

Getting Creative with Perkins

**Connecting Career and
Technical Education
to 21st Century Learning**

V O C K L E Y L A N G

EFFECTIVE COMMUNICATIONS

Are you interested in ...

- ... strengthening students' academic, career and technical proficiency and preparing them to transition successfully to college and careers?
- ... teaching students the new, 21st century skills that are essential in a competitive global economy?
- ... providing opportunities for students to explore high-end careers in emerging, high-growth industries—and meeting the economic development needs of your community?
- ... improving high schools? Engaging and motivating students? Responding to the needs of underserved students?

Any district administrator or classroom educator who can answer “yes” to any of these questions should closely examine how the new vision—and funding opportunities—of career and technical education can boost innovation in learning and achievement for students.

The Carl D. Perkins Career and Technical Education Improvement Act: An Opportunity for High Schools

In 2006, the U.S. Congress reauthorized—and dramatically retooled—the Carl D. Perkins Career and Technical Education Improvement Act. Federal lawmakers signaled their intent to remake the legislation by changing the name of the Act from “vocational” to “career and technical” education.

Vocational education has a long and storied history in this country. For 85 years, vocational programs have trained students for traditional, specific jobs, typically landed immediately after high school. Often, these students were not considered “college bound.”

Now, however, career and technical education is evolving to incorporate rigorous and challenging academics and lasting career skills, rather than specific job skills that may become outdated quickly in a rapidly changing marketplace. Plus, the new Act calls for sequenced programs of study, more effective student planning and greater accountability for results. These changes are designed to position students to earn an industry-recognized credential or certificate in high school or an associate or baccalaureate degree later on.

Did You Know?

- Virtually every high school student takes at least one career and technical course.
- One in four students takes three or more courses in a single program area.
- Career and technical courses are offered at high schools, area vocational centers and community colleges.
- Perkins currently provides more than \$1.2 billion in federal support for career and technical education programs.

Source: [*U.S. Department of Education's Office of Vocational and Adult Education*](#)

The Perkins Act gives educators an opportunity—even a mandate—to rethink career and technical education. There are compelling reasons to take advantage of this opportunity:

- The new vision for career and technical education aligns well with broader high school reform initiatives.
- The new vision of career and technical education aligns well with public demands for schools to prepare student with new kinds of knowledge and skills.
- The new vision of career and technical education responds to concerns about economic and workforce competitiveness.

Consider how career and technical education fits within the context of these educational, public and business priorities:

The new vision for career and technical education aligns well with broader high school reform initiatives. In 2003, the U.S. Department of Education launched the [Preparing America's Future High School Initiative](#) to better prepare students with a solid grounding in the academic, social and workplace skills need for postsecondary education and careers.

A number of federal initiatives and programs support the high school initiative, including the [Striving Reader](#) and [Mathematics and Science](#) initiatives; a collaboration between [Title I](#) and [Mathematics and Science Partnership](#) programs to improve math instruction; “catch-up” math programs for struggling ninth graders; [School Dropout Prevention](#) and [Smaller Learning Communities](#) programs; [Advanced Placement Incentives](#); and [Academic Competitiveness and National Smart](#) grants, according to Braden Goetz, Group Leader, High School Programs, at the U.S. Department of Education's [Office of Elementary and Secondary Education](#).

Speaking on Feb. 19, 2008, during a [Software & Information Industry Association](#) Webcast (“Insider’s View of Federal High School Programs: Market Opportunities and Challenges”), Goetz said that the Department’s five-year focus on improving high schools is just beginning to gain traction at the local level.

As high schools move forward with improvement efforts, there are many ways for them to integrate career and technical education into their strategies. The [Southern Regional Education Board](#), for example, recommends these actions, among others, in a 2007 report, [Using the New Perkins Legislation to Advance High School Reform](#):

- **Create career and technical programs in high-demand, high-wage career fields.** Educators could better prepare students for success by establishing priority career areas that are critical to economic vitality and growth and by developing new career and technical education programs in fields such as information and technology; science, technology, engineering and mathematics; robotics; health and biomedical sciences; energy and environmental science; logistics and transportation.
- **Reward career and technical students who earn employer credentials and meet college readiness standards.** Educators could better prepare students for success by promoting dual credit for career and technical courses—with the condition that students either meet college placement standards in language arts, reading and mathematics in the dual-credit course or by the end of high school, so they are prepared for postsecondary education without remediation.

