

## Career-Ready Reports

***Supporting High Quality Career and Technical Education through Federal and State Policy.*** American Youth Policy Forum, Betsy Brand; (May 2008)

<http://www.aypf.org/documents/CTEMeetingPaper.pdf>

**Issue:** *Perception of Career and Technical Education*

**Recommendation:** Research about the value of CTE and how it can improve student outcomes needs to be more widely disseminated to the broader educational enterprise and the public. Policymakers should use this research to inform the development of high school reform policies and programs. More high quality research about the value of CTE should be supported, particularly longitudinal research that examines student outcomes in postsecondary education and careers. Parent-teacher organizations and guidance counselors should be key recipients of this information.

**Issue:** *Narrow Definitions of Student Success*

**Recommendation:** Education policymakers along with parents, employers, and the public must engage in a dialogue around the full range of skills that are needed by youth to be successful. Policymakers and stakeholders, especially employers, need to develop greater clarification around the definition of student success. NCLB should acknowledge the importance of developing more than just academic skills, and states should engage in a dialogue to identify the full range of skills they want students to possess and will assess.

**Issue:** *Limited Involvement of Career and Technical Educators in the Development of Secondary School Policies.*

**Recommendation:** Federal and state policy leaders must break down silos between academic, general, CTE, and special education so all perspectives and stakeholders are involved in policy development. When all perspectives are integrated and involved, more comprehensive policies and programs that draw upon all instructional resources, pedagogies, and supports can be developed. Policy leaders need to ensure that CTE is “at the table” when developing and implementing high school reform strategies, especially related to teaching, instruction, and assessments. When states develop or amend state standards, it is critical they involve CTE educators in the process.

**Issue:** *Multiple Pathways to Postsecondary Education and Careers*

**Recommendation:** Federal and state policy leaders should define and describe a high school reform framework for all youth that supports multiple pathways to graduation including a well-defined role for CTE with academically rigorous expectations, and they should provide funding to support the development of these multiple pathways. Federal and state policymakers can fund innovative approaches to develop multiple pathways based on CTE or the career clusters to be used as examples by others. Innovative policies that support flexible school scheduling and organization should be encouraged to draw on resources throughout the community and to address concerns that a CTE program of study pathway would limit students from completing college preparatory or Advanced Placement courses because of time.

**Issue: *Integrated, Applied Curriculum and Instruction***

**Recommendation:** NCLB, in coordination with Perkins, should support developing integrated academic and technical curriculum. Professional development funds should be used to develop the skills teachers need to work across disciplines and create integrated curriculum and instruction. Initiatives to increase and improve STEM education should focus on helping teachers and students understand how math and science are applied in engineering and technology settings. More instruction and curriculum should be designed that is project- and problem-based. States should provide technical assistance and guidance to districts and schools to support the development of model curricular approaches, to train teachers in developing and using integrated instruction, and to share existing curricula through clearinghouses.

**Issue: *Multiple Assessments***

**Recommendation:** Policymakers must become more proactive in stating that academic assessments alone are not enough to determine whether young people have the competencies needed to be successful in today's economy and society. Assessment systems need to include multiple measures that include academics, applied and contextual knowledge, critical-thinking skills, workforce readiness, and social and civic engagement skills. States, in particular, should develop a comprehensive framework that spells out what knowledge and skills are needed and when the knowledge and skills should be assessed, by whom (state/district/school), and how. NCLB should encourage states to develop broader and multiple assessments that measure more than academic proficiency. Career and technical educators should be involved as states develop or revise their assessment systems and to help develop integrated standards and crosswalks between academic and applied measures. Assessments that measure technical skills need to be developed, and the federal government can support research and development of these technical assessments and ensure a strong role for industry.

**Issue: *Connections to Postsecondary Education***

**Recommendation:** Federal laws should encourage and support stronger connections between secondary and postsecondary education to enable more high school students to earn college credit and progress to postsecondary education more easily. NCLB should recognize and encourage dual enrollment programs, and Perkins should continue to embrace and support the Tech Prep model. States should conduct a system wide review of articulation agreements to clarify which college credits earned by high school students are accepted by postsecondary education institutions and colleges in the state. Tuition and funding support for books and fees for dual enrollment classes should be provided, especially for first-generation college-goers or low-income students. State K-12 and higher education systems need to work together to assess and determine which CTE courses are postsecondary credit worthy and then publicize that information to students, teachers, and guidance counselors.

**Issue: *Guidance and Advisement***

**Recommendation:** Federal and state governments can encourage and support guidance and advisement by providing funding for more counselors in high schools. Counselors need training and development about the value of CTE and about the 16 career clusters and emerging careers in those industry sectors, so they are better able to advise students and parents. Professional development for teachers should include information about the career clusters and strategies for building career awareness into instruction. States can require students to develop a four- or five-year college and career plan, or to designate a career major during high school, as a way to help connect their academic studies to future plans. Section 118 of the Perkins act, which provides funding to support career guidance and academic counseling programs and promote improve career and education decision-making, should be fully funded.

**Issue: *Training and Professional Development***

**Recommendation:** NCLB and Perkins both provide sizeable funding to states and school districts for teacher training and support programs. Professional development funds in NCLB should be made available for CTE teachers so that they might achieve the highly qualified status under NCLB. Both laws should ensure a focus on supporting teachers to develop integrated curriculum based on rigorous academics pegged to standards and the development of applied teaching and learning. Professional development should help CTE teachers learn more about the academic content they can supplement, reinforce, enhance, and apply in their classrooms, and help academic teachers learn how academic knowledge and concepts can be applied in technical settings. Language in NCLB and Perkins should be aligned and should encourage professional development on using multiple assessments, specifically performance- and competency-based assessments. Professional development efforts at the state level need to include all teachers from various disciplines so cross training occurs and teachers become knowledgeable about a range of instructional pedagogical practices. States should encourage their colleges of education to offer classes and specialties in CTE and require that all prospective teachers be exposed to curriculum integration models and applied teaching and learning strategies.

**Issue: *Teacher Certification and Credentialing***

**Recommendation:** Programs that attract skilled individuals from industry to be full, part-time, or adjunct instructors in areas of labor market demand or science, mathematics, engineering, and technology should be created or expanded. These instructors need to have industry credentials and then be given support and mentoring to allow them to provide effective instruction, either on their own, if certified, or in tandem with a certified teacher. This should apply to both secondary and postsecondary institutions, and to the extent feasible, programs should support sharing of teachers between the two sectors. A national portable teacher credential for CTE would allow greater mobility across states and regions and might help even out teacher shortages in certain areas. The creation of portable CTE certificates would also help address shortages, and the federal government could help spur the development of such credentials in partnership with industry. State efforts, such as in California, to streamline the CTE teacher credentialing process can create incentives to CTE teachers by allowing them to move more easily across subject

areas, making CTE teaching a more viable professional choice; provide districts with added flexibility, making it easier for districts to hire CTE teachers and expand CTE course offerings; and create a more transparent and approachable credentialing process, thus assisting recruitment efforts.

