



**SREB**

## Actions States Can Take to Place a Highly Qualified Career/Technical Teacher in Every Classroom

*by Gene Bottoms and Kathleen McNally*

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# Foreword

Highly qualified high school career/technical teachers play an important role in making high school meaningful for many students. Today, career/technical teachers are challenged to prepare students for increasingly rigorous workplace standards, for apprenticeships and for further study at two- and four-year colleges. To be successful, they must help students understand the relevance of their academic studies by incorporating essential related academic content into the career/technical classroom.

The SREB *High Schools That Work* reform model advises providing more students access to intellectually-challenging career/technical studies in high-demand fields emphasizing the higher-level mathematics, science, literacy and problem-solving skills needed in the workplace and in further education. This requires career/technical teachers to have a mastery of the technical and the related academic knowledge needed for their field as well as of the knowledge and skills necessary for teaching.

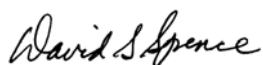
A growing number of career/technical teachers receive their preparation and certification through alternative routes. Requirements for these alternative pathways vary from state to state. Many allow teachers to enter the classroom without the necessary training in academics, pedagogy and, in some instances, without the necessary career-field knowledge and skills needed to be a highly qualified teacher. It is time for states to bridge this gap in teacher preparation and certification, so that career/technical teachers are able to meet the needs of their students by developing challenging lessons that incorporate students' core academic studies along with real-world problem solving.

This report presents actions states can take to help ensure that they have a highly qualified teacher in every career/technical classroom. In order to meet this goal, states may need to rethink their approach toward recruitment by developing a system to enroll interested and capable high school and college students in a career/technical teacher cadet program that serves as an entry into teaching. This system should include a strategy to recruit and assess non-educators as well as military veterans with proper career/technical backgrounds and with an aptitude for teaching.

States will know they have a highly qualified teacher in every career/technical classroom when:

- all teachers have at least an associate's degree or equivalent postsecondary training and can demonstrate essential academic competence as a prerequisite to teaching;
- teachers come from a university-based or professional development pathway to allow a fast start into the profession;
- teachers who enter the profession through an alternative pathway are required to earn a bachelor's degree within five years of employment;
- all teachers entering the profession through an alternative route are required to complete an induction program within two years of beginning teaching;
- within two years of entering the profession, all teachers demonstrate teaching competence by passing a special pedagogy exam and a series of performance assessments; and
- teachers have access to a series of Web-based courses on curriculum and instruction planning, research-based teaching methods, classroom assessment strategies and classroom management and motivation strategies.

To ensure that all career/technical students are receiving rigorous academic and career preparation, states must have career/technical teachers whose preparation and certification are equal to their dual mission to prepare students for rising workplace requirements and further study.



Dave Spence  
President  
Southern Regional Education Board



# Actions States Can Take to Place a Highly Qualified Career/Technical Teacher in Every Classroom

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High school career/technical teachers have a dual mission: to prepare students for rising workplace requirements and for further study. They are expected to advance both academic and technical achievement. Yet, in a survey of 2,600 career/technical teachers with five years or less experience in the classroom:

- 54 percent expressed a need to learn how to align course standards to national academic and skill standards;
- 57 percent expressed a need to learn how to use research-based teaching practices to improve student learning; and
- 66 percent expressed a need to learn how to adapt teaching to different student learning styles.

Currently the recruitment, preparation, induction, support and certification for high school career/technical teachers are not adequate to ensure a quality teacher in every classroom. High schools need qualified teachers who create and manage learning environments where students prepare for success in postsecondary education and in the workplace. States and local districts will have achieved this goal when students in high school career/technical programs:

- acquire the technical literacy skills needed to:
  - read, understand and communicate in the language of a career field;
  - use mathematics reasoning and understanding to solve problems found in a career field;
  - understand underlying technical concepts, principles and procedures in a career field; and
  - use technology to complete projects in a career field.
- complete a solid academic core plus have the advantage of their academic knowledge and skills being grounded in real-world projects and tasks that are both challenging and highly engaging.
- learn and model technical knowledge and skills that provide a firm grounding in a given career field, not just a narrow set of skills to satisfy the requirements of an entry-level job.
- gain valuable employment skills from programs that provide either direct exposure to the workplace or create simulated workplace environments where students are challenged intellectually, and address the tough problems and uncertainties adults confront on a regular basis (i.e., the sort of task that make work interesting). Simultaneously, these programs attend to the social development of young adults.
- see the connection between high school and their futures because they are faced with authentic adult tasks and offered more applied learning opportunities.

The variation in career/technical preparation and certification standards among states makes reciprocity and mobility between states very difficult. States do not employ a common set of assessments and standards to determine teachers' proficiency in common core academic, technical subject matter, their pedagogical knowledge and skills, or in the ability to use such knowledge and skills to inspire learning.

Five key questions dealing with the recruitment, preparation, certification, induction and support of career/technical teachers need to be addressed to ensure a highly qualified teacher is in every classroom and to encourage reciprocity between states. The five questions are

- What is the route for becoming a high school career/technical teacher?
- What would an improved system to prepare quality career/technical teachers look like?
- What does the current system look like among selected states?
- What can states do to close the gap between the current system and an improved system?
- How can states work to support reciprocity?

## The Route to Becoming a High School Career/Technical Teacher

Prior to studying an ideal preparation system, it is important to understand the route for becoming a career/technical teacher. Teachers receive their preparation either through university-based programs or through degree alternative and non-degree programs.

According to a recent *High Schools That Work (HSTW)* survey of more than 12,000 career/technical teachers at *HSTW* schools across 30 states, about 25 percent of the new teachers employed during the last five years came through a university-based teacher preparation program. In the past those career/technical fields that have typically prepared teachers through a university-based program include: agriculture, business, family and consumer sciences, marketing, and technology education. The main advantages of these programs are preparation in pedagogy prior to teaching and an opportunity to complete a student teaching requirement under a master teacher. One drawback is that content knowledge is often limited to university course work and is not always well-grounded in the reality of the workplace. Because the number of university-based programs has declined in the last five years, 75 percent of the new career/technical teachers at more than 1,000 *HSTW* schools entered teaching through one of two alternative routes.

One alternative method provides initial certification to candidates already in possession of a bachelor's degree in a career field where they are provisionally approved to teach. This enables career/technical teachers to begin teaching while working on their pedagogical course work for their professional certification. School systems have the advantage of recruiting persons into teaching who have deeper university-based subject-matter preparation, enhanced through work experience in the career field. Over the past five years, about 74 percent of career/technical teachers at *HSTW* schools who became teachers using an alternative route did so through the degree alternative route. This path's weakness is that teachers begin to teach without the appropriate classroom preparation. A candidate typically has several years to earn a professional certification, so students become the victims of teachers who do not know how to plan instruction, to manage classrooms with a diversity of students or to use research-based instructional and assessment practices.

