wholesale

Barber

Cosmetologist (Hairdresser/Hair Stylist)
Nail Technician
Esthetician

Social Policies & Services
Social Service Aide (Social Service Technician)
Group Home Care Worker
Senior Center worker
Interpreter

Construction Occupations
Bricklayer
Carpenter
Building Maintenance Worker
Electricians (Residential & Commercial)
Painters, Maintenance
Plumbers and/or Pipefitters
Cement Masons
Drywall Applicators
Roofers

Electronic Occupations
Computer Repair Technician
Electrical & Electronic Technician
Electrical Instrument Repairer

Electromedical Equipment Repairer
Installers, Repairers: Communication
Radio & TV Services & Repairers

Graphic Communications Occupations
Camera Operators, Printing
Commercial Artists
Compositors and/or Typesetters
Offset Lithographic Press Operators
Photographers
Platemakers
Press Operator
Press Assistants & Feeders

Transportation Occupations
Auto Mechanic
Diesel Mechanic
Aircraft Mechanic
Motorboat Mechanic
Gasoline Engine/Mower Repairer

Manufacturing Occupations
Machine Tool Operators
Machinist
Tool & Die Makers
Punch Press Operators
Sheet Metal Workers
Combination Welder
Maintenance Repairers
Automated Manufacturing Systems Technician
Cabinetmakers
Inspectors, Manufacturing
Machine Tool Operator, Numerical Control
Thermoplastic Machine Set-up Specialist

Technical Preparation
Electrical & Electronic Technician, Automated Manufacturing Systems Technician
Computer Repair Technician
Instrument Repair Technician
Computerized-Numerical Control Technician
Biomedical Equipment Technician
Civil Engineering Technician
Electromechanical Technician
Industrial Engineering Technician
Laser Electro-Optical Technician
Broadcast Technician
Microelectronics Technician
Telecommunications Technician

Stand Alone Occupations
Auto Body Repairer
Bus Driver
Drafter/Computer-Aided Drafter
Truck Driver
Correction Officers & Jailers
Firefighters
Police Officers
Heavy Equipment Operators
Radio & TV Broadcast Technician
Electric Home Appliance & Power Tool Repairer
Office Machine/Cash Register Repairer
Telephone and Cable TV Line Installer/Repairer

Maine
Activities Coordinator
Agriculture
Air Conditioning/Refrigeration
Auto Collision Repair
Building Maintenance
Carpentry
Child Care
Computer Information Program
Co-op Program
Diesel
Drafting
Electricity
Electronics
Food Service
Forestry
Graphic Arts
Heavy Equipment Maintenance Operations
Hospitality
Machine Tool
Marine Technology
Marketing
Masonry
Metal Fabrication/Welding
Plumbing/Heating
Small Engine
Truck Driving
Wood Harvesting

New York

General
Introduction to Occupations - Working Citizen/Personal Resource Management Module
Introduction to Occupations
Occupationally-Related Mathematics
Occupational-Related Science
Drafting
Preprofessional Computer/Electronics Technology: (1) Digital Electronics and (b) Introduction to Microprocessors Using the 8085 Microchip
Cooperative Education - Related Instruction

Business/Marketing
Business Analysis/Bus. Computer Applications
Business Analysis/Bus. Computer App. - Supplement
Electronic Information Processing
Principles of Marketing
Business Ownership & Marketing
Accounting
Advanced Accounting
Financial Information Processing
Advanced Electronic Information Processing Personal Business Management
Business Communications I, II, III
Systems Operations
Advanced Systems Operations
Keyboarding I, II, III
Financial Decision Making

Health Occupations
Health Occupations Education Core
Nurse Assistant/Supervised Clinical Experience
PCA - Home Health Aide/Supervised Clinical Experience
Dental Assistant/Field Experience
Dental Lab Technician/Field Experience
Medical Lab Assistant/Field Experience
Medical Assisting/Field Experience
Practical Nursing/Supervised Clinical Experience
Habilitation/Rehabilitation Assistant/Field Experience
Elder Care