**Issue:** *Quality of Career and Technical Education Programs*

**Recommendation:** Appropriate measurements need to be in place so that students, parents, postsecondary educators, and employers can gauge the quality and success of CTE programs. The federal government can assist by helping to develop model frameworks to measure the quality of CTE programs with assessments based on numerous factors, such as the number of instructors with industry credentials or availability of professional development on an ongoing basis for academic and CTE teachers, etc. The federal government should provide funding and assist states in the development of their own quality assurance systems. These systems should support the development of strong CTE programs, shut down weak programs, and ensure an equitable distribution of high quality CTE programs across the state and within communities. These quality assessments should be developed with strong industry input to ensure relevance to the labor market. States should support efforts to build the capacity of administrators and teachers (both regular and CTE) which is essential to creating and sustaining high quality CTE programs.

**Issue:** *Evaluation of Student Participation in Career and Technical Education*

**Recommendation:** The federal government can support and design of comprehensive data systems across programs and education sectors. The federal government can also review definitions to ensure consistency across laws and ensure that privacy protections remain strong but allow collection of necessary data. The federal government can also collect statewide data and make it available in a national clearinghouse. Additional federal research should be supported to determine longer-term academic and labor market outcomes of CTE students to better understand the pathways that students pursue from high school to postsecondary education and careers. As states develop longitudinal student record data systems and student identifiers, they need to identify and track students who participate in CTE and their long-term outcomes. States should develop the capacity to track labor market participation of all students, and incorporate external industry certifications in any data collection system, to the extent possible.

**Closing Statements:** Increased attention on making high school engaging and relevant for all youth is creating opportunities for high quality CTE programs. The key elements of high quality CTE, such as enhanced academics married with applied learning, connections to career pathways and the labor market, opportunities to develop 21<sup>st</sup> century and employability skills, exposure to work and mentoring from employers, and opportunities to connect postsecondary education, have been shown to be effective for students through the U.S. Education policymakers have an opportunity to expand high quality CTE programs to help more students be successful.

**Accelerating the Agenda: Actions to Improve America's High Schools.**

NGA Center for Best Practices, National Conference of State Legislators (NCSL), Council of Chief State School Officers (CCSSO), and National Association of State Boards of Education (NASBE); (2008)

<http://www.ccsso.org/content/pdfs/0901IMPROVEHIGHCHOOLS.pdf>

To transform industrial-era high schools into 21<sup>st</sup>-century learning environments so U.S. competitiveness will not be lost.

**Recommendations:**

**Restore value to the high school diploma** by elevating academic standards and high school graduation requirements to a college- and career-ready level; and offering students other high-quality pathways, such as career technical education and dual enrollment, that prepare them for college and entry-level technical occupations.

**Redesign high schools by expanding the supply of high-quality schools** through new models such as early college high schools and alternative delivery mechanisms such as charter schools and virtual schools; and preventing students from dropping out and reengaging out-of-school youth through youth development programs and alternative high schools.

**Improve schools by providing excellent teachers and principals** by connecting teacher preparation, hiring, and evaluation to student outcomes, among other factors; and empowering principals to hire and assign teachers.

**Set goals, measure progress, and hold high schools and college accountable** by developing high school accountability systems tied to college- and career-ready measures; and aligning postsecondary expectations, incentives, and performance to high school expectations.

**Improve education governance** by bridging K-12 and postsecondary expectation gaps through the formation of effective P-16 councils.

**"The Skills Imperative: How CTE Can Solve the U.S. Talent Shortage":  
Institute for a Competitive Workforce an Affiliate of the U.S. Chamber of  
Commerce.** Institute for a Competitive Workforce an Affiliate of the U.S.  
Chamber of Commerce (ICW); (2008)

<http://www.uschamber.com/NR/rdonlyres/eciaj45n6o5jxdngkikp6zgphwy4ggbkt3vyv7q4eu5xlcps7escmdu5koxwfyvrgdpxukqamx35ljclqfydbuob2g/CTEPaperFINAL.pdf>

The U.S. labor market will continue to need workers who can combine technical capabilities with essential 21<sup>st</sup> century skills. It is critically important that the United States meet this need by raising high school graduation rates and increasing the percentage of adults who pursue postsecondary education and training leading to a degree, a credential, a certificate of mastery, or some other indication of mastery of critical knowledge, skills, and abilities. It is also paramount that local communities ensure that what is being taught at the high school level, at community colleges, and through postsecondary institutions is aligned with the workforce needs of local businesses. To produce the workforce of the future, our country's education system needs to be closely linked with its primary customer – the business community – and must be able to adapt with the evolving economy.

“Career and technical education continues to surface as a tested strategy to engage students in their learning and prepare them for postsecondary education and the complex world of the 21st century.” Betsy rand, Executive Director; American Youth Policy Forum

Well-designed CTE programs address five areas:

1. Postsecondary education and career readiness
2. Rigorous
3. Relevant
4. Project-based
5. Effective

### **Strategies and Action**

**Policies:** State and local chambers and their business members have tremendous influence on a wide range of education issues. Speaking out for, and supporting the development of, strong CTE programs based on promising practices, sound research, and the needs of emerging economies is one of the most important roles chambers and employers can embrace.

**Action:** Develop a clear policy statement from your chamber calling for strong CTE programs throughout the entire school system. Form local quick-response teams to mobilize grassroots action if CTE programs are jeopardized due to funding shortages or political issues or new programs are being discussed. Support local surveys that indicate current and future employment needs.

## **Critical Next Steps to Advance CTE**

CTE is both well understood and little understood. For CTE and its principles of rigor, relevance, and relationships to be fully realized and leveraged for effective teaching and learning, several issues must be resolved. The following issues have been identified as requiring critical attention.

### ***Data Requirements and Initiatives***

The old saying “what gets measured, gets managed” is as true in the education world as it is in the business world. For informed decisions to be made about the quality and impact of CTE programs and designs, better information needs to be consistently tracked and reported on CTE students across the country. Further, systems and methods need to be in place to consistently follow these students beyond their high school years and to demonstrate, in the aggregate, the long-term impact of CTE on the success of students, employers, and communities. Surveys should measure current local and regional employment needs as well as predicted future needs.

### ***Standards***

To a very large degree, standards, whether at the state or local level, are what shape students’ educational experiences. It is essential that states’ academic standards reflect the needs and realities of both postsecondary education and career. Chambers and business leaders should work closely with the governor’s office, the state education agency, and local school districts to ensure that academic standards better reflect workplace expectations and are aligned with those of other states to enable students to transport their skills and degrees to other places around the country.