The other alternative to becoming a career/technical teacher is through a non-degree route. Schools hire candidates experienced in career/technical fields such as construction, machining and transportation. Much like in the degree alternative route, non-degreed candidates

develop teaching skills after they become a teacher. The down side of this is teachers also lack the preparation to handle the diversity of students they find in their classrooms and labs. Many lack the foundation of academic and technical knowledge they are expected to integrate into assignments. In some states this route requires varying amounts of additional course work requirements that candidates are expected to complete in lieu of a degree.

Regardless of the route, reciprocity among states is difficult due to the lack of common standards to assess the academic, technical and pedagogical skills needed to create and manage a modern career/technical classroom and learning environment.

## An Improved System for Ensuring Quality Career/Technical Teachers

An ideal career/technical teacher preparation and certification system supporting teacher mobility would set high academic, technical and pedagogical standards ensuring teachers develop the learning experiences necessary to prepare youth for successful transition to college and career. All systems would reflect the guiding principles developed for career/technical teachers in 1997 by the National Board for Professional Teaching Standards (NBPTS). These standards would apply to all career/technical teachers, regardless of the route chosen to enter teaching. States will have an effective system for preparation and certification when all career/technical teachers are required to:

- meet the academic standards expected of all teachers prior to earning a professional certification;
- demonstrate, through a valid external assessment, in-depth knowledge of the technical content and underlying academic content they are expected to teach;
- demonstrate, through field-based experiences and performance assessments, knowledge of effective teaching, planning and application of that knowledge in the classroom, the lab and the community;
- earn a bachelor's degree within five years of beginning to teach from a state-approved career/technical teacher preparation program;
- complete a multiyear induction system that includes orientation, continuum of professional development, teacher study groups, mentoring with a master teacher, and opportunities to observe and model effective teaching practices; and
- have an individualized professional development plan and show yearly progress toward achieving professional certification.

States will have an adequate supply of highly qualified career/technical teachers when they develop a system to enroll interested and capable high school and college students in a career/technical teacher cadet program that serves as the entry into teaching. This system would include a strategy to recruit and assess non-educators as

### *Ohio's Education and Training Career Pathway Program*

In 2001, Ohio's Office of Career/Technical and Adult Education began funding career pathway programs of study for the teaching profession as part of their statewide system of career/technical workforce education. The Career Paths for the Teaching Professions program is designed to transition students to four-year institutions to become licensed teachers. The program is based on national and state teaching standards. Students develop and use a portfolio that is based on the Praxis III assessment, which becomes a powerful tool for student admission to college teacher-preparation programs. Many students completing the program receive university credit and/or scholarships to university teacher education programs. Ohio has more than 1,000 high school students enrolled in career paths for the professions programs. More information can be found at:

[www.ode.state.oh.us/ctae/teacher/fcs/CareerPathsTeaching.asp](http://www.ode.state.oh.us/ctae/teacher/fcs/CareerPathsTeaching.asp) or contact: Kathy Shibley, Office of Career/Technical and Adult Education, (614) 466-3430, [kathy.shibley@ode.state.oh.us](mailto:kathy.shibley@ode.state.oh.us).

## Adequate Academic Foundation for Career/Technical Teachers

States should expect all career/technical teachers to meet the same academic standards as other teachers prior to earning a professional certification. A solid academic foundation is essential if career/technical teachers are to develop learning experiences that prepare students for continued learning at work and in educational settings. This would include meeting the same standards on academic exams required of other teachers and either having or acquiring a bachelor's degree within five years. Preparation systems need to include Web-based learning opportunities and ways to translate occupational credentials into credit toward a bachelor's degree.

Table 1 shows how the same academic standards can be applied to career/technical teachers based on their route of entering the profession.

**Table 1**  
**Proposed Academic Requirements for Career/Technical Teachers by Entrance Route**

	Entrance Route		
	Traditionally Prepared Candidate	Degree-alternative Candidate	Non-degreed Candidate
<b>Academic Assessment/ Requirement</b>	Hold a baccalaureate or higher degree in a career/technical field from an institution offering a state-approved program for preparation of C/T teachers.	Hold a baccalaureate or higher degree in a career/technical or closely related field.	Hold an associate's degree or equivalent postsecondary certificate of training that includes academic study.
	Pass Praxis I Pre-Professional Skills Test at same level required of all teachers or equivalent exam with scores at or above the level required of other teachers.	Pass Praxis I Pre-Professional Skills Test at same level required of all teachers or equivalent exam with scores at or above the level required of other teachers, within one year from date of employment.	Pass Praxis I Pre-Professional Skills Test at same level required of all teachers or equivalent exam with a score at or above the level required of other teachers, within two years from date of employment.
			Meet requirements for admission to a state-approved university program or other approved training program for C/T teachers leading to a baccalaureate degree. Teachers will show adequate annual progress toward earning a bachelor's degree within five years of employment.



## ***Current Practices in the Academic Preparation and Certification of Career/Technical Teachers***

**At present, none of the 30 HSTW states have adopted the recommended academic requirements for all first-time career/technical teachers.** Academic requirements vary greatly from state to state, as does the candidate's route to the classroom. While participation in the Praxis I Pre-Professional Skills Test (PPST) in reading, writing and mathematics is required in some states, passing standards vary. Only in Virginia are career/technical candidates required to pass all exams with a cut score equivalent to the median exam score. Cut scores in all other states fall below the test median, and 10 states accept scores lower than the national average performance range.

- Sixteen *HSTW* states require university-trained career/technical teachers to pass the Praxis I PPST. Fifteen states require candidates to pass the test in reading, writing and mathematics. These states include: Arkansas, Delaware, Georgia, Hawaii, Indiana, Kentucky, Louisiana, Maryland, Mississippi, New Hampshire, South Carolina, Tennessee, Vermont, Virginia and West Virginia. One state, Pennsylvania, expects any entering career/technical candidate to pass all portions of the Praxis I PPST except mathematics.
- Thirteen of 30 *HSTW* network states require degree-alternative candidates to pass the Praxis I PPST. Twelve of these states — Arkansas, Delaware, Georgia, Hawaii, Indiana, Louisiana, Maryland, New Hampshire, Tennessee, Vermont, Virginia and West Virginia — require candidates to pass at the same level as all other teachers. One state, Pennsylvania, expects any entering career/technical candidate to pass all portions of the Praxis I PPST except mathematics.
- Seven *HSTW* states — Arkansas, Delaware, Georgia, New Hampshire, Pennsylvania, South Carolina and Vermont — require non-degreed candidates to pass the Praxis I PPST at the same level set for other teachers within time periods, ranging from one to six years. Kentucky requires the Praxis I PPST but requires lower passing scores for career/technical teachers. West Virginia requires non-degreed candidates to pass the California Achievement Test with cut scores of 777 in reading, 765 in writing and 783 in mathematics or to pass the Praxis I PPST and have verification of work experience and submit a

statement of professional commitment verifying enrollment in state-approved teacher training program and receive the recommendation of the superintendent of schools.

While the Praxis I PPST is a standard tool used to gauge academic knowledge, some states have created a general academic exam for teacher candidates. These exams are similar in nature to the Praxis series.