Technology Education
Construction Systems
Manufacturing Systems
Communication Systems
Production Systems
Transportation Systems
Graphic Electronic Processes
Electricity/Electronics
Energy

Energy/Power
Technical Drawing
Aerospace
Computer-Aided Design
Computer-Aided Manufacturing
Computer Applications
Computer Graphics
Creativity & Innovation
Audio Electronics
Communication Electronics
Digital Electronics
Graphic Communications
History of Technology
Materials Processing
Production Research & Development
residential Structures
Principles of Engineering
Energy Applications
Architectural Drawing
Land Transportation
Photography
Design or Drawing for Production
Automation/Robotics

Home Economics

Home Economics Core, Food & Nutrition, Human Development, Clothing & Textiles
House & Environment
Food Preparation & Nutrition
Culture & Foods
Gourmet Foods
Nutrition, Health & Fitness
Commercial Foods
Human Development Core for Commercial Food Program
Early Childhood Education Programs
Adolescent Psychology
Family Dynamics
Gerontology
World of Fashion
Clothing Production
Home Furnishings
Interior Design
Entrepreneurship in Home Economics
Independent Living
Food Science
Careers in Human Services
Action Education Using Study Circles to Build Leadership Teams

Trade & Industrial
Vehicle Maintenance & Repair Occupations
Electronics/Electromechanical Equipment Occupations
Graphic, Printing & Visual Communications Occupations
Precision Metal Work Occupations
Aviation/Aerospace Maintenance Manufacturing and Repair Occupations
Construction Industry & Building Maintenance Occupations
Motorcycle, Marine & Outdoor Power Equipment Maintenance Occupations
Drafting Occupations
Cosmetology Occupations
Public & Private Security Occupations

Agriculture
Agriculture in the Classroom
Basic Agricultural Science
Advanced Agricultural Science
Specialized Agricultural Skills
Teaching Occupationally-Related Science in Agricultural Education Programs

Technical
Electricity/Electronics Technology
Mechanical Technology
Architectural Technology
Fashion Design Technology
System Technology
Computer Technology
Electromechanical Technology
Manufacturing Technology
Aerospace Technology

Ohio

Agricultural Education
Agricultural Business Feed & Grainworker
Agricultural/Industrial Mechanical Technician
Agricultural Products Sales & Service Worker
Agricultural Production
Animal Management Technician
Beef & Sheep Producer
Crop Producer
Dairy Producer
Fertilizer/Chemical Sales & Service Worker
Floriculture & Greenhouse Worker
Forest Industry Worker
Horticulture
Meat Processor
Natural Resources
Nursery & Garden Center Worker

Poultry Producer
Resource Conservation
Swine Producer
Turf & Landscape Worker

Business & Marketing Education
Accounting
Administrative/Secretarial Services
business Administration & Management
Business Information system
Entertainment Marketing
Entrepreneurship
General Marketing
Travel & Tourism Marketing

Home Economics Education
Clothing & Interiors, Production & Services
Early Childhood Education & Care
Food Production, Management & Services
GRADS (Teenage Parenting)
Hospitality & Facility Care Services
Middle School Home Economics
Work & Family Life

Health Occupations Education
Dental Assistant
Diversified Health Occupations
Medical Assistant
Nurse Aide
Practical Nursing

Trade & Industrial Education
Auto Collision Technician
Auto Mechanics
Building & Property Maintenance
Carpentry
Commercial Art
Cosmetology
Diesel Mechanics
Drafting
Electrical Trades
Electronics
Graphic Communications: Commercial Photography, Graphic Arts
heating, Ventilation, Air-conditioning, and Refrigeration
Industrial Maintenance
Law Enforcement
Machine Trades
Masonry
Power Equipment Technology
Welding

Oklahoma

Agriculture
Horticulture
Horse Production & Management
Farm Business Management

Business & Office
Banking & Financial Services, Banking & Financial Services (Co-op)
Applied Accounting
Business & Computer Intern, Business & Computer Tech
Clerical
Information/Data Processing
Paralegal Studies
ATAE-Business