### ***Integration***

Research suggests that integrating academic courses (math, science, English, etc.) with the principles of CTE instruction (project-based, career relevance, etc.) can result in higher test scores. More effort should be made to integrate CTE and academics for all students in all schools. This will require that a number of obstacles be addressed, including providing professional development opportunities for academic and CTE teachers to understand how integration should best occur, providing joint planning and curriculum development time for these teachers, and identifying and incorporating curricula that has at their core the integration of rigorous academics with real-world, project-based content.

### ***Teachers***

The call to action of this paper is that the principles of CTE must be aligned with our expectations of high academic achievement. The ability of teachers to achieve this is essential. But most teachers are not prepared to deliver on this promise, because many academic teachers do not have a current understanding of how their subjects relate to the world of work. Most CTE teachers are technical experts but may not have formal training in a specific academic field. Issues of teacher training, certification, and ongoing professional development must be addressed in order to realize the benefits promised by CTE.

**"Retooling Career and Technical Education"**. National Governors Association; (June 2007)  
<http://www.nga.org/Files/pdf/0706TECHED.PDF>

## **Policy Changes that Integrate CTE into High School Redesign**

### **Connect Education to Economic Growth Industries**

State leaders should begin with a careful examination of the growth industries present in their state to ensure CTE programs of study accurately reflect emerging job opportunities. Several states have already undergone this process, using a set of career clusters identified by the National Association of State Directors of CTE as a guide.

Identifying these career clusters requires collaboration between multiple state agencies and private industry.

### **Use the Bully Pulpit to Promote CTE**

In speeches and other public gatherings, governors can promote CTE programs as one of the many pathways that prepare students for college and a high-paying career. Governors can bring new programs, such as Project Lead the Way, which may help a state eliminate its shortage of engineers and biomedical professionals.

Gubernatorial leadership can also counter and reshape the long-held notion that CTE is a terminal endpoint for less academically able students. Governors set a needed tone by demanding high expectations of all students, conveying that CTE benefits both college and work-bound students, and demanding that the new CTE embrace 21<sup>st</sup>-century realities.

### **Include the Skills Employers Demand in State Standards, Assessment, and Accountability Systems**

States periodically review high school academic standards to gauge whether they reflect sufficient rigor. Too often, though, the standards are misaligned with college and workplace demands. Governors can, and should, encourage the state education agency to consult with industry and postsecondary leaders so academic standards better reflect workplace expectations. Often termed "soft" or "21<sup>st</sup> century," these skills include problem solving, critical thinking, and communications—abilities important for academic achievement as well as traits demanded by employers. In particular, the new CTE can play an important role in helping encourage students to develop important life skills.

Governors and other state leaders should consider broadening state standards and accountability systems to focus on both hard industry-specific skills and soft 21<sup>st</sup> century skills. All students are now measured against whether they meet state standards. At first glance, this suggests that state leaders should simply continue measuring CTE student achievement using current state assessments. Indeed, this is an essential first step. However, CTE proponents maintain that current state standards and assessments fail to reflect both the 21<sup>st</sup>-century skills and industry-specific skills taught by CTE courses.

### **Base CTE Curricula around State Standards**

The next step to strengthen actual CTE programs is to develop curricula around state standards.

### **Improve the Quality of CTE Teaching**

States can improve the quality of CTE teaching by revising the teacher certification process, changing investments in professional development, and developing integrated curricula. The first step is to reduce the wide variation that exists in alternative certification programs by requiring all CTE teachers to have at least an associate's degree and/or to regularly update their industry certification. Currently, many CTE teachers come from industry and enter the classroom through alternative certification routes.<sup>15</sup> In their zeal to secure teachers who bring vital experience, states

often hire CTE teachers who lack a bachelor's degree or test lower than those who plan to teach elementary school.<sup>16</sup>

Revising the teacher certification process will ensure that teachers know the knowledge and skills of their profession. This approach is particularly effective when paired with an induction program to support the next generation of teachers' entry into the profession.

### **Design Quality Control Measures to Promote Rigorous Programs**

For CTE to serve as a viable high school reform strategy, state leaders must weed out weaker programs and promote rigorous programs. Three types of mechanisms have been used to control quality: offering financial incentives, using an approval process, or focusing on student credit.

### **Require High School Students to Declare a Course of Study**

In today's high schools, students are presented with myriad pathways to graduation. Governors and other state leaders should consider employing state policy to help students focus on a course of study. These policies range from requiring students to declare majors upon entering high school to using technology to explore education and career options. Given that many states have recently eliminated the college prep and vocational tracks, the same high expectations now apply to all students. Without formal help to chart a preferred course through high school, students are often overwhelmed by the many choices, which can result in poor decisions and planning.

### **Eliminate Duplicated Coursework between High School and Postsecondary Systems**

The new CTE programs strongly encourage students to attend a postsecondary institution by linking high school programs with those at the community college level. This linkage is logical, as states increasingly turn toward community colleges to generate a competitive workforce. State leaders can, and should, aid student transitions by creating articulation agreements between high schools and two- and four-year colleges that eliminate duplicative coursework between these education systems.

Once students enter the postsecondary systems, their course credits may fail to transfer. To minimize student confusion and frustration, states should assign common course numbers across all two- and four-year campuses and require that certain courses transfer to bachelor's degree programs.

**"Making Career/Technical Studies an Essential Part of HS Reform"**.

SREB; (2007)

[http://www.sreb.org/publications/2008/08V12\\_State\\_Leaders\\_Forum\\_Newsletter.pdf](http://www.sreb.org/publications/2008/08V12_State_Leaders_Forum_Newsletter.pdf)

In addressing the bottom line of how to prepare students through a combination of rigorous academic studies and relevant career/technical studies with authentic applications of learning, Ponticell urged educators and state policy-makers to consider the following recommendations:

- Reinforce the role of schools in preparing students for a lifetime of learning and workplace evolution.
- Prepare all students for the first two years of study at a community or a technical college.
- Help students learn to adapt to changing circumstances, to think flexibly and to learn quickly.
- Deliver instruction that matches the millennial generation's attitudes toward school and work.
- Be flexible enough to respond to rapid changes in American society.

(Contact Judith Ponticell at [jponticell@lakeland.usf.edu](mailto:jponticell@lakeland.usf.edu).)

States considering blended academic and career/technical courses will want to enact policies to ensure that the courses truly advance the academic achievement of CT students. The following aspects are important:

**Standards and Content** — Ensure the course content clearly addresses standards and content aligned to college-preparatory-level academic content. Career/technical courses can be redesigned to include embedded academic content aligned to essential academic standards in a given field.

**Lessons, Assignments and Exams** — Blended courses must contain well-developed lesson plans, teacher assignments and end-of-grading period exams to reflect a purposeful effort to use the context of a career field to teach academic knowledge and skills and to ensure that CT students master high-level academic concepts.