- Six *HSTW* states require university-trained career/technical teachers to pass state-developed exams — Alabama, Florida, Illinois, New York, Oklahoma and Texas.
- Six *HSTW* states require degree-alternative candidates to pass state-developed exams — Alabama, Florida, Massachusetts, New York, Oklahoma and Texas. However, Massachusetts requires only a Technical Communications and Literacy Skills Test for any entering candidates.
- Five *HSTW* states require non-degreed candidates to pass state-developed exams — Florida, Illinois, Massachusetts, New York and Texas.

While various assessments are widely used, some states either have no academic assessment or allow an assessment as an optional hiring requirement at the district level. However, there are states that require at least a 2.5 cumulative grade-point average — Kansas, Kentucky, Louisiana, New Jersey, North Carolina and South Dakota.

- Seven *HSTW* states do not require a formal assessment for their university-trained career/technical teachers — Idaho, Kansas, Missouri, New Jersey, North Carolina, Ohio and South Dakota.
- Eleven *HSTW* states do not require degree-alternative candidates to pass any academic assessments — Idaho, Illinois, Kansas, Kentucky, Mississippi, Missouri, New Jersey, North Carolina, Ohio, South Carolina and South Dakota. In Indiana, non-degreed candidates can pass the Tests of Adult Basic Education (TABE) with cut scores ranging as low as grade 10.
- At least fourteen *HSTW* states require no formal academic assessment for non-degreed candidates — Alabama, Idaho, Kansas, Louisiana, Maryland, Mississippi, Missouri, New Jersey, North Carolina, Ohio, Oklahoma, South Dakota, Tennessee and Virginia.

**Twenty-nine of 30 HSTW states allow some career/technical candidates to start teaching with less than an associate’s degree.** Hawaii is the only state that requires all career/technical candidates, regardless of route, to possess a baccalaureate degree prior to teaching. However, the state’s reciprocity agreements allow all teachers certified from other states, even those without a bachelor’s degree, to teach in Hawaii. Several states — Arkansas, Delaware, Idaho, Missouri, South Carolina, Tennessee and Texas — require candidates from certain career/technical fields such as family and consumer sciences and business education to either possess or earn a baccalaureate degree while teaching, but do not require trade and industrial candidates to earn a bachelor’s degree.

Table 2 reflects academic preparation requirements for career/technical teachers by preparation route, where “1” represents traditional, university-based route, “2” represents degree alternative route and “3” represents non-degree route.

### *Closing the Gap on Academic Preparation and Certification*

It is impossible to achieve the new mission of high school career/technical teachers or of reciprocity across states with such variation in academic standards. States can close the gap between current academic requirements and the recommended requirements by:

- requiring university-prepared career/technical teachers to pass the Praxis I PPST prior to teaching;
- requiring degree-alternative candidates to pass Praxis I PPST within one year of employment;
- requiring non-degreed candidates to pass Praxis I PPST within two years of employment;
- applying the same cut scores on the Praxis I PPST exams required of other teachers;
- requiring all career/technical teacher candidates from alternative routes to enroll in a state-approved preparation program for career/technical teachers;
- requiring non-degreed candidates to show adequate annual progress, which will result in earning a baccalaureate degree within five years, as the basis for maintaining an annual temporary teaching credential; and
- providing a range of supportive refresher experiences — Web-based, self study, courses, etc. — to help degree-alternative teachers to meet academic standards.

## Adequate Technical Content for Career/Technical Teachers

**States must require career/technical teachers to demonstrate, prior to teaching, technical content mastery of their teaching field through external exams or expert review.** External exams could include: state licensure exams; approved industry or employer exams administered and scored by an approved monitor or agency; National Occupational Competency Testing Institute (NOCTI) exam, in career fields where no acceptable exam exists, with scores set at the 50 percentile or higher based on incumbent workers; Praxis II Subject Assessment reflecting cut scores within the average performance range; candidate credentials evaluated through a credential review process using expert jury review (See the sidebar on Pennsylvania’s expert jury review process.); and documentation that a candidate has had recent work experience as a journeyman or an advanced level. Table 3 outlines recommended technical content requirements for all career/technical teacher candidates.

**Table 2**  
**Current Practices in Career/Technical Teacher Academic Preparation and Certification**

<i>HSTW</i> State	Requirement				
	Pass Praxis I Pre-Professional Skills Test (PPST) in Reading, Writing and Mathematics	Pass General Academic Skills Exam	No Formal Academic Assessment	Hold a Degree With at Least a 2.5 GPA	Pass Test of Adult Basic Education (TABE)
Alabama		1, 2	3		
Arkansas	1, 2, 3				
Delaware	1, 2, 3				
Florida		1, 2, 3			
Georgia	1, 2, 3				
Hawaii	1, 2				
Idaho			1, 2, 3		
Illinois		1, 3	2		
Indiana	1, 2				3 <sup>4</sup>
Kansas			1, 2, 3	2	
Kentucky	1, 3 <sup>1</sup>		2	2	
Louisiana	1, 2		3	2	
Maryland	1, 2		3		
Massachusetts		2 <sup>2</sup> , 3 <sup>2</sup>			
Mississippi	1		2, 3		
Missouri			1, 2, 3		
New Jersey			1, 2, 3	2	
New Hampshire	1, 2, 3				
New York		1, 2, 3			
North Carolina			1, 2, 3	2	
Ohio			1, 2, 3		
Oklahoma		1, 2	3		
Pennsylvania	1 <sup>3</sup> , 2 <sup>3</sup> , 3 <sup>3</sup>				
South Carolina	1, 3		2		
South Dakota			1, 2, 3	2	
Tennessee	1, 2		3		
Texas		1, 2, 3			
Vermont	1, 2, 3				
Virginia	1, 2		3		
West Virginia	1, 2, 3 <sup>5</sup>				

1 = traditional, university-based route; 2 = degree alternative route; 3 = non-degree route

**Source:** Data compiled from the Departments of Education for each state

<sup>1</sup> Kentucky allows lower passing scores for career/technical teachers as compared to academic teacher candidates

<sup>2</sup> Massachusetts requires a Technical Communications and Literacy Skills Test only

<sup>3</sup> Pennsylvania does not require candidates to pass the Praxis I mathematics exam

<sup>4</sup> Indiana requires the TABE. However, non-degreed candidates can pass with a score as low as grade 10.

<sup>5</sup> West Virginia requires non-degreed candidates to pass the California Achievement Test in reading, writing and mathematics at the minimum proficiency level or pass the Praxis I PPST with the minimum required score and have verification of work experience and submit a statement of professional commitment verifying enrollment in a state approved teacher training program and receive the recommendation of the superintendent of schools.