Health
emergency Medical Technician
Nursing Assisting
Practical Nursing
Adult Day Care
Physical Therapy Assistant
Radiologic Technician
allied Health
Dental Assisting
Dental Lab Assisting
Medical Assisting
Respiratory Therapy Technician
Surgical Technician

Home Economics
Food Management, Food Management Co-op
Child Care, Child Care Co-op
Clothing Production & Mgmt
Home Furnishings
ATAE-Home & Co.
Home Economics
Institutional Home Services
Vocational Home Economics (Co-op)

Marketing
Fashion Merchandising, Fashion Merchandising Co-op
Marketing, Marketing Education (Co-op)
Cashier Checker
Law Enforcement Training
Small Business Management

Technology Education

Trade & Industrial
Advanced Technology
air conditioning & Refrigeration
Auto Service Technician
Aviation Maintenance
Brick Masonry
Carpentry
Construction Trades
Cosmetology
Electricity
Industrial Maintenance Technician
Industrial Technician
Meat Processing
Precision Machining
T&I Horticulture
floral Design
Auto Collision
Aviation Avionics
Computer Repair
Diesel Service
Drafting
Electro-Mechanic
Electronics
Instrumentation
Printing
Telecommunication
Welding
Automated Manufacturing Technician
Building & Grounds Maintenance
Cabinetmaking
Commercial Art
Commercial Photography
Custodial Service
Farm Equipment Repair
Heavy Equipment Operator
Industrial Chemistry
Industrial Electricity
Major Appliance Repair
Marine Service
Motorcycle Service
Plumbing
Power Products
Small Engine Repair
Sheet Metal Fabrication
Test & Inspection
Truck Driver Upholstery
ATAE: Communication, Construction, Mechanical, Upholstery

Business/Industrial/School Co-op
Principles of Technology
Technical Math Lab
Vocational Orientation

Vermont
Electronics
Marketing
Building Trades
Automotive Technology
Bookkeeping, Accounting, and Microcomputer Accounting
Dairy Production
Graphic Arts
Machine Trades
Office Occupations
Auto Body Repair
Culinary Arts
Drafting/CAD
Health Occupations
Industrial Mechanics
Aircraft Mechanics
Dental Assisting
Diesel/Truck Mechanics & Truck Operation
Forestry & Natural Resources
Stone Trades
Welding/Metal Fabrication
Diversified Agriculture
Human Services
Millwork/Cabinetmaking
Agriculture Mechanics
Horticulture
Heavy Equipment
Performing Arts
Hospitality: Travel, Tourism, and Recreation

Washington State
health Education
Auto Body Repair
Automotive Technology
Construction Technology
Culinary Arts
Drafting
Electronics Technology
Graphics Communications
Machinist - Machine Tool Operator
Metal Fabrication
Welder
Equipment Service Technician

West Virginia
Electronic Technology
Health Assistant
Culinary Arts
Information Processing
Horticulture
Physical Therapist Assistant
Agriscience
Agricultural Mechanics
Forest Technology
Grounds Maintenance
Business Education
Dental Assistant
Medical Assistant
Entrepreneurship
Diversified Cooperative Training
Marketing Education
Food Management, Production and Services
Care and Guidance of Children
Textile Production and Fabrics
Hospitality Education
Civil Technology
Principles of Technology
Computer Integrated Manufacturing
Communications Technology
Computer Systems and Operational Support
Wood Products Technology
Air Conditioning and Refrigeration Technology
Auto Body Technology
automotive Technology
Commercial Art Advertising Design
Interior Design
General Building Construction
Carpentry
Operations and Heavy Equipment
Masonry
Facilities Maintenance
Diesel Service Equipment Technology
Conventional Computer Aided Drafting
Electrical Technology
Electronics
Fabric Maintenance Services/Drycleaning
Graphic Communications
Machine Tool Technology
Metal Trades Combined
Sheet Metal
Welding Technology
Cosmetology
Hazardous Waste Management