**Qualified Teachers** — The course must be taught by teachers who are prepared to deliver high-quality academic and career/technical instruction.

**Course Evaluation** — Measure the effectiveness of new courses by examining the achievement of 11th-graders. Tests in mathematics and science and on the ACT.

Make sure the state has the capacity to design the courses for the schools to implement and create a state board policy to give districts the go-ahead to offer the courses.

**High School Students Start Preparing for Work at Technology Centers and**

## **Community Colleges**

States and schools are finding that a good way to motivate high school career/technical students to stick with their studies is to allow them to begin preparing for specialty occupations at high school technology centers and community and technical colleges. These experiences show students what it takes to succeed in a career field while encouraging them to do their best and enabling them to earn higher-level credits while in high school.

## **Improving High School to College Transitions in High-Demand Fields**

A national initiative is demonstrating that high schools and community colleges working together can develop programs of study in high-demand career fields to increase students' success in two vital areas: **1)** entering and staying in college and **2)** avoiding remedial courses.

### ***Implications for State Actions***

The initiative produced eight implications for state actions to strengthen transition from high school to postsecondary education and to improve career-oriented students' chances for success in college. Policy-makers will want to consider the following recommendations:

- Help high schools and colleges develop programs of study in high-demand, high-wage fields.
- Improve career counseling, information and assessment.
- Encourage curriculum and program of study discussions involving academic and career/technical teachers and counselors representing high schools and colleges. Establish systems to produce information and data.
- Provide professional development for teachers and information for parents.
- Establish statewide policies to award college credit for career/technical courses completed in high school.
- Ask educators from all levels to work with community leaders to develop special transition courses aimed at helping more students avoid remediation in college.
- Redesign career/technical courses in high schools and community colleges to teach embedded academic content.

(Contact Larry Warford at [warford@league.org](mailto:warford@league.org).)

## **Dual Enrollment**

Jackson offered two suggestions for states seeking to strengthen career/technical education through dual enrollment of high school students in technical college programs:

- 1) Require placement exams for dual enrollment students to show how they measure up in terms of future technical college enrollment.
- 2) Use a career academy model to help coordinate academic and career/technical instruction. Successful models all have common elements, such as serving high school students in a safe environment conducive to learning; providing marketable skills that students can use to enter career pathways immediately after graduating from high school and during or after earning postsecondary degrees; maintaining and promoting strong business partnerships; and integrating academic instruction into career/technical courses.

*(Contact Ron Jackson at [rjackson@dtae.org](mailto:rjackson@dtae.org).)*

### **Technical High Schools Increase Enrollment, Achievement and Postsecondary Study**

Owens recommends that other states consider the following points in converting from shared-time career centers to fulltime technical high schools:

- Engage an outside consultant to conduct a feasibility study.
- Study states such as Delaware and Massachusetts that have created technical high school systems.
- Adopt a model that connects rigorous academic studies with quality career/technical studies.
- Study the pros and cons of possible governance structures.
- Use a student selection system that minimizes the impact on the comprehensive high schools.
- Decide on ways to fund the model, taking into consideration the higher operational costs of a technical high school.

*(Contact Michael Owens at [mowens@doe.k12.de.us](mailto:mowens@doe.k12.de.us).)*

**“Career and Technical Education Pathway Programs, Academic Performance, and the Transition to College and Career”**. National Research Center for Career and Technical Education; (2007)

<http://www.nrccte.org/>

### **Conclusions and Recommendations**

The study revealed several findings that may be valuable for policymakers and practitioners.

Participation in CTE transition programming did not interfere with academic course-taking, and there was some evidence that it fostered academic achievement. In addition, CTE transition programming led participants to feel more prepared for the transition to college and career. Importantly, dual credit played a role in participants’ progress and success at earning college certificates and degrees.

Although the study had certain limitations, its findings can inform high school reform efforts and the delivery of career pathway programs. They are also meaningful to the implementation of Perkins legislation that calls for an expansion of career programs of study because they offer promising results when academic and CTE curricula are integrated with dual credit. The results of this study suggest that CTE programs that provide high school students with a dual focus on CTE and academic preparation not only can facilitate transition to college and a career without hindering academic performance, but they also offer promising opportunities for developing academic and employability skills that foster student success in preparing for careers in high-demand occupational areas during college.

**“Are They Really Ready to Work”, Employers’ Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century vs. Workforce.**” The Conference Board, Corporate Voices for Working Families, the Partnership for 21<sup>st</sup> Century Skills, and the Society for Human Resource Management; (2006)  
[http://www.conference-board.org/pdf\\_free/BED-06-Workforce.pdf](http://www.conference-board.org/pdf_free/BED-06-Workforce.pdf)

The following are actions for consideration by any individuals or groups who have the opportunity to improve the basic knowledge and applied skills of those graduates entering the workforce. Families, students, members of the community at large, as well as educators and business people may find opportunities to take actions that address the findings of this study.

High school and two-year and four-year college graduates should acquire basic knowledge and a complement of applied skills. To that end, current students should become familiar with the knowledge that is projected to increase in value to the business community, such as *Foreign Languages*.

*Professionalism/Work Ethic* is emphasized for new entrants at all educational levels, which suggests that issues of timeliness, dress, career growth, courtesy, teamwork, commitment, responsibility, integrity should be addressed as part of “Employment 101” for work-bound students at every educational level.

*Critical Thinking/Problem Solving* and *Communications*, both written and oral, are increasingly important. An emphasis on critical thinking and effective writing and speaking skills in secondary and postsecondary education can support success in the workplace.

*Making Appropriate Choices Concerning Health and Wellness* is the number one “most critical” emerging content area. Issues of nutrition, exercise, stress reduction and work-life effectiveness should be considered part of workforce readiness. All stakeholders (business, educators, and community members) should consider methods of enhancing important workplace skills. For example, internships, summer jobs, work-study programs, job shadowing, mentoring, on-the-job training, as well as other educational approaches that include real-world experiences or community involvement, provide opportunities for students to acquire basic knowledge and skills, while cultivating applied skills. Employers need a better understanding of the classroom environment, and academics need a better understanding of the workplace. Employers and academics should work together to make instruction meaningful and internships relevant to workplace needs.

All new entrants to the workforce should understand the importance of and need for *Lifelong Learning/Self Direction* throughout their working lives. Business should research, evaluate, and implement lifelong learning opportunities and partnerships that meet student needs and the changing knowledge and skills requirements in the workplace.

*Creativity/Innovation* is among the top five applied skills projected to increase in importance and yet employer respondents consider it “deficient.” Stakeholders should

seek opportunities to encourage creative thinking and the integration of knowledge across disciplines, lateral thinking, and new ways of problem-solving. In addition, given the current emphasis on standardized testing, which may promote rote learning and memorization, all stakeholders should consider how best to nurture creativity as well. Over the next five years employer respondents expect to reduce their hiring of high school graduates and increase the hiring of post-secondary educated workers. The current and future members of the workforce should develop a sufficient knowledge and skill base to be accepted into two-year or four-year colleges. Simultaneously, affordability of higher education for the broadest base of society must be considered.

