Applied Learning for the 21st Century

Opportunities for Educational Service Agencies

A Call to Action: The Carl D. Perkins Career and Technical Education Improvement Act

Virtually every high school student takes at least one career and technical education course, and one in four students takes three or more courses in a single program area, according to the U.S. Department of Education's Office of Vocational and Adult Education.

With the 2006 reauthorization of the Carl D. Perkins Career and Technical Education Improvement Act, educational service agencies have a rare opportunity to work with states, school districts and schools to strengthen these students' proficiency in academic subjects and 21st century skills — and prepare them to transition successfully into workplaces *and* postsecondary education.

The Perkins legislation gives educators an opportunity — even a mandate — to rethink applied learning. The change in the legislation's title — from "vocational" to "career and technical" education — shifts the focus of federal funding from training in traditional, specific jobs to career preparation and skills development that have a longer shelf life and more relevance to workforce demands and emerging careers. Plus, the legislation calls for more rigorous academics in sequenced programs of study, more effective planning for academic, career and technical skills, and greater accountability for results.

There are compelling reasons to take advantage of the opportunity:

- **Knowledge and skill demands are increasing — and competitiveness is at stake.** There is a growing mismatch between the workforce skills employers value and the skills that young people have, according to any number of recent reports. For example, a survey of 400 employers, *Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century Workforce,* rated recent high school graduates as deficient in the 10 skills they rank most important, including oral and written communications, professionalism/work ethic, and critical thinking/problem solving (The Conference Board, Partnership for 21st Century Skills, Corporate Voices for Working Families & Society for Human Resource Management, 2006).

  The same mismatch applies to postsecondary demands: "[M]any high schools are unable to produce college-ready graduates," according to *Greater Expectations: A Nation Goes to College* (Association of American Colleges and Universities, 2005).

Business and industry groups are sounding the alarm about workforce quality and economic competitiveness, most notably in the science, engineering, technology and mathematics (STEM) fields. Workforce skills are the linchpin of most economic and community development initiatives as well.

The changing global economy, rapid advances in telecommunications and technological innovations all contribute to labor market volatility and churning. Young people are expected to have not just multiple jobs over the course of their working lives, but multiple careers. They may be employees, contractors or entrepreneurs who innovate, create and manage their own success — roles that demand different skill sets than traditional jobs.

- **There is broad consensus for the kinds of knowledge and skills that are valued today and that will prepare students to succeed tomorrow.** The Partnership for 21st Century Skills reports, including *Results that Matter: 21st Century Skills and High School Reform* (2006), provide a vision and a framework for rethinking career and technical education. The Partnership has identified six key elements of 21st century learning:

    - Core subjects
    - 21st century content
    - Learning and thinking skills
    - ICT literacy
    - Life skills
    - 21st century assessments

- **Vocational education is due for an overhaul.** Vocational education gets only mixed reviews for effectiveness in important outcomes, such as academic achievement and college attendance, according to the *National Assessment of Vocational Education* (U.S. Department of Education, 2004). Yet these outcomes matter today for all students, according to such reports as *Crisis at the Core: Preparing All Students for College and Work* (ACT, 2004) and *Ready or Not: Creating a High School Diploma That Counts* (The American Diploma Project, 2004). These reports argue that all students, whether they are bound for college or careers, need the same knowledge and skills to transition successfully into young adult life. Most jobs, in fact, require some postsecondary education.

Today's students are no longer just consumers of information, but producers of content, which requires a new set of skills, including 21st century digital media tools for content creation. Progressive career and technical education programs that respond to the challenges and opportunities presented in the Perkins Act with this understanding can prepare students, businesses and communities to thrive. Programs that don't change risk obsolescence and irrelevance.

Opportunities for Educational Service Agencies

There are five major areas in which educational service agencies can work with states, school districts and schools to improve career and technical education:

1. Clarify fundamental goals and policies to align with results that matter.
The *National Assessment of Vocational Education* (U.S. Department of Education, 2004) points out that the goals of vocational education are "conflicted" and don't necessarily reflect today's realities. Traditionally for low-achieving and non-college-bound students, these programs do not always prepare students with a strong academic curriculum, preparation to transition to postsecondary education or competence in 21st century skills.