**Table 3**  
**Proposed Technical Content Requirements for Career/Technical Teachers by Entrance Route**

	Entrance Route		
	Traditionally Prepared Candidate	Degree-alternative Candidate	Non-degreed Candidate
<b>Technical Content Assessment/ Requirement</b>	2,000 hours of full-time, recent work experience in the field as a journeyman or at an advanced level, or related technical experiences such as internships or advanced study.	4,000 hours of full-time recent work experience as a journeyman or at an advanced level.	4,000 hours of full-time recent work experience as a journeyman or at an advanced level.
	Hold available industry certifications or credentials in area of expertise, or pass Praxis II Subject Assessment.	Hold available industry certifications or credentials in area of expertise <b>or</b>	Hold available industry certifications or credentials in area of expertise <b>or</b>
		Pass appropriate exams with scores at or above national mean: national employer, industry exam, NOCTI or Praxis II Subject Assessment.	Pass appropriate exams with scores at or above national mean: national employer, industry exam, NOCTI or Praxis II Subject Assessment.

*Pennsylvania's Expert Jury Review Process*

Pennsylvania has developed an expert jury process for determining candidates' technical expertise in fields where valid exams are nonexistent. The jury consists of three individuals considered to be experts in their occupational field. The candidate is asked to share his or her background in a formal setting. Candidates are asked to describe their experience, to field technical questions and to prove the depth of their technical knowledge and experience sufficient to teach their specialty to secondary students. Reviews usually last from one to two hours, with the outcome being a consensus of the jury. For more information, contact Richard Walter at (814) 865-2133, raw18@psu.edu.

## *Current Practices in Career/Technical Teacher Academic Preparation and Certification*

States use a variety of approaches to assess the content knowledge of career/technical teachers through a **traditional, university program**. The content standards are based on several elements:

- Seven *HSTW* states — Hawaii, Idaho, Mississippi, Missouri, New Jersey, Pennsylvania and Texas — require pre-service candidates to have work experience, from one to four years, or an approved practicum.
- Of the 29 *HSTW* states that offer a pre-service route for career/technical candidates, 22 of the states use Praxis II Subject Assessment to assess content knowledge in certain fields, such as agriculture, business, marketing, technology education, and family and consumer sciences education. Three states do not require Praxis II or a state-developed assessment — Alabama, South Dakota and Vermont.
- Four *HSTW* states have developed their own content exams — Florida, New York, Oklahoma and Texas.
- None of the *HSTW* states require national industry certification exams as a way to measure content knowledge of candidates from university pre-service programs, although a few states use national or state exams as an option — Delaware, Georgia, Kansas, Kentucky, Mississippi, Tennessee and West Virginia. All *HSTW* states require teacher candidates who plan to teach in a licensed field where a professional license is required, such as nursing or cosmetology, to earn a license from recognized state or national programs.

Requirements and assessments used to measure technical competence of **degree-alternative career/technical teacher candidates** are ill-defined and uneven across states. The various measures used in *HSTW* states to assess degree-alternative candidates include the following:

- Twenty-two *HSTW* states require documented work experience as an indicator of content knowledge for degree-alternative candidates, with a majority requiring an average of two years. Illinois, Mississippi and Tennessee require one year of full-time work

experience, or 2,000 hours, while Kentucky requires five years. Five *HSTW* states — Arkansas, Florida, Maryland, New Jersey and South Dakota — require no work experience as a measure of technical competence if a candidate's degree is in the specific occupational field of teaching responsibility. Alabama, Hawaii, Maryland, North Carolina, South Dakota and Vermont require varying degrees of work experience or course work depending on the teaching field or the degree held.

- Eleven *HSTW* states require the Praxis II Subject Assessment for degree-alternative candidates. Ten of these — Arkansas, Georgia, Hawaii, Indiana, Louisiana, Maryland, North Carolina, Pennsylvania, South Carolina and Virginia — require all degree-alternative candidates to pass it. One state, Vermont, requires Praxis II only if the candidate's degree is not related to the teaching area. Twenty of the *HSTW* states do not require Praxis II exams.
- At least four *HSTW* states have developed their own content exams — Florida, New York, Oklahoma and Texas.
- Eight *HSTW* states — Alabama, Kentucky, Louisiana, Mississippi, Oklahoma, Pennsylvania, Texas and West Virginia — require the National Occupational Competency Testing Institute (NOCTI) exams for measuring content knowledge. However, the cut scores vary by state. For example, the states with the lowest cut scores are Kentucky, Mississippi and Oklahoma. Their cut score standards are set one standard deviation below the national mean.
- Some *HSTW* states may use state licensure or national industry certification exams as an option for measuring technical content or as a requirement at some point in a candidate's certification program — Alabama in some fields, Delaware, Georgia, Illinois, Kansas, Kentucky, Massachusetts, Ohio, Tennessee and Virginia. West Virginia mandates all degree-alternative candidates hold any available industry-recognized credential in order to meet standards for accreditation or certification and to award industry credentials to students.

Requirements across states for **non-degreed candidates** are varied as well. Technical competence for non-degreed candidates is documented and assessed by a combination of work experience, content exams, certifications and licenses and course work. Measures used by all *HSTW* states include

- All *HSTW* states that have alternative career/technical teacher programs, except Florida, require work experience as a measure of technical competence, with the number of years ranging from one to eight. On average states require four years of experience, with Maryland only requiring one year for some fields, while Idaho requires a minimum of eight years full-time work experience.
- About half the *HSTW* states — Alabama, Arkansas, Delaware, Idaho, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Oklahoma, Pennsylvania and Texas — use NOCTI exams either as a requirement or as an option in their certification process. Idaho and Indiana require NOCTI exams only if candidates do not possess the required work experience. Delaware candidates can earn credits by passing NOCTI with a 70 percent pass score of both written and performance tests. For states that require the NOCTI exams, acceptable scores vary greatly and typically fall below the national mean, from 10 points below the national mean in Arkansas to one standard deviation below the

mean in Oklahoma. Three states — Pennsylvania, Ohio and Mississippi — use a jury review process for fields where no trade competency exam exists.

- Fewer *HSTW* states require a national industry certification or licensure for non-degreed career/technical teacher candidates. Alabama, Georgia, Massachusetts, Missouri, South Carolina, Tennessee, Virginia and West Virginia mandate national or state industry certification either upon hire or within three years of teaching in certain fields. Delaware, Idaho, Indiana, Kentucky and Virginia utilize industry certification as an option, either toward earning credits, in lieu of work experience or instead of a trade competency exam. More states are considering the value of industry certification in measuring technical competence. The New Jersey State Board established criteria whereby candidates who possess a professional license or a recognized industry certificate may receive credit toward the four years of industry work experience.

Currently states have a variety of options for candidates to meet certification requirements and technical standards. **These variations hamper efforts to have common standards and assessments between states and to have well-qualified teachers with a depth of technical knowledge.** Table 4 summarizes technical requirements by state and by preparation route.