Leadership skills must be fostered. Opportunities should be sought and provided for new entrants into the workforce to assume roles requiring them to make decisions and to consider the implications of those decisions. Seeking opportunities for students to practice skills necessary for working within groups or teams should also be encouraged. All stakeholders should examine the areas of greatest “deficiency” and “excellence,” and consider developing cross-sector approaches to aid in the new entrants’ development.

*Diversity, Teamwork/ Collaboration, and Information Technology Application* are now perceived as areas in which the graduates are “adequate.” How collaboration between business and schools on these skills has been promoted is an important area for assessment and modeling. Business should consider calculating the actual costs of remedial training and determine the financial implications of providing versus not providing remedial training—both in the short and longer term—and should evaluate alternative methods of intervention. Businesses should provide better training for new entrants so they better understand the expectations for advancement and are prepared to chart realistic career paths for themselves. Educators should consider assessing current curricula in response to the deficiencies and future needs reported in the survey. They should research promising models for incorporating more hands-on and practical experience for students in the curricula and seek ways to involve community organizations and businesses to pilot workforce-applicable learning opportunities. Young people and their families should assume a significant responsibility for learning and teaching, respectively. Students—the future entrants into the workforce—and their families should assume responsibility for seeking relevant and creative ways to develop basic knowledge and applied skills to enable them to succeed in the workforce.

**"Crafting a New Vision for High School: How States can join academic and technical studies to promote more Powerful Learning." SREB; (2008)**

<http://www.sreb.org/publications/2008/08V07CraftingNewVision.asp>

States need to change the high school experience and accountability system from a one-size-fits-all model to one with multiple pathways and assessments that serve the full range of students. State education agencies, boards of education, legislators and executive branches face the challenge of creating a modern and flexible program of high school career/technical studies that aligns with essential college and career-readiness standards and leads to improved graduation rates. States and schools need to:

- recognize the value of quality, applied learning experiences.
- assist students in setting goals that postsecondary studies can help them achieve.
- introduce more high school students to high-demand, high-skill, high-wage jobs.
- assess students' learning in multiple ways.

***CHALLENGE 1: Align new and existing career/technical curricula with essential college- and career-readiness standards.***

**ACTIONS STATES CAN TAKE:**

***Align new and existing CT courses with essential college- and career-readiness standards.***

- 1. Align the career/technical curriculum with essential college- and career-readiness standards in reading, writing and mathematics.** This will require high school, postsecondary education and business leaders to identify a set of essential college- and career-readiness standards for reading, writing and mathematics.
- 2. Build technical capacity in the state department of education, districts and schools to align CT courses with essential college- and career-readiness standards and to develop examples of anchor assignments for teaching embedded academic content.**
- 3. Establish panels in high-demand, high-skill, high-wage fields of two- and four-year college faculty members, employers, high school teachers, and school and district leaders.** Charge each panel with developing a curriculum framework and course syllabi for a series of high school courses that blend academic and technical content and encourage students to pursue more specialized education and career preparation after high school.
- 4. Adopt nationally recognized, high-quality CT curricula that integrate academic and technical content, provide training for teachers and conduct end-of-course assessments to ensure that students have mastered the materials.** Examples include the National Academy Foundation's Academy of Finance and Academy of Information Technology, and the Pathway to Engineering™ and Biomedical Sciences programs from Project Lead The Way.® These programs require students to complete a solid academic core, for schools to use set course syllabi and common end-of-course assessments, and for teachers to be trained to teach each course.

***CHALLENGE 2: Create a flexible system of optional career pathways in high schools to help better prepare all students for college and careers.***

**ACTIONS STATES CAN TAKE:**

*Provide a flexible system of optional career pathways that prepare a full range of high school students for college and careers.*

- 1. Establish policies that encourage school districts to provide programs of study that will lead more students to earn employer certification, an associate's degree and/or a bachelor's degree.**

These programs of study, or pathways, should share key features to include:

- a solid core of academic courses that help students meet college entrance requirements.
- sequences of technical courses focused on essential college- and career-readiness standards.
- project-based learning requiring application of academic and technical content.
- mentors and access to extra-help tutoring and instructional assistance for students.

- 2. Provide incentives to school districts and high schools to form partnerships with community and technical colleges, shared-time technology centers, employers and other entities.** The purpose of these partnerships will be to create pathways that give students access to:

- specialized, occupation-specific courses that begin early in high school and lead to recognized employer credentials and enrollment in postsecondary studies.
- high-quality CT programs in high-demand fields (including architecture and construction; business and finance; education and training; biomedical and health sciences; arts, media and entertainment; information technology; and science, technology, engineering and mathematics) leading to a certificate, an associate's degree and/or a bachelor's degree. States will need to provide the necessary resources to implement a wide array of programs of study or career pathways. They also will need to develop policies and procedures that enable secondary and postsecondary institutions to share facilities and adjust their operations to meet students' needs.

- 3. Develop or redesign career/technical courses to help ninth-grade students apply essential mathematics, literacy and science concepts within work-related activities, projects and problems.** These courses would be an extension of students' language arts and mathematics studies and would give students another way to learn academic skills and the reasons they need those skills.
- 4. Award a high school diploma to overage students who have passed the GED test, completed a planned sequence of career/technical courses in a high-demand field, and passed a state-approved employer certification exam.** Support school districts collaborating with community and technical colleges to develop recovery plans for students ages 16 to 19 who have left school without completing the requirements for graduation and help them earn a GED credential and employer certification.
- 5. Establish within state education agencies teams of academic and career/technical experts to help the most challenged high schools incorporate redesigned CT programs into comprehensive reform and create personalized learning communities of academic and CT teachers around career-oriented areas of study that are aligned with college-preparatory academics.**

**CHALLENGE 3:** *Create a policy framework that keeps students' future options open by developing career/technical and academic programs that: 1) link high school to postsecondary studies and work, 2) blend academic and technical studies, and 3) connect students to a goal.*

## **ACTIONS STATES CAN TAKE:**

**Create a policy framework for developing career/technical and academic programs that connect high school to postsecondary study and work.**