ESAs can work with states, school districts and schools to reposition these programs with goals and policies aligned to results that matter now: strong academics *and* 21st century skills.

Opportunities for ESAs to Make a Difference

- Survey businesses to determine workforce skill demands.
- Survey postsecondary institutions to determine expectations for entering students.
- Facilitate educator inquiry into 21st century skills and professional development needs.
- Identify gaps between needs and realities in workforce and postsecondary education preparation and in professional development.
- Collaborate with educators to develop goals and policies aimed at closing the gaps.

It's also important today to understand *national* workforce skill demands and career trends, because people no longer have to be located in the physical hotbeds of innovation to benefit from career opportunities in other places.

ESAs in Action

Cooperative Educational Service Agency 5 in Portage, Wis., is in the midst of its first-ever electronic survey of businesses to gauge their workforce needs and determine skill deficits among high school students and graduates. "We're trying to find out how we can do a better job," says Dr. Pamela Hillesheim-Setz, career and technical education director. The survey, patterned on ACT's WorkKeys, makes it easy for employers to participate and tabulates responses immediately. To date, the findings reveal that employers are more interested in cross-cutting thinking and learning skills — such as communicating and collaborating with co-workers — than in specialized skills.

The ESA also is helping teachers incorporate academic skills, especially reading across the content areas, into career classes. And it has implemented "four-year planners" for students, who are urged to plan their futures with a four-year horizon.

2. Broker public–private partnerships to make career and technical education rigorous, engaging and relevant. States, school districts and schools cannot operate in a vacuum if they want to deliver high-quality programs. They must work closely with businesses, postsecondary institutions and community groups to keep pace with changing workforce and higher education needs and to provide students and educators with opportunities to develop their knowledge and skills. ESAs can play a valuable role in fostering these relationships.

Opportunities for ESAs to Make a Difference

- Develop articulation agreements between high schools and two- and four-year colleges and universities.
- Develop relationships with employers in key state, regional or local industry clusters.
- Develop relationships with postsecondary institutions.
- Create opportunities for teachers and students to work and learn in growth-industry businesses, postsecondary institutions and community organizations.

ESAs in Action

Mecosta-Osceola Career Center in Big Rapids, Mich., holds an annual event each fall for employers in industry sectors such as allied health services, building and construction, and welding to share their workforce needs and projections. Their responses are used to shape the curriculum. Now, for example, the career center, which is a division of the Mecosta-Osceola Intermediate School District, is working to incorporate more project- and worksite-based learning opportunities for students. The career center also is working to strengthen its articulation agreements and dual enrollment programs with area colleges.

3. Strengthen programs and curriculum to reflect real-world workforce and postsecondary demands. Students should be preparing for careers in the future, not jobs out of the past. They need more rigorous academics *and* 21st century skills — and they need to be engaged in meaningful learning activities. ESAs can work with schools to craft effective programs and strengthen curriculum.

Opportunities for ESAs to Make a Difference

- Evaluate programs and create rigorous new programs that provide students with 21st century knowledge and skills — and that will build opportunities for emerging careers that may not yet exist in communities today.
- Integrate 21st century skills into core academic subjects — which may require more explicit connections between career and technical programs and other school classes, especially English language arts, mathematics and science.
- Evaluate the technology infrastructure, including both technical and human capacity at the school and district levels. Assist schools in creating a robust technology infrastructure, which systematically and rigorously integrates technology into schools to support instruction, professional development, administration, assessments and reporting requirements.
- Make sure students are using modern technology routinely and effectively as a tool for learning, communicating, creating and getting things done.
- Articulate clear sequences of study that improve course-taking patterns, student achievement and 21st century skills competencies.

Whenever possible, make sure career and technical education programs culminate in a valuable skills credential, a clear pathway to a career or higher education, and/or college credit.

ESAs in Action

In **Region IX Educational Cooperative** in Ruidoso, N.M., every career and technical program incorporates a program of study, with three or more courses, that leads to a meaningful credential — industry certification and/or college credit in a degreed program. The rural cooperative works closely with industry advisory boards and local Workforce Investment Boards to make sure training in career clusters such as agriculture, welding and culinary arts meet their needs. “We work with our partners hand and glove,” says Gary Cozzens, director of career education.