### *Closing the Gap on Content Preparation and Certification*

States can close the gap between current practices of technical content assessment and the recommended requirements by:

- developing an approved list of external examinations, including Praxis II, employer certification exams, state licensure exams and other approved exams that can be used to assess teacher field knowledge of all career/technical teachers regardless of their preparation route;
- ensuring career/technical teachers possess the depth of knowledge and skills consistent with the top professionals in their field;
- requiring degree-alternative and non-degreed teachers to demonstrate technical competence as a prerequisite for obtaining a teaching certificate. Where conditions warrant, teachers should only be allowed to teach one year on a temporary certificate that will be non-renewable, unless they passed the appropriate exam verifying they know their content area well enough to teach others;
- establishing an expert review process for those few career/technical fields for which no external examination exists. Have a panel of experts to query the applicant and look at their credentials and portfolio of work to verify whether or not the applicant has sufficient subject-matter depth to warrant certification; and
- expecting all career/technical teacher candidates to possess substantial work experience that will support a depth of content knowledge. Require candidates to document a minimum of 2,000 hours of full-time, recent work experience in their field as a journeyman or at an advanced level, with the minimum hours increasing for candidates without academic degree credentials.



**Table 4**  
**Current Practices in Career/Technical Teacher Content Preparation and Certification**

<i>HSTW</i> State	Requirement					
	Work Experience — 4,000 Hours (Two Years) or More	Work Experience — 0-4,000 Hours (Up to Two Years)	Pass Praxis II Subject Assessment	Pass State- or University-developed Subject Assessments	Pass NOCTI Industry Exams	Pass National Industry Certifications
Alabama	2, 3				2, 3	3 <sup>6</sup>
Arkansas	3		1, 2		3	
Delaware	2, 3		1	1 <sup>7</sup>	2 <sup>8</sup> , 3	3
Florida				1, 2, 3		
Georgia	2 <sup>9</sup> , 3		1, 2			3 <sup>10</sup>
Hawaii		1, 2	1, 2			
Idaho	1, 2, 3		1		3 <sup>11</sup>	3 <sup>12</sup>
Illinois	3	2	1			
Indiana	2, 3		1, 2		3 <sup>13</sup>	3 <sup>12</sup>
Kansas	2, 3		1	1	3	
Kentucky	2, 3		1		2, 3 <sup>14</sup>	3 <sup>14</sup>
Louisiana	2, 3		1, 2		2, 3	
Maryland		2, 3 <sup>15</sup>	1, 2, 3			
Massachusetts	2, 3			2, 3	3 <sup>12</sup>	2 <sup>16</sup> , 3 <sup>13</sup>
Mississippi	1, 3	2	1		2 <sup>17</sup> , 3 <sup>18</sup>	
Missouri	3	1, 2	1			3 <sup>12</sup>
New Jersey	1, 3		1	3		
New Hampshire	2, 3		1			
New York	2, 3			1, 2, 3		
North Carolina	2, 3		1, 2			
Ohio	2, 3		1			
Oklahoma	2, 3			1, 2	2, 3	
Pennsylvania	1, 2, 3		1, 2, 3		1, 2, 3	
South Carolina	2, 3		1, 2	3		3
South Dakota	3	2 <sup>19</sup>			1	
Tennessee	3	2	1			2 <sup>20</sup> , 3 <sup>15</sup>
Texas	1, 2, 3			1, 2, 3	2, 3	
Vermont	3		2 <sup>8</sup>	1		
Virginia	3		1, 2			2 <sup>20</sup> , 3 <sup>20</sup>
West Virginia	2, 3		1	2, 3	2, 3	2, 3

1 = traditional, university-based route; 2 = degree alternative route; 3 = non-degree route

**Source:** Data compiled from the Departments of Education for each state

<sup>6</sup> Industry certification can be required if NOCTI exam is unavailable.

<sup>7</sup> National or state exam used as an option.

<sup>8</sup> State licensure or industry certification is an option for measuring technical content knowledge.

<sup>9</sup> Option for those areas without Praxis II assessment must hold state or national license and two years work experience.

<sup>10</sup> Non-degreed candidates must hold national license by end of first year of teaching.

<sup>11</sup> For those candidates without eight years of work experience, NOCTI exam is required.

<sup>12</sup> Used as an option toward earning credits in lieu of work experience or instead of a trade competency exam.

<sup>13</sup> For those candidates without three years of work experience, NOCTI exam is required.

<sup>14</sup> Must pass NOCTI or hold National Industry Certification.

<sup>15</sup> Work experience required ranges up to five years depending on teaching area.

<sup>16</sup> National industry certification required in some career/technical disciplines.

<sup>17</sup> Degreed candidates must pass NOCTI if degree is not in field of study.

<sup>18</sup> Non-degreed candidates must complete the Experienced Worker Test from NOCTI, both written and performance exams.

<sup>19</sup> 2,000 hours of work experience required if degree is not in field related to teaching assignment.

<sup>20</sup> Praxis II is required only if degree is not related to teaching area.

## Pedagogical Preparation and Certification for Career/Technical Teachers

Career/technical teachers must be prepared to develop and deliver curriculum and instruction reflecting the needs of the modern workplace and leading to academic and career/technical success for all students. Career/technical teacher candidates need timely support in acquiring a foundation in general pedagogy and specific pedagogy skills for career/technical classrooms. At a minimum, career/technical preparation programs must prepare teachers to:

- design instruction to support development of technical knowledge and skills, the field's underlying academic competencies, social development and workplace readiness;
- advance student learning through a repertoire of research-based instructional strategies;
- assess student knowledge and skills to inform student and teacher;
- counsel students about their program of studies, career options, labor market decisions and postsecondary plans; and
- reflect on and revise their teaching practice as necessary.

These standards and other key indicators should drive an approved program framework for preparing career/technical teachers. Other key indicators for a state-approved program framework would include

- a substantial set of field-based experiences, focusing on improving curriculum and instruction and solving problems of student achievement;
- the use of performance assessments to measure teaching abilities; and
- having faculty with knowledge and expertise in general and career/technical-specific pedagogy.

It is expected that an approved program framework would guide the preparation of all career/technical teachers regardless of route. Career/technical teachers coming through the **university-based program** would do so through an approved teacher preparation program. Candidates who enter the profession with a **bachelor's degree in their teaching field** could either receive their professional teacher preparation through an approved university-based program or through a state-approved professional development program. For candidates who enter the profession with **less than a bachelor's degree**, it is expected that they would complete a state-approved career/technical teacher preparation program leading to a bachelor's degree from an accredited university or other accredited training entity.

States should require all career/technical teacher candidates to pass a pedagogy exam that reflects Praxis II Principles of Learning and Teaching (PLT) competencies. For those candidates prepared through a traditional, university program, their program completion would depend on passing the pedagogy exam and completion of successful student teaching experiences. States should require candidates entering the profession through alternative routes within three years to:

- exhibit satisfactory performance as a career/technical teacher, reflecting Praxis III<sup>21</sup>-like process with trained observers; and
- pass a pedagogy exam for career/technical teachers that reflect Praxis II PLT.

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<sup>21</sup> Praxis III: Classroom Performance Assessments comprise a system for assessing the skills of beginning teachers in classroom settings. Educational Testing Service (ETS) developed Praxis III for use in teacher licensing decisions made by states or local agencies empowered to license teachers. The Praxis III system utilizes a three-pronged method to assess the beginning teacher's evidence of teaching practice: direct observation of classroom practice; review of documentation prepared by the teacher; and semi-structured interviews.