- 1. Designate resources to help secondary and postsecondary education state leaders develop statewide multiple programs of study or career pathways.**
- 2. Develop protocols and procedures for creating programs of study or career pathways with sequences of recommended academic and career/technical courses that encompass essential college- and career-readiness standards and lead more students to employer certification, an associate's degree or a bachelor's degree.**
- 3. Provide guidelines and resources for schools to create guidance and advisement systems in which:**
  - all entering ninth-graders set six-year career and postsecondary goals and develop an outline of academic and CT courses to help them achieve those goals.
  - all students are paired with an adult mentor who advises them for all four years of high school and involves parents in reviewing students' progress toward their goals.
  - all school counselors are trained in the programs of study or career pathways to provide guidance to students for setting and achieving their goals, and to help students develop skills and habits required for college and careers.
- 4. Enable community and technical colleges to assign itinerant advisers to high school campuses to explain to students, teachers and counselors the level of academic preparedness in reading, writing and mathematics required for immediate access to courses counting toward a career certificate, associate's degree and/or bachelor's degree.**
- 5. Align state policies to realize the potential of dual enrollment courses in career/technical studies.**
  - Establish statewide college- and career-readiness standards in reading, writing and mathematics that students must meet to enroll in dual credit courses.
  - Set minimum eligibility requirements for earning college credit toward a degree while in high school, and have all state postsecondary institutions apply them to career/technical dual credit courses.
  - Establish the same academic content standards, faculty requirements, course syllabi and end-of-course exams for dual credit career/technical courses, whether for high school or college students.
  - Develop a statewide system for the transfer of college credits earned through dual credit courses toward a degree at the postsecondary level.
  - Decide how dual credit courses will be funded so that students' choices will not be limited by the unwillingness of the high school and postsecondary systems to work together.
  - Determine how dual enrollment will be monitored to ensure the programs meet state standards for college-level work.
- 6. Develop policies to help schools determine students' level of college and career readiness prior to their senior year, and develop transitional courses in English/reading and mathematics — with common standards, syllabi and instructional materials — for 12th-graders who do not meet readiness standards.**

Train teachers to lead the transitional courses and require unprepared students who plan to pursue postsecondary studies to take the courses during their senior year.
- 7. Link secondary and postsecondary data systems to measure whether students who graduate from high school, including those in the new programs of study or career pathways, successfully transition to postsecondary studies and work.**

**CHALLENGE 4:** *Assess the contributions career/technical education can make to improving students' academic and technical achievement.*

**ACTIONS STATES CAN TAKE:**

*Assess the contribution career/technical education can make to advancing academic and technical achievement.*

- 1. Create policies allowing students to earn academic credit through challenging career/technical courses that: feature curriculum and instruction aligned with college- and career-readiness standards, are taught by well-trained and qualified teachers, and incorporate external assessments to verify students' mastery of academic content.**
- 2. Set progressive annual targets for increasing the percentages of CT students who meet the proficiency levels used to measure Adequate Yearly Progress (AYP) under *No Child Left Behind (NCLB)*. Extend CT targets to match *NCLB*'s requirement that 100 percent of students meet state academic standards in at least English/reading and mathematics by 2014.**
- 3. Allow CT students the option to meet graduation requirements (in subjects other than reading, writing and mathematics, which are required of all students) by passing equally rigorous state-approved employer certification exams.** Support districts in giving these state-approved alternative exams to CT students in 12th grade and provide funding for exam fees.
- 4. Change the state accountability system to require that high schools improve annually the percentage of CT students who pass state-approved industry certification exams adopted by the state's secondary and postsecondary education systems and who meet standards on college-placement exams that allow students to enter college without remediation.**
- 5. Consider virtual learning options for students who have limited access to high-quality CT programs.**

**CHALLENGE 5:** *Prepare and enable career/technical teachers to teach essential academic skills through application in authentic activities, projects and problems.*

**ACTIONS STATES CAN TAKE:**

*Enable career/technical teachers to teach essential academic skills through application in authentic activities, projects and problems.*

- 1. Adopt policies that strengthen the preparation and certification requirements for all career/technical teachers, and require CT teachers to:**
  - have a bachelor's degree or be on schedule to complete one within five years of employment.
  - meet the same academic performance requirements required of academic teachers.
  - demonstrate teaching competence by passing an appropriate pedagogy exam or by meeting standards on a classroom performance assessment conducted by an external evaluator.
  - demonstrate technical content competence by passing a state-approved external assessment.
- 2. Invest in a strong CT teacher induction system with sustained professional development and mentors that prepares teachers to:**
  - use data to set higher expectations in CT classrooms.
  - align CT curricula with essential college- and career-readiness standards, and use the standards to guide classroom assignments and assessments.

- use research-based literacy and numeracy instructional strategies to help students meet readiness standards.
  - engage students in the application of academic and technical knowledge and higher-order thinking skills through hands-on projects and problems.
  - manage classrooms of students with diverse learning styles and achievement levels.
- 3. Invest in the training of current CT teachers to help them embed and teach essential academic content through project- and problem-based learning and through structured workplace learning opportunities.**
  - 4. Provide high school principals with professional development on: aligning curricula, classroom assignments and assessments with college- and career-readiness standards; managing institutional change; securing resources; establishing flexible schedules; implementing project- and problem-based learning strategies; and designing effective professional development for teachers.**

***Reinventing the American High School for the 21<sup>st</sup> Century.*** ACTE  
[http://www.acteonline.org/uploadedFiles/Issues\\_and\\_Advocacy/files/ACTEHSReform\\_Full.pdf](http://www.acteonline.org/uploadedFiles/Issues_and_Advocacy/files/ACTEHSReform_Full.pdf)

***CTE should:***

- **Support students in the acquisition of rigorous core knowledge, skills, habits and attitudes** needed for success in postsecondary education and the high-skilled workplace;
- **Engage students in specific career-related learning experiences that equip them to make well-informed decisions** about further education and training and employment opportunities; and,
- **Prepare students who may choose to enter the workforce directly after high school** with levels of skill and knowledge in a particular career area that will be valued in the marketplace. In light of the current and future challenges facing our youth, the members of ACTE believe a new working model for high school is long overdue. We make the following recommendations to help guide the reinvention of the American high school:

**RECOMMENDATIONS FOR THE FUTURE**

**RECOMMENDATION 1. *Establish a Clear System Goal of Career and College Readiness for All Students***

***Federal Leadership Response***

- Continue to emphasize the integration of academic and technical skills in the Carl D. Perkins Vocational and Technical Education Act to ensure that students are career and college ready.
- Expand this integration within NCLB to create shared responsibility, and provide funding within this program for specific interventions.

***State Leadership Response***

- Ensure that core academic standards are embedded across a deep and rich curriculum, and do not create a narrow approach that pushes out engaging and enriching courses like CTE.
- Create assessments to measure career and college readiness by 11th grade to allow for extra help prior to high school graduation.
- Require or strongly encourage all students to enroll in career and college readiness courses, including dual enrollment and Tech Prep programs.
- Create accountability processes that hold all stakeholders responsible — students, teachers, and schools.
- Require middle schools to share information on eighth-grade student achievement with receiving high schools.
- Offer funding for schools to offer summer bridge programs and academic intervention programs.