North Central Education Service District in Condon, Ore., reaches students across its 3,700-square-mile rural service area with its Frontier Learning Network, an innovative system of distance learning. Teachers travel from school to school in mobile classrooms equipped with videoconferencing technology. All students have regular face time with their teacher when the mobile classroom visits their school. When the teacher rotates to other schools, students participate from their school classrooms via videoconferencing and other technology. Facilitators at each school, who do not have to be certified teachers, keep the equipment running and students on task. Certification or dual enrollment is available in programs such as health sciences, information technology and natural resources.

The Mitchell Technical Institute in Mitchell, S.D., operated by Mitchell School District 17–2, is conquering geography and a lack of certified teachers via distance learning. Until 2002, many schools in the rural region had no career and technical education programs. “Rural students have been taking AP courses and other higher- level courses with distance learning for years,” says John Heemstra, director of the DIAL (Dakota Interactive Academic Link) Virtual School. “But the system is not equitable if we’re leaving out kids who have different needs.” Now, students use both synchronous and asynchronous technologies in applied distance learning programs, including graphic arts design, health care occupations and business. For example, students in an entrepreneurship class present their final project, a business plan, to representatives of local financial institutions in videoconferencing sessions. They’re graded for their presentation and communications skills — and their appearance — just as if they were presenting in person.

Taking Advantage of Industry Expertise

In an era of constantly changing skill demands, industry partnerships offer a compelling approach for keeping career and technical programs fresh and relevant to real-world needs. The **Apple Authorized Training Center for Education** is a case in point.

Using a curriculum developed by industry professionals for Apple, students learn digital media skills in film and video, music and audio, and photography that are in high demand worldwide. Beyond technical skills, the curriculum also incorporates 21st century skills, such as communications, critical thinking, problem solving and collaboration — from one of the most creative companies in the world. Successful students can earn a valuable end-user certification.

"Over the last year, our district has been engaged in a strategic planning process for our career-technical education programs. This process resulted in the development of a new vision for career-technical education in the district and a plan of action for the future," says Kathleen Porter, Director of Career-Technical and Adult Education for Poway Unified School District in north San Diego County. "Not surprisingly, our findings are very consistent with the priorities of the new Perkins legislation. One of our high schools (Rancho Bernardo High) has a Digital Media Production program that is an Apple Authorized Training Center. We are convinced that the curriculum offered by the program emphasizes the core academic, communication, and other 21st century skills kids need most. And, talk about engagement! This is a program that appeals to many different types of students – star academic students, students who may be struggling academically, technical scientifically-oriented students and creatively expressive students all get excited about what they're doing and learning."

4. Train educators to deliver high-quality instruction. Teachers and administrators need to understand the new focus of the Perkins legislation and their role in delivering high-quality instruction. ESAs can play a critical role in professional development.

Opportunities for ESAs to Make a Difference

- Facilitate teacher and administrator study groups in 21st century skills.
- Train teachers to integrate core subjects and 21st century skills.
- Train teachers to use technology effectively as a tool for teaching and learning.

- Train teachers to motivate and engage all students with approaches based on research into how people learn.
- Provide teachers with opportunities to collaborate with employers.

ESAs in Action

At **Regional Education Service Agency (RESA) VIII** in Martinsburg, W.Va., technology is a big component of initiatives to deliver professional development to teachers and administrators across the board, not just in career and technical education. Using videoconferencing, interactive whiteboards, handhelds and bundled hardware and software, RESA VIII is training educators to use 21st century technology for managing, teaching and learning. For example, administrators are using handhelds to conduct "e-walks," or digitally assisted classroom walkthroughs, to monitor instruction. The handhelds enable administrators to collect and analyze data, make data-driven decisions and share observations with staff members. "If you do not get school administrators on board with technology, it will not trickle down," says Todd Chicchirichi, director of staff development and technical assistance coordinator. "Even the naysayers are saying, 'We owe it to our kids to educate them for the real world — and these technologies are out there.'"

Teachers, meanwhile, are learning to incorporate technology and 21st century skills into academic subjects during professional development sessions delivered via videoconferencing to their local schools, making it possible for RESA VIII to reach teachers across its rural service area. In a region in which the technology infrastructure, especially broadband access, and the digital divide remain major issues, RESA VIII is setting up a high-tech community center at a local church to give students — and community members — a reliable point of entry into the digital world.