- **Align career and technical courses to college and career readiness standards.** Career and technical education must give students coherent and rigorous content that is aligned with challenging academic standards and relevant technical knowledge and skills needed for further education and for careers in current or emerging professions. Programs could include competency-based learning that contributes to academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability, technical and occupation-specific skills, and knowledge of all aspects of an industry, including entrepreneurship.
- **Strengthen the preparation and certification requirements for all career and technical education teachers.** Perkins funds can be used to strengthen pre- and in-service education of career and technical education teachers. Teachers could be trained to use project- and problem-based instruction to enhance students' reading, mathematics, science and technical achievement.
- **Make career and technical education a full partner in high schools with low achievement and low completion rates.** Perkins funds can be used to reduce dropout rates and target other adults needing career and technical training.

Did You Know?

Career and technical education can reduce dropout rates. [Dropping Out of High School and the Place of Career and Technical Education](#), a 2005 report by the National Research Center for Career and Technical Education, found that high school students who took one career and technical education class for every two academic classes had a decreased risk of dropping out.

The new vision of career and technical education aligns well with public demands for schools to prepare students with new kinds of knowledge and skills. There is broad and growing consensus that core academic subjects are necessary, but no longer sufficient, for students to thrive in the world today.

The [Partnership for 21st Century Skills](#), the nation's leading advocacy organization focused on preparing young people to succeed as individuals, citizens and workers in a competitive global economy, promotes these student outcomes of a 21st century education:

Core Subjects and 21st Century Themes, including:

- Global awareness
- Financial, economic, business and entrepreneurial literacy
- Civic literacy
- Health literacy

Life and Career Skills

- Flexibility and adaptability
- Initiative and self-direction
- Social and cross-cultural skills
- Productivity and accountability
- Leadership and responsibility

Learning and Innovation Skills

- Creativity and innovation skills
- Critical thinking and problem solving skills
- Communication and collaboration skills

Information, Media and Technology Skills

- Information literacy
- Media literacy
- ICT (information and communications technology) literacy

In a 2007 poll, [Beyond the Three Rs](#), an overwhelming 88 percent of voters said that schools can and should incorporate 21st century skills like these into their curriculum. By the end of 2008, more than a dozen states are expected to join the Partnership's State Leadership Initiative—and to commit to integrating 21st century skills into their education systems.

A number of Partnership 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 to prepare students with 21st century skills.

Indeed, the applied learning that is the hallmark of career and technical education is an excellent way for students to acquire the new kinds of knowledge and skills that will equip them for the challenges of the global economy. Educators could build these skills deliberately into career and technical programs to better prepare students for success.

The new vision of career and technical education responds to concerns about economic and workforce competitiveness. 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—21st century skills that the public also values.

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](#), a 2005 report of the [Association of American Colleges and Universities](#).

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. Career and technical programs could be a powerful solution for responding to these workforce demands.

Digital Media Programs: A Solid Fit with Perkins

The new vision of career and technical education explicitly urges schools to improve and modernize their courses and programs of study to prepare students for careers in high-demand fields and high-growth, emerging industries.

Careers that require proficiency in digital media are a case in point. Improved access to broadband connections and the quality and reliability of digital media delivery is increasing the demand for music, audio, video and multimedia information and entertainment content on the Internet and on digital media devices. As a result, opportunities abound in all types of industries—in content creation, content management, content commerce, and content distribution and delivery for people with both the creative and technical skills these jobs require.

Digital media courses and programs teach students the 21st century skills that are valued in the world today—skills that are readily transferable to any college or career path. These programs can lead to industry certification in digital media applications and prepare students for postsecondary coursework. And they can engage and motivate students with a curriculum developed by industry professionals that empowers students to create, collaborate and share their work.