## ***Current Practices in Career/Technical Teacher Pedagogy Preparation and Certification***

Most states require some form of training in teaching methods for degree-alternative career/technical teacher candidates. The training ranges from formal university course work to district-provided professional development.

Some states require no initial training to gain temporary certification. **States that require training in teaching methods vary greatly in the amount required. Requirements can include graduate courses, certification course work or professional development hours. The amount varies from six clock hours to 45 semester hours of university course work in some states, while South Carolina requires degree-alternative candidates to complete three graduate courses and Massachusetts requires 21 credits.**

Several states use exams to measure pedagogy competence for degree-alternative candidates. Six states — Hawaii, Maryland, New Jersey, Ohio, South Carolina and South Dakota — require degree-alternative candidates to pass Praxis II PLT, with cut scores ranging from 165-167. Four states — Florida, New York, Oklahoma and Texas — use a state-created pedagogy assessment. Pennsylvania requires degreed candidates to either pass the PLT or complete two successful observations. Additionally, two states — Arkansas and Ohio — require degree-alternative candidates to pass a national performance assessment such as Praxis III Classroom Performance within four years.

Fewer states require non-degree teachers to pass some type of pedagogy-based assessment. Two states — Idaho and Ohio — require candidates to pass the Praxis II PLT. Pennsylvania also requires non-degreed candidates to either pass the PLT or pass two successful observations. Three states — Florida, New York and Oklahoma — use a state-developed exam to measure pedagogy competence. See Table 5 for a summary of state requirements to develop and measure pedagogy in career/technical teacher candidates.

There is no common standard of pedagogy training that would build the confidence needed for reciprocity among states. State leaders can resolve the inadequacy of the system by working toward instituting a common teaching standard for all career/technical teachers.

A recent online survey of those who employ career/technical teachers identified inadequate professional education training as a major problem. School leaders reported classroom management as the most prevalent major deficiency among career/technical teachers employed within the last five years. The lack of classroom management skills relates to a teacher's ability to plan instruction that engages students in learning. More than half of the respondents asked, identified teaching strategies as a weakness for new career/technical teachers. Forty-three percent of administrators believe newly-hired career/technical teachers lack skills to address student diversity and special needs.

Those who employ career/technical teachers believe the ones who leave the profession within three years do so because of a deficiency in managing classrooms, in planning instruction and assessments, in dealing with the diversity of students, and because of the range of students' special needs.

However, the inadequacy of professional preparation is not limited to those who enter through alternative routes. Teachers who have received preparation through university programs often do not have an adequate foundation in mathematics and science to teach modern career/technical education, which requires the integration of academic and technical knowledge. They do not know how to give assignments requiring that students apply academic knowledge and skills to solve real problems. Thus, they often fail to use literacy and numeracy strategies to deepen the students' mastery of major technical concepts and to use mathematics to solve problems encountered in their career/technical field. A 2002 survey of more than 12,000 high school career/technical teachers revealed that:

- more than 46 percent of career/technical teachers never expect students to read a book or technical article or to demonstrate an understanding of technical material;
- more than 40 percent never give tests that are predominantly essay;
- at least 30 percent never require students to design an investigation and prepare a written report on findings;
- only 24 percent expect students to do computer-assisted research/assignments once a year or less; and
- more than 68 percent never give joint assignments with a mathematics or science teacher where students receive a grade in both academic and career/technical classes.

**Table 5**  
**Current Practices in Career/Technical Teacher Pedagogy Preparation and Certification**

<i>HSTW</i> State	Requirement				
	Pedagogy Course Work	Pass Praxis II Principles of Learning and Teaching (PLT)	Pass State-created Pedagogy Assessment	Pass Praxis III Classroom Performance Assessment	Mentoring or Induction Program
Alabama	1, 2, 3				
Arkansas	1, 2, 3	1		2 <sup>22</sup>	2
Delaware	1, 2, 3				2
Florida	1, 2, 3		1, 2, 3		
Georgia	1, 2, 3				
Hawaii	1, 2	1, 2			
Idaho	1, 2, 3	3			3
Illinois	1, 2, 3	1			2
Indiana	1, 2, 3				1, 2, 3
Kansas	1, 2, 3	1			2, 3
Kentucky	1, 2, 3	1			2, 3
Louisiana	1, 2, 3	1			
Maryland	1, 2	1, 2			
Massachusetts	2, 3				2, 3
Mississippi	1, 2, 3	1			2, 3
Missouri	1, 2, 3	1			2, 3
New Jersey	1, 2, 3	2			2, 3
New Hampshire	1, 2, 3				2, 3
New York	1, 2, 3		1, 2, 3		2, 3
North Carolina	1, 2, 3				2, 3
Ohio	1, 2, 3	1, 2 <sup>23</sup> , 3		1, 2, 3	1, 2, 3
Oklahoma	1, 2, 3		1, 2, 3		1, 3
Pennsylvania	1, 2, 3	1, 2 <sup>24</sup> , 3			1, 2, 3
South Carolina	1, 2, 3	1, 2			2, 3
South Dakota	1, 2	2			2
Tennessee	1, 2, 3	1			
Texas	1, 2, 3		1, 2		
Vermont	1, 2, 3				3
Virginia	1, 2, 3		3		2, 3
West Virginia	1, 2, 3	1			2, 3

1 = traditional, university-based route; 2 = degree alternative route; 3 = non-degree route

**Source:** Data compiled from the Departments of Education for each state

<sup>22</sup> Must complete within four years of beginning teaching

<sup>23</sup> Must pass PLT within four years of beginning teaching

<sup>24</sup> Must pass PLT or complete two successful observations

### *Closing the Gap on Pedagogical Preparation*

States can take several actions to improve the professional preparation of career/technical teachers. These actions include

- establishing an approved program framework that is aligned to national standards and to research-based classroom practices, reflecting a vision for modern career/technical studies at the high school level and addressing essential competencies that career/technical teachers must possess;
- requiring all existing preparation programs to evaluate current content and expectations and submit a plan for updating programs based on the proposed framework;
- requiring all new teachers, regardless of preparation route, to complete a state-approved professional training program based on the described framework. Candidates in an alternative route would be expected to complete preparation within three years, with annual adequate progress toward completion as a basis for continued temporary certification;
- working with other states to develop a set of nationally aligned instructional modules on pedagogy as a tool for preparation programs that would address curriculum and instructional planning, research-based teaching strategies, classroom assessment, classroom management and motivation of all students.
- working with other states to determine a set of competencies that embody teaching in a modern career/technical classroom and to establish a pedagogy exam based on these competencies, similar to the Praxis II PLT; and
- requiring all career/technical teachers to demonstrate teaching competence through successful completion of:
  - a unique pedagogy exam like Praxis II PLT aligned to combined teaching standards. Expect all candidates to pass this within three years of beginning teaching; and
  - a series of satisfactory performance assessments much like Praxis III, using trained observers.