West Virginia, along with North Carolina, is one of the first states to join the Partnership for 21st Century Skills State Leadership Project, which aims to help states develop student proficiency in both core subjects and new, 21st century content and skills.

5. Evaluate results. The Perkins legislation, like No Child Left Behind legislation, requires greater accountability from career and technical programs. ESAs can work with states, school districts and schools to evaluate results.

Opportunities for ESAs to Make a Difference

- Help states, school districts and schools set up systems for tracking student results that matter, including proficiency in core subjects and 21st

century skills, successful transitions to the workforce or postsecondary education, and successful transitions from community colleges to four-year colleges and universities. Make sure these tracking systems compare results for students in career and technical education programs with results for other groups of students.

- Work with states, school districts and schools to improve or replace programs that are not yielding results.

Mecosta-Osceola Career Center in Big Rapids, Mich., is launching an important new data project that will track student scores on the National Assessment of Educational Progress and on the ACT college entrance exam, which all students are required to take. A new, Web-based state reporting system will enable ESAs to examine student performance by program of study, demographics, school system, school and teacher. "Five years from now, we'll be able to look at trends over time, areas where we need more professional development and areas where students are not achieving," says Jennifer Harrison, career and technical education director. "This has huge potential."

ESAs in Action: A Comprehensive Approach

Like many ESAs in New York, **Wayne–Finger Lakes Board of Cooperative Educational Services** (BOCES) in Newark, N.Y., has been systematically building rigor and relevance into career and technical programs for several years now, in response to increased academic requirements established by the state department of education. Among the steps that the BOCES is taking:

Integrating core academic subjects into career and technical programs. To qualify for state funding, the BOCES has conducted "crosswalks" to demonstrate that academic standards are incorporated into every program. This has not been hollow exercise: In some cases, programs have been revamped to beef up the math, science or literacy expectations. In addition, the two technical and career centers are staffed with certified academic teachers, who use a collaborative teaching model with career and technical teachers to deliver instruction, team-teach or plan lessons that integrate academics into applied learning. As a result, students can earn career and technical credit *and* academic credit at the same time — and position themselves to earn both a Regent's Diploma and a technical endorsement.

Developing articulation and certification agreements. The BOCES has developed articulation agreements for more than 80 programs with more than a dozen two- and four-year colleges and universities. It also has arranged for national industry certifications for a third of the 21 programs for which certification is available, and it is working to have all programs certified.

Bolstering relevance and relationships. The BOCES technical career centers and their feeder high schools have adopted the High Schools That Work model, which incorporates such practices as high expectations, programs of study, work-based learning and a supportive learning environment.

Supporting teachers with professional development and customized training. The BOCES participates in an annual, statewide conference that brings together academic and career and technical educators, where the focus is on integrating academic and applied learning. Plus, the BOCES delivers customized training to teachers on such topics as understanding and using assessment data, model lesson planning and "a big focus on literacy, literacy, literacy — teaching literacy across the content areas," says Joseph Marinelli, district superintendent of the BOCES.

Anticipating emerging careers. The BOCES is actively involved in a number of regional workforce and economic development initiatives, including a skills alliance focused on advanced manufacturing; a center of excellence focused on infotronics; and a collaborative of post-secondary institutions, workforce investment boards and public officials focused on biotechnology and microelectronic imaging. BOCES staff members were at the table for a Montezuma Wetlands Summit focused on environmental science at the national wildlife refuge and at a Renewable Energy Conference and Energy Technology Conference focused on solar energy and electrical trades. And the BOCES has leveraged summer science camps, offered to middle school boys and girls through the region's Boy Scout Council, into a $400,000 state grant to refurbish a scouting facility that supports students in learning about environmental, engineering and aerospace technology. The project is supported by industry leaders such as Xerox and Corning.

"The new Perkins Act is consistent with our thinking," Marinelli says. "It require the changes that are necessary for students to be prepared in this fast-changing world of ours."

Prepared by Martha Vockley, Principal and Founder, Vockley•Lang, LLC

To Learn More, Contact:

Martha Vockley
Vockley•Lang
12826 Tournament Drive
Reston, VA 20191
mmv@cox.net

Resources

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