***Local Leadership Response***

- Enroll students in career and college readiness coursework upon entering high school, utilizing structures already in place such as career clusters or career academies.
- Invest in professional development to have an adequate supply of teachers ready to teach higher level academic courses.
- Create incentives for more experienced and knowledgeable teachers to teach classes with previously lower performing students.

- Offer middle school and high school interventions in key learning skills, including providing extra help to students who fall behind grade level in a manner that does not restrict their other course-taking options.
- Align elementary and middle school programs with rigorous high school expectations.
- Offer structured freshman orientation programs to facilitate high school acclimation.
- Design the master schedule in a way that students can take advanced academic and CTE courses, including through dual enrollment and Tech Prep options.

**RECOMMENDATION 2. *Create a New School Culture that Stresses Personalization in Planning and Decision-making***

***Federal Leadership Response***

- Continue to embed funding across federal departments and programs for career development and college planning.
- Recognize the importance and need for leadership, policy, and resources to implement comprehensive guidance programs in schools across the country.

***State Leadership Response***

- Create state policy that places career development and college planning as core high school activities within a comprehensive guidance program.
- Require development and use of an individual plan for graduation and beyond for every student.
- Provide state support for career development activities for students.
- Provide state support for professional development for teachers, counselors and other educational staff who engage in career development activities with students.
- Create statewide career pathways as tools for students to use when planning and making decisions about life beyond high school.

***Local Leadership Response***

- Begin structured career development and postsecondary planning activities in eighth grade (or earlier) and continue in each year of high school.
- Provide electronic tools for career development.
- Provide local support for career development facilitation skills among teachers, counselors, and other educational staff who engage in career development activities with students.
- Offer summer externships in business and industry to build teacher career awareness.
- Offer structured college visit opportunities for students from first generation college-going families.

**RECOMMENDATION 3. *Create a Positive School Culture that Stresses Personalization in Relationships***

***Federal Leadership Response***

- Continue funding the Smaller Learning Communities program to assist in the formation of more personal education environments.

***State Leadership Response***

- Provide statewide leadership and sustainability strategies to CTSOs and other student organizations to ensure that students have opportunities to participate in these programs.

***Local Leadership Response***

- Provide structures and activities to promote personalization — advisory periods, smaller learning communities, CTSOs or other organizations, and individual career

development and postsecondary planning meetings with students and their parents/guardians.

- Ensure that teachers serving in advisory capacities have adequate professional development for their additional roles.
- Increase the percentage of students involved in extra curricular and co-curricular activities.
- Adopt character education goals and integrate character education throughout the curriculum and extra curricular and co-curricular activities sponsored by the school.
- Involve community leaders in educational activities to provide students with additional opportunities for positive adult relationships.
- Implement a comprehensive guidance program for school counseling that serves all students in a school and further links students to positive adult relationships.

**RECOMMENDATION 4. *Dramatically Improve How Academic Content Is Taught***  
***Federal Leadership Response***

- Provide funding for a state- and professional organization-led initiative for gathering, organizing, and disseminating integrated lesson plans and curriculum frameworks.
- Invest in research on curriculum structure and teaching methodology.
- Provide continued funding for professional development for content and teaching skills.

***State Leadership Response***

- Use policy language that focuses on standards for knowledge and skills, rather than just on course-taking requirements.
- Allow for flexible ways of delivering academic content across the curriculum.
- Incorporate academic standards in both core academic and CTE courses.
- Create model hybrid academic/CTE courses that allow students to fulfill graduation requirements in core academic skills such as English/language arts, mathematics and science; and ensure that the state's higher education system will accept these courses as meeting admission requirements, and for credit when they are offered as dual enrollment courses.
- Monitor the effectiveness of different curricular pathways as a quality control tool.

***Local Leadership Response***

- Encourage collaboration among core academic and CTE teachers to:
  - develop contextualized lesson plans for the academic classes, and
  - ensure explicit coverage of key academic standards in CTE courses.
- Engage all faculty within a school to be involved in:
  - reviewing school wide student performance results,
  - analyzing how students fared in core academic assessments, and
  - creating improvement plans.

**RECOMMENDATION 5. *Create Incentives for Students to Pursue the Core Curriculum in an Interest-Based Context***

***Federal Leadership Response***

- Support development and implementation of technical skills assessments for use in interest-based CTE programs built around the Career Clusters framework.
- Provide support for multi state collaborative effort to
  - gather existing curriculum frameworks for interest-based programs,
  - create new model frameworks based on knowledge and skills statements from the States Career Clusters Initiative, and
  - disseminate these resources among states.

### ***State Leadership Response***

- Conduct a statewide review of existing CTE and other interest-based programs to determine how closely they adhere to the eight key elements of interest-based programs and are linked to the core curriculum.
- Create and implement clear criteria for program upgrading, creation and elimination, which should include current and future labor market needs, program rigor, and student interest.
- Update and create CTE curriculum frameworks to ensure close alignment with standards established by industry, ensure close secondary to postsecondary alignment and non-duplication, and allow for statewide consistency.

### ***Local Leadership Response***

- Conduct a district-wide review of existing CTE and other interest-based programs to determine how closely they adhere to the eight elements of interest-based programs and are linked to the core curriculum.
- Create and implement clear criteria for program upgrading, creation and elimination.
- Engage business advisory committees and postsecondary education partners to upgrade and restructure interest-based programs, ensuring alignment to industry-based expectations and strong alignment with postsecondary education expectations.
- Provide professional development to academic and CTE teachers working in interest-based programs.

## **RECOMMENDATION 6. *Support High Quality Teaching in all Content Areas***

- Expand rigorous evaluation of integrated academics and contextual teaching strategies to focus on reading comprehension, writing, science, and technology, and model after the enhanced math CTE program, conducted by the University of Minnesota in 2004 and 2005.

### ***State Leadership Response***

- Create processes so that incoming and current CTE teachers, school counselors, and administrators possess knowledge of content and skill in effective teaching methods.
- Require CTE teachers to demonstrate content mastery through either industry-based credentials or assessments aligned to career clusters, where such credentials and assessments exist, and provide payment for such credentialing exams if necessary.
- Support efforts to develop additional measures of technical skills aligned to career clusters in areas where none exist.
- Provide payment for additional professional development costs related to new expectations.
- Create state policies that facilitate collaboration between core academic teachers and CTE teachers that impacts CTE coursework and academic classes.
- Focus on professional development for principals as the educational leader of the high school.

### ***Local Leadership Response***

- Strong direction for local professional development must include:
  - Effective teaching methods for all CTE teachers, particularly new teachers coming from business and industry.
  - Content knowledge “refreshers” for CTE teachers so they can receive industry-certification or career cluster certification.
  - Professional development for core academic teachers in contextual teaching and learning and in workplace realities, including internships for academic teachers in business and industry.

- Encourage and support participation of educators in related professional organizations.