Perkins funds can be used to purchase computer labs with state-of-the-art hardware and software that professionals rely on in hot digital media careers, such as film animators, special effects directors, sound mixers, Webmasters, and video game creators. Plus, these labs can be used by other students to advance learning and incorporate media-based projects and exercises across the curriculum when they are not being used for career and technical classes.

Did You Know?

Girls are underrepresented in technology-based career and technical education classes, as well as in math, science and engineering classes, which may hamper their future career prospects and earning power, according to a 2007 report, [*Reaching New Heights: Promising Practices for Recruiting and Retaining Students in Career and Technical Education Programs That Are Nontraditional for Their Gender*](#). This is true even though Title IX prohibits sex discrimination in education.

But girls now dominate content creation online, according to a 2007 report by the [*Pew Internet & American Life Project, Teens and Social Media*](#). Girls are more likely to blog, use social networking sites and post photos online, for example.

Career and technical education programs could even out the gender divide by promoting the creative aspects of digital media careers. The [*IGNITE*](#) program in the Seattle Public Schools, in fact, has inspired girls to participate in such programs by developing personal connections between high school girls and women in technology careers. Enrollment in technology-related courses among girls has risen from 10 percent in 2000 to between 20 percent and 50 percent now, according to the Reaching New Heights report.

Strong Growth in Digital Media Careers

Employment in average-growth industries is projected to increase between 7 and 13 percent by 2016. Employment in digital media fields is growing much faster than average—and these jobs pay well.

Occupation	2006 Median Salary	Growth Rate, 2006–2016
Audio and video equipment technicians	\$34,840	24 percent
Broadcast and sound engineers	\$43,010	17 percent
Camera operators (television, video and motion picture)	\$40,060	18 percent
Computer scientists and database administrators (including Web developers and designers)	\$64,600–\$118,100	37 percent
Film and video editors	\$46,150	18 percent
Graphic designers	\$39,900	18 percent
Multimedia artists and animators	\$58,039*	47 percent
Public relations specialists	\$47,350	18 percent

* 2006 mean salary

Source: [Occupational Outlook Handbook 2008–09 Edition, U.S. Bureau of Labor Statistics, 2007](#)

Did You Know?

- The software and information industries are major drivers of U.S. job creation and growth. By nearly all measurements, these industries have an economic impact far greater than their share of the entire American economy, according to [Driving the Global Knowledge Economy](#), a 2008 report by the [Software & Information Industry Association](#). Software and information services occupations, such as computer programmers, software engineers, market research analysts, editors, writers and media and communications workers, generally command higher earnings than the national average because jobs in these occupations require skilled workers with extensive education and training.
- Between 2003 and 2006, the U.S. video game industry outpaced the growth of the U.S. economy by a wide margin, growing by 17 percent over this period, compared to 4 percent growth for the economy overall. The average salary for workers in this industry was \$92,300 in 2006, according to a study by the [Entertainment Software Association, Video Games in the 21st Century](#).

Rancho Bernardo High School, San Diego

If you build it, they will come—and they will learn, create and achieve

They're filmmakers, animators, graphic designers, photographers and writers. They're directors, choreographers, set builders, camera crews, recorders, sound mixers and production editors. But more than anything, they're storytellers.

"They" are the more than 400 students enrolled in Rancho Bernardo High School's digital media career and technical classes. The high school used Perkins funds to equip an editing lab, a computer animation and graphic lab and a digital photography lab with state-of-the-art Macintosh computers, Apple professional-grade creative software and other multimedia equipment, such as digital cameras.

"If you put the right tools in the hands of kids and empower them, they're not going to be limited in what they can do," says Ross Kallen, digital media instructor at Rancho Bernardo.

He sees his job as enabling students to use digital technologies to communicate, create, collaborate and present their ideas, a skill set that is in demand and that transfers readily to any career path students choose.

"It's all about storytelling," Kallen says. "My goal is to get them to experience the technology to tell a story together. When it's their story and their ideas, their projects and their products, they want to complete it."