Quantity Foods Occupations
Small Engine Repair
Power Mechanics
Textile Production and Fabrics
Millwork and Cabinetmaking
Agricultural and Industrial Maintenance
forestry Technology
Materials Handling and Inventory Control
Industrial Equipment Maintenance
Truck Driving Training
Piano Tuning and Repair
Construction Technology
Transportation Technology
Manufacturing Technology
Communication Technology

APPENDIX C

NATVEF SURVEY INSTRUMENT

STATE DIRECTORS OF VOCATIONAL TECHNICAL EDUCATION INFORMATION REQUEST

(Use extra pages as necessary)

Name of Responsible Person: Title:

Telephone Number: Fax Number:

Address:

I. DESCRIPTION OF STATE LEADERSHIP IN OCCUPATIONAL SKILL STANDARDS AND RELATED PROCESSES INCLUDING SKILLS/TASKS/COMPETENCIES DEVELOPMENT WITH INDUSTRY ORGANIZATIONS.

A. Who was involved in your State Agency efforts to establish occupational skills/tasks/competency lists? Please check (X) all appropriate answers. Add information, if needed for clarification.

Yes	No		Initial Lists	Validation Process
		1. State Staff/Subcontractor		
		a. Curriculum Developer		
		b. Researchers		
		c. Others, please specify:		
		2. Business Representatives		
		a. Managerial levels		
		b. Incumbent workers/supervisors		
		c. Other, please specify		
		3. Local Education Representatives		
		a. Administrators, occupational or general		
		b. Instructors in occupational field		
		c. Instructors in related academic fields		
		d. Others, please specify:		

B. What is your State's definition of occupational skills/tasks/competencies/standards? (Attach copy)

C. The Carl D. Perkins Act, 1984, required the development of at least two State level technical committees. In addition, many States named several committees to establish skill standards and support for vocational-technical education. Please complete the following information on technical committees and any other State level committees.

Skill Standards Establish Yes	Skill Standards Establish No	Name of Occupation/Industry Technical Committee	Date
		1.	
		2.	
		3.	
		4. Please asterisk all technical committees and use additional pages if needed.	

Please provide additional information regarding skills standards for your State. Check (X) as appropriate.

1. When were industry relations with skills standards born in your State?
2. Was the movement initiated by industry or education?
3. In which occupations were standards first adopted in your State?
4. Were these standards used to develop curriculum?
5. Were standards used to establish criteria for assessing student mastery?
6. Name any other way in which these skill standards were used?
7. How were special populations' needs addressed?
8. How were equity issues addressed?
Comments:
D. What process was used to establish the State level skill standards and other State level occupational skills/tasks/competency list?

Yes	No	
		1. Dacuum or modified Dacuum process.
		2. Other industry process utilizing workers and others.
		3. V-TECS process or modified V-TECS process.
		4. Labor-apprenticeship process.
		5. Single individual developed with or without validation. Please specify:
		6. Position description (task analysis) performed at the job site. Please describe:
		7. Combination of the above. Please specify:
		8. Other than combination or method identified above. Please specify:

Comments:
E. Were occupational lists which already existed used as the base data for the development of State skill standards/competencies, etc.?

Yes	No	
		1. V-TECS Catalogs used.
		2. Other Consortium lists/materials used. Please specify:
		3. Business/industry lists used.
		4. Apprenticeship lists used.
		5. Previous State/local lists used. Please specify:

		6. Combination. Please specify:
		7. Other, please specify:
Comments:		

F. What was the purpose of developing occupational skill standards/tasks/competency lists?

Yes	No	
		1. Certification for Mastery.
		2. Formal Certification System for State.
		3. Curriculum development.
		4. Guidelines for courses/programs.
		5. Other, please specify:

II. DESCRIPTION OF ASSESSMENT AND CERTIFICATION PROCESSES

A. What assessment and certification processes are in place?

Yes	No	
		1. State skill certification process exists for one or more occupational areas. Please specify:
		2. State Vocational-occupational education agency certifies. If no, but other State agency does certify. Please specify:
		3. Business/industry group certifies. Please specify which occupations and industries certify:
		4. Labor certifies. Please specify:
		5. Local Education Agency (Secondary or Post Secondary certification processes exist. Comments:
		6. Combination of the above have processes for certification of skill standards. Please specify:
		7. Other. Please specify:

B. What components of the assessment process are in place at the State and/or the local level?

Yes	No	
		1. Test banks of questions are validated at State level? at local level?
		2. Test bank questions are held at State level for assessing student mastery?
		3. Test bank questions are available at local level for instructor use with students.
		4. Test bank questions are available in some other process. Please specify:

		Comments:

C. What type of tests or assessments are used?

Yes	No	
		1. Paper and pencil
		2. Computerized cognitive
		3. Simulation tests
		4. Situational tests
		5. Actual performance tests
		6. Combination of the above. Please specify:
		7. Other. Please specify:

Comments:

Yes	No	
		1. Academic competencies
		Math related
		Science related
		Communication related
		Reading related
		Other. Please specify:
		2. Employment related skills
		Resume and application process
		Human relations on the job
		Problem solving, thinking skills, team skills
		Other. Please specify:

III. DESCRIPTION OF FINANCING OCCUPATIONAL SKILL STANDARDS AND RELATED ACTIVITIES

A. What funds were used to develop the skills/tasks/competency lists and standards?

Yes	No	
		1. Federal vocational education funds.
		2. Federal funds other than vocational education. Please specify:
		3. State vocational education funds.

		4. State funds other than vocational education. Please specify:
		5. Business/industry funds. Please specify:
		6. Combination of the above. Please specify:
		7. Other. Please specify:

Comments:

B. What was the estimated cost to develop one set of occupational skills/task/competency list and/or standards?

Name of Occupation/Industry	Total Amount	Major source of Funds
	$	
	$	

C. What commitment does your State have to the development of occupation/skills/tasks/competencies lists and/or standards?

Yes	No	
		1. Funds under its control committed for ongoing maintenance and revision.
		2. Funds not available for commitment.
		3. Consortiums used to acquire business/industry validated skills/tasks/competencies.
		4. State views as local district issue.
		5. Other. Please specify:

D. How does your State agency view future occupational skills development efforts?

Yes	No	
		1. Expanding level of effort for our State.
		2. Diminishing level of effort.
		3. Maintaining level of effort.
		4. Expanding through consortium development.
		5. Expanding through business/industry partnerships.
		6. Other. Please specify:

Comments:

IV. DESCRIPTION OF THE USAGE OF OCCUPATIONAL SKILL STANDARDS

A. Who uses the occupational skill standards and/or skills/tasks/competency lists?

Yes	No	
		1. State staff
		2. Local Districts Administrators Instructors
		3. Levels of education: Secondary

		Post Secondary/Community Colleges
		Adult
		Private Schools
		4. Business/Industry
		5. Labor/Apprenticeship
		6. Job Training Partnership Act (JPTA) programs
		7. Other, please specify:

B. How widely used are state developed skills/tasks/competency lists and/or skill standards?

Please check (X) the most correct description:

1. Numbers of secondary districts which use at least two of the skill standards lists:
   Most Some Few None

2. Numbers of post secondary districts which use at least two of the skill standards lists:
   Most Some Few None

3. In developing articulation agreements, are competency/tasks/skills standards used?
   Most Some Few None

C. Do local secondary and post secondary districts use the State lists of occupational skills/tasks/competencies and skill standards as a basis for the development of programs and courses of study?

Yes	No	
		1. Are they the basis for articulation between secondary and post secondary programs/courses?
		2. Are these the basis for the development of the syllabi for courses?
		3. Are these the lists of skills/tasks to be mastered for certificates of mastery for students?
		4. Are these the basis for tests and assessments of skills/tasks?
		5. Other. Please specify:

Comments:

E. Is there a relationship between the Performance Standards and the Skills Standards?

Yes	No	
		1. Is there a requirement for local programs to use skills/tasks/competency list or skill standards?
		2. Are partnerships with business and industry required or encouraged for support of skill standards?

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