States can also develop opportunities for new career/technical teachers to practice teaching skills during required summer orientations. Career/technical teacher candidates need clinical experiences and mentored practice to apply their knowledge, make judgments in a classroom, and observe expert teaching to reflect on their own growth. See sidebar on Oklahoma's career/technical teacher induction process.

### *Oklahoma's Career/Technical Teacher Induction Process*

The Teacher Induction System is a competency-based instructional system designed to help a career/technical teacher entering or already within the Oklahoma system. During the multiyear induction process, a team that includes a teacher educator, school instructional leader and mentors work with each new teacher to develop a customized plan for classroom success. The university supports the teacher with on-site assistance and aligns the induction experiences with requirements for teacher certification. The induction program includes a New Teacher Institute, Effective Teaching Skills instructional modules/CD-Rom, online teacher resource center (with workshop clearinghouses, master teacher discussion banks and divisional workrooms with successful practices), online master teacher videoconferences, mentoring/coaching training and technical assistance. The program boasts an increase in career/technical teacher retention from 52 percent to 90 percent over three years. For more information, contact Mary Jo Self, Ed.D. Oklahoma State University, College of Education, (405) 744-9191, marycj@okstate.edu.

## Recruitment of Career/Technical Teachers

Local school districts and schools face difficulty in finding highly qualified career/technical teachers. Today 75 out of every 100 new career/technical teachers at more than 1,000 *HSTW* schools across 30 states from 1997 to 2002 entered teaching through an alternative route. Even in traditional career/technical fields of business, agriculture, family and consumer sciences, and technology education, more teachers are entering teaching through alternative routes. As a consequence, more career/technical classrooms are staffed by persons without knowledge of how to plan, deliver or manage a challenging, engaging and meaningful learning experience for students. This problem is compounded because many states do not have an adequate system of standards to ensure career/technical teachers have sufficient academic and technical knowledge base for teaching.

The problem of inadequately prepared teachers is further complicated by the fact that many states do not have a fast track system for teaching these new alternative teachers the basics of how to teach. Only a few states — North Carolina, Ohio and Pennsylvania — have a well-developed induction and mentoring program, requiring local districts to employ degree alternative route teachers early enough to have them participate in: (a) a four to six weeks intensive summer program on the basics of how to teach; (b) a planned program of mentoring during their first year of teaching with opportunities to network and reflect on their experiences under the direction of a trained facilitator; (c) a second summer experience to address standards-based instructional planning and assessment and how to integrate academics into the curriculum; and (d) a second-year mentoring experience that results in a recommended professional certification based on performance as a teacher.

**Most *HSTW* states have not developed an adequate fast track program of pedagogy course work combined with supportive on-site coaching and mentoring necessary within 18 to 24 months to move an alternative certified teacher from a novice to a professional teacher.**

Sixteen states — Arkansas, Delaware, Indiana, Kentucky, Massachusetts, Mississippi, Missouri, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina, South Dakota, Virginia and West Virginia — have formal mentoring as part of alternative candidate certification, ranging on average from one to three years.

In many states the local districts wait until the last few days prior to the start of school before hiring degree alternative route career/technical teachers. So, if there is a summer experience planned for them, they cannot take advantage of it.

Not only are new degree-alternative teachers not participating in a fast track program that teaches them the basics of teaching, but more than one-third of the local school districts report providing no pre-teaching orientation to these teachers. Districts offering it provide an average of three days of pre-teaching orientation. More than one-fourth offer less than nine hours of orientation for new alternatively prepared teachers. Only one-third of states responding to a recruitment survey reported providing new career/technical teachers with an induction program of at least two years. In many states and schools, these new alternative certified teachers are left virtually on their own. **As a consequence, a high percentage of these teachers leave during the first or second year. Local administrators report that most often these new teachers leave because they are neither prepared to handle diverse sets of students nor are they skilled in managing classrooms.** Of those who left after the first year, 24 percent could not adjust to the school or to the teaching culture and 21 percent found teaching to be dissatisfying. About half of career/technical teachers who leave the classroom after three years do so because of failure to meet certification requirements or because of their inability to adjust to the teaching culture.

The responses of 2,600 career/technical teachers with five years or less experience indicated they need preparations on the basics of *how to teach*. Their reported staff development needs dealt with curriculum and instructional planning, learning how to use research-based instructional strategies, improving their classroom assessment and learning effective classroom management for student motivation. More than half of new career/technical teachers report staff development needs in curriculum and instructional planning that include

- planning interdisciplinary projects or units with other teachers and visiting academic classes to develop project ideas;
- aligning course standards to national academic and skill standards;

- learning methods to integrate reading, writing and communication skills; and
- preparing a course syllabus to teach students to challenging standards. (See Table 6.)

The number of new career/technical teachers who reported no professional development on curriculum and instructional planning ranges from 36 percent to 63 percent, with only 6 percent or less reporting receiving 40 hours of staff development in the area identified. Forty hours is considered the amount of help a teacher needs to develop and effectively use a new set of teaching strategies.

One-half or more of these new career/technical teachers reported a need to learn research-based teaching strategies to improve student learning, including learning how to:

- adapt teaching to different learning styles;
- teach students through cooperative learning strategies;
- use project-based learning to deepen understanding of content;
- use student-centered instruction to motivate and deepen student learning;
- help students design and conduct research investigation;
- help students make connections between classroom and the real world; and
- use applied learning strategies to teach higher-level academic content. (See Table 7.)

Twenty-one percent to 66 percent of new career/technical teachers reported receiving no training on research-based teaching practices.

**Table 6**  
**Professional Development Curriculum and Instructional Planning Needs**  
**From HSTW C/T Teacher Respondents with Less than Five Years' Experience**

Topic/Need Identified	% Expressing Need	Number of Hours of Staff Development in Past Three Years Reported by Total Sample		
		None	Less than 40 Hours	More than 40 Hours
Align course standards to national academic and skill standards.	54%	46%	48%	6%
Use methods to integrate reading, writing and communication skills.	57	36	59	5
Do collaborative planning with other teachers.	63	42	54	4
Visit academic classes to develop ideas for projects to motivate students.	65	63	35	2
Prepare a syllabus for teaching to challenging standards.	52	52	44	4
Plan interdisciplinary projects with other teachers.	63	55	42	3

Source: 2002 HSTW Teacher Survey data

**Table 7**  
**Professional Development Needs of Research-based Teaching Practices**  
**from *HSTW* C/T Teacher Respondents with Less than Five Years' Experience**