Students work on a range of projects they design and manage themselves, ranging from an award-winning monthly video newsmagazine, [Bronco Magazine](#), to live productions of football games and concerts to broadcast television commercials for local auto dealers. Projects like these have won more than 100 awards in national, state and local competitions.

Putting these projects together is an "immense challenge"—and a fantastic learning experience. Students develop messaging, scripts or storyboards to plan their projects; collaborate with peers, teachers and outside-of-school partners, such as business people; and manage and execute every detail, from pre- to postproduction. Lots of things can—and routinely do—go wrong as students learn this craft-oriented, apprentice-based set of skills. Trial and error in very hands-on classes present teachable moments that build 21st century skills.

"I have straight-A students who come up to me and say, 'I couldn't get the camera to work or the actor to show up because of X, Y or Z,'" Kallen says. "They expect the teacher to make it right. And I say, 'The deadline hasn't changed. What are you going to do to make it right? You have to have a backup plan.' They learn to be flexible and dynamic and entrepreneurial."

Rancho Bernardo has grown its digital media program into a popular discipline for students over eight years. Some of Kallen's first students now are launching rewarding careers as television producers, film editors and advertisers. Others have chosen very different career paths, such as teaching, where effective communication skills, self-direction and motivation are every bit as vital.

"Frankly," says Kallen, "I think that Perkins was the reason all of this was able to happen."

Talent and Creativity

The [Council on Competitiveness](#) in 2007 issued a roadmap for competitiveness in the 21st century. One of the Council's five recommendations: Achieve advantage with creative and cutting-edge talent, which could begin in career and technical education. This perspective shows the possibilities that students in digital media programs could anticipate:

Excerpted from [Five for the Future](#), Council on Competitiveness, 2007

"Given that conceptual knowledge and innovation are the lifeblood of today's global economy, the university is a crucial component of the competitiveness ecosystem. Among the critical challenges facing the academy is educating our students to be better prepared for a world defined by globalization. How do we nurture creativity and innovation among all students during the education process?

"The founder of Cooper Union, New York industrialist and inventor Peter Cooper, fully grasped that the confluence of science and art offer a tremendous stimulus to creativity. At a fundamental level, the arts and sciences have a great deal in common. Each seeks to uncover something about the essential nature of reality. Each relies heavily on visual representation. Each embraces an aesthetic culture, buttressed by human intuition. Each demands a high level of creativity. The great novelist, Vladimir Nabakov wrote: 'There is no science without fancy and no art without facts.'

"What's new in these science and art collaborations is the increase in examples of art contributing to science. Biomedical engineers are working with graphic designers and animation specialists to improve three dimensional imaging and navigation techniques in robotic surgery. High speed photographic images have been used to illuminate non-linear scientific phenomena. Motion graphics have contributed significantly to the simulation of submicroscopic interactions. The World Wide Web was an outgrowth of the integration of computer sciences and graphic design as is the burgeoning area of electronic game design, now responsible for \$20 billion in economic activity in the United States.

"What is important in this discussion of the ecosystem is that the union of creative energies inherent in the conduct of science and in the practice of art has shown enormous potential in raising the innovation quotient. Success will come from the ability to compete at the highest level, on the basis of quality and of leadership in the area of innovation."

George Campbell
President, [Cooper Union for the Advancement of Science and Art](#)

Conclusion

The Carl D. Perkins Career and Technical Education Act gives educators an opportunity to refresh their career and technical programs and, in the process, provide engaging learning opportunities, 21st century skills and better prospects for high school students on the brink of transitioning to their adult lives.

At a time when educators are under pressure to align all of their programs into a coherent system, Perkins funding supports other critical educational goals as well, including high school improvement, meaningful professional development, compelling learning environments, student-centered pedagogy, technology integration and student results.

Perkins funding also empowers schools to deliver the 21st century learning that the public, employers and postsecondary educators overwhelmingly believe is essential to educational, workforce and economic competitiveness.

The new vision of the Carl D. Perkins Career and Technical Education Act could inspire district administrators and classroom educators to create—and fund—a 21st century vision and real, technology-intensive applied learning programs for their schools.

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