Topic/Need Identified	% Expressing Need	Number of Hours of Staff Development in Past Three Years Reported by Total Sample		
		None	Less than 40 Hours	More than 40 Hours
Use reading and writing for learning in the content area and across the curriculum.	53%	28%	67%	5%
Use teaching methods to integrate high-level mathematics into my class.	48	66	31	3
Adapt teaching to different learning styles.	66	21	73	6
Get students to elaborate on their understanding of content through extended writing.	56	48	49	3
Use applied learning strategies to teach higher-level academic content.	62	46	49	5
Use student-centered instruction to motivate and deepen student learning.	60	42	53	5
Use interdisciplinary themes or units.	58	50	47	3
Help students make connections between classroom and the real world.	58	40	53	7
Use research-based teaching practices to improve student learning.	57	47	49	4
Use project-based learning to deepen understanding of content.	55	39	55	6
Teach students through cooperative learning.	54	35	59	6
Establish a classroom environment that actively involves students.	54	24	69	7
Have students design and conduct research investigations.	53	55	42	3
Apply scientific methods of inquiry to problems in my C/T field.	52	61	36	3

**Source:** 2002 *HSTW* Teacher Survey data

More than half of new career/technical teachers expressed a need to learn how to use assessment strategies to improve student learning and to motivate students to meet higher standards. Thirty-five percent to 51 percent of new career/technical teachers reported receiving no staff development on a single topic. Teachers expressed a need for assistance with the following classroom assessment strategies:

- Having students assess and revise their own work to meet standards
- Using multiple forms of assessment to determine student progress
- Using performance assessment such as writing, projects and presentations
- Using student portfolios across the curriculum
- Developing and using rubrics to assess mastery of academic skills and content. (See Table 8.)

Fifty-three percent to 68 percent of new career/technical teachers expressed a need for staff development in understanding at-risk students and motivating students to meet course standards. Thirty-four percent to 54 percent reported having received no staff development on these topics. Only 6 percent had received training in any single topic. (See Table 9.) Topics new career/technical teachers reported needing staff development in included

- raising expectations for student achievement;
- getting at-risk students to master complex content;
- motivating students to do challenging work through teaching; and
- developing a system of extra help to improve student achievement.

**Table 8**  
**Professional Development Needs for Effective Classroom Assessment Strategies from HSTW C/T Teacher Respondents with Less than Five Years' Experience**

Topic/Need Identified	% Expressing Need	Number of Hours of Staff Development in Past Three Years Reported by Total Sample		
		None	Less than 40 Hours	More than 40 Hours
Develop rubrics in academic content areas.	51%	44%	53%	3%
Use performance assessment.	54	35	59	6
Use multiple forms of assessment to determine student progress.	55	39	55	6
Use student portfolios across the curriculum.	55	51	45	4
Have students assess and revise their own work to meet standards.	56	51	45	4

Source: 2002 HSTW Teacher Survey data



**Table 9**  
**Professional Development Curriculum and Instructional Planning Needs**  
**From *HSTW* C/T Teacher Respondents with Less than Five Years' Experience**

Topic/Need Identified	% Expressing Need	Number of Hours of Staff Development in Past Three Years Reported by Total Sample		
		None	Less than 40 Hours	More than 40 Hours
Get at-risk students to master complex content.	68%	54%	43%	3%
Raise expectations for student achievement.	55	34	62	4
Use teaching methods that motivate students to do a variety of demanding tasks.	65	44	52	4
Have a system of extra help to improve student achievement.	53	47	59	4
Know how to work with students as a mentor and advisor.	55	50	46	4

**Source:** 2002 *HSTW* Teacher Survey data

**Too many new career/technical teachers, who may have strong academic foundations and in-depth subject-matter knowledge, are left on their own to figure out how to devise engaging, challenging and meaningful learning experiences among diverse student populations.** As a consequence, there is a revolving door with many teachers leaving and with those who survive providing a very weak learning experience for students.

Local administrators report lowering requirements to fill career/technical positions, particularly in certain fields like health, where a major shortage exists. A survey of local administrators at *HSTW* sites reveals that approximately 20 percent report looking for qualified career/technical teachers outside of the state in specialized fields, such as technology and engineering, information technology, and industrial/manufacturing-related occupations.

Nine out of 10 administrators who employed career/technical teachers from outside of the state reported recommending candidates for a temporary license because most failed to meet state specific requirements. Course requirements not aligning to state requirements and differences in degree and work experience requirements are the most frequent issues.

Also, local administrators report portability of retirement benefits as a major barrier to recruiting career/technical teachers from outside of the state. Three out of 10 respondents indicate problems with differences between states, such as the lost years of service toward retirement, the number of years of service required for retirement vesting, and the inability to transfer pension. Sixty percent of local administrators report salary as a major issue in attracting qualified teachers.



## Actions States Can Take to Get More Qualified Career/Technical Teachers

The current system leaves many classrooms without adequately prepared teachers or with no teachers at all. States can become proactive to increase the availability of qualified teachers by:

- developing a recruitment approach that identifies potential candidates from high school students, community college students, career changers, and retirees from the military and other sectors. States can provide either a university-based pathway or professional development pathway to allow a fast start into the profession.
- requiring an induction program for all new career/technical teachers. Develop a two-year structured induction program with ongoing instruction to acclimate new teachers to a classroom's culture and to the standards of the profession. An effective induction program would include
  - initial induction of at least five days prior to the start of school;
  - administrative support to participate in planned professional development over two years;
  - frequent opportunities for networking and for support through professional learning communities;
  - mentoring by a trained teacher;
  - opportunities to model effective teaching practices and to receive feedback; and
  - frequent visits to other classrooms to observe effective teaching practices.
- requiring all candidates to have at least an associate's degree or equivalent postsecondary training.
- requiring all alternative certified teacher candidates to:
  - meet technical content standards;
  - complete a pre-teaching orientation, including initial induction to the school's expectations;
  - complete a formal mentoring program customized to each candidate's needs with a team consisting of a mentor (an expert teacher with a record of high achievement and sufficient mentor training), an

administrator and a state-approved career/technical teacher preparation program coach; and

- demonstrate adequate yearly progress toward obtaining full professional certification within at least three years of employment.
- requiring all non-degree career/technical teachers to earn a bachelor's degree within five years of employment.
- requiring a demonstration of technical competence as a prerequisite to teaching by meeting a standardized external assessment with scores at or above the national mean — national employer exams, industry exam, NOCTI or Praxis II Subject Assessment.
- requiring all teacher candidates, regardless of certification route, to have at least 2,000 hours of work experience as a journeyman or at an advanced level.
- requiring all new career/technical teachers, regardless of preparation route, to complete a state-approved professional training program.

States can work together on a number of initiatives that would increase the availability of highly qualified career/technical teachers and would promote greater reciprocity among states. These initiatives would include states working in cooperation to:

- develop a series of Web-based courses to help support the preparation of career/technical teachers with curriculum and instructional planning, research-based teaching methods, classroom assessment strategies, and classroom management and motivational strategies.
- develop a career/technical pedagogy exam, similar to the Praxis II PLT, to assess what career/technical teachers need to know and to be able to do in terms of how to teach.
- require all teacher candidates to pass the Praxis I PPST, applying the same cut scores that are required of other teachers.
- require all career/technical teacher candidates to demonstrate teaching competence by passing the developed pedagogy exam and a series of performance assessments using trained, external observers.

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