**RECOMMENDATION 7. *Offer Flexible Learning Opportunities to Encourage Re-entry and Completion***

***Federal Leadership Response***

- Ensure federal flexibility for reporting on-time and “extended-time” graduation rates.
- Support research and development for flexible re-entry and completion programs, including those that employ career development and CTE strategies.

***State Leadership Response***

- Create better systems and methods for collecting, analyzing and reporting graduation and dropout rates, beginning with the National Governors Association’s recommendation to adopt and implement a standard four-year adjusted cohort graduation rate that makes allowances for students who will need extra time to complete high school diploma requirements.
- Conduct a statewide survey to assess the availability of high school re-entry and completion programs.
- Provide competitive grant support to schools, districts and regional consortia for creating new re-entry and completion programs:
  - Give priority to programs that form partnerships with regional technology centers and community colleges.
  - Require application of career and college readiness expectations.

***Local Leadership Response***

- Develop dropout prevention and re-entry initiatives with help of community-based organizations, regional technology centers and community colleges.

**RECOMMENDATION 8. *Create System Incentives and Supports for Connection of CTE and High School Redesign Efforts***

***Federal Leadership Response***

- Complete reauthorization of the Carl D. Perkins Vocational and Technical Education Act and encourage new state plans to have close integration with State high school redesign efforts.
- Offer consistent support for Perkins Act funding to complement, not compete with, other high school initiatives.
- Create incentive grants for states and state consortia to focus on multi pronged high school redesign strategies and promote close linkages at the state and local levels with CTE strategies.

***State Leadership Response***

- Invite the state CTE director (e.g. the programmatic liaison for the Perkins Act) and other influential CTE leaders to be involved in the state’s internal task force working on high school redesign issues.

***Local Leadership Response***

- Create or re-energize a district-level working group on high school redesign.
- Ensure that key CTE administrators and faculty, as well as business and other community leaders, are active participants in the working group.

**RECOMMENDATION 9. *Move Beyond “Seat-Time” and Narrowly Defined Knowledge and Skills***

***Federal Leadership Response***

- Provide funds to a limited number of states to begin pilot testing ways to integrate rigorous and inclusive standards into school accountability systems.
- Invest in pilot projects by states and organizations working to develop rigorous and inclusive academic standards, assessment approaches, and related lessons plans and activities.

***State Leadership Response***

- Create high-quality assessments to measure career and college readiness levels—a prerequisite for moving toward a competency-based approach.
- Develop state standards that are rigorous and inclusive and create a process to imbed them into curriculum frameworks for specific classes, not limited to traditional academic courses.
- Create pilot projects for reporting rigorous and inclusive skills on a student and school-by-school basis to demonstrate how skills might be incorporated into school accountability systems.

***Local Leadership Response***

- Lead school-level efforts to discuss alternative means to measure student acquisition of competencies that are rigorous and inclusive.
- Working in collaboration with the state when possible, pilot test new measurement approaches and strategies for imbedding rigorous and inclusive academic skills across the curriculum.

**Quality Career/Technical Programs Prepare Students to Succeed in a New, More Challenging Economy.** SREB High Schools That Work;

(2008)

[http://www.sreb.org/publications/2008/newsletters/08V23w\\_BestPractices\\_Quality\\_CT.pdf](http://www.sreb.org/publications/2008/newsletters/08V23w_BestPractices_Quality_CT.pdf)

Employers and industry executives have identified six major core skills high school graduates need to meet the challenges of education and careers in the future. These are the skills that successful schools emphasize as they prepare their students for graduation and beyond:

- critical thinking and problem solving \_ professionalism and work ethic
- teamwork and collaboration \_ written communication
- information technology application \_ oral communication

***Measuring the Quality of Career/Technical Programs***

Students need access to quality career/technical (CT) programs – but what are the characteristics of a quality program, and what can schools do to improve their programs. Drawing on knowledge and experiences from HSTW and Technology Centers That Work (TCTW), program leaders developed a rubric for evaluating the quality of CT programs.

This helpful tool focuses on 18 indicators of quality:

- programs of study
  - career/technical syllabus
  - work-based learning
  - career/technical student organizations
  - embedded literacy
  - embedded numeracy
  - use of technology
  - professional development
  - guidance and advisement
  - parental involvement
  - articulation and dual enrollment agreements
  - advisory committee
  - marketing, public relations and community outreach
  - enrollment
  - retention and completion
  - post-program positive placement
  - state assessments, HSTW Assessments and college readiness
  - industry credentialing and technical assessments
- 
- For an academy to be successful, it must have a key focus, such as engineering, that is taught by all teachers.
  - An academy needs to be a learning community where parents, postsecondary institutions and local businesses are members of the advisory committee.
  - Having a key focus adds relevance to the curriculum and challenges teachers to examine their instruction and increase their knowledge of the academy subject, such as engineering. Creating a teamwork community by using teamwork in most projects and activities is a way to build continuity among students from year to year and to prepare students for a future in engineering.

- Requiring students to do many presentations throughout the year — not only in class, but also for visitors and at conferences and other events — helps them develop presentation skills and connections that serve them well in life past high school.

***Quality Career Technical Education Is The Key To Success. Gene Bottoms; SREB***

[http://74.125.47.132/u/SREB?q=cache:V\\_mofhcpevAJ:www.sreb.org/programs/hstw/publications/newsletters/02V02\\_2002UpdateNewsletter.pdf+Update+Quality+Career/Technical+Education+is+the+key+to+success&cd=10&hl=en&ct=clnk&gl=us&ie=UTF-8](http://74.125.47.132/u/SREB?q=cache:V_mofhcpevAJ:www.sreb.org/programs/hstw/publications/newsletters/02V02_2002UpdateNewsletter.pdf+Update+Quality+Career/Technical+Education+is+the+key+to+success&cd=10&hl=en&ct=clnk&gl=us&ie=UTF-8)

In order to be effectively prepared for work and postsecondary study, students must have access to quality career/technical programs that are part and parcel of a quality high school. Successful schools work hard to improve student achievement, and they foster an atmosphere of excellence among their students in all academic and career/technical courses.

The strategy with the single highest impact on student achievement is to give every student the opportunity to complete a challenging academic core and either an academic or a career concentration. All schools should work toward helping each student complete a concentration that relates to a personal interest and that is linked to future goals and plans. A well-crafted concentration of academic or career/technical courses above and beyond a solid academic core enables students to see high school as a beginning rather than as an ending, and it increases student achievement in reading, mathematics and science.

***Six Steps to Increasing Student Achievement***

1. Develop a literacy plan across the curriculum requiring each student to read 25 to 30 books in various genres and disciplines. Students should be required to demonstrate understanding of what they read by summarizing and paraphrasing information and by relating information to personal experience.
2. Gradually eliminate low-level courses in each subject. Each year, place 25 percent more students in college-preparatory courses and abolish one section of low-level courses in each curriculum area.
3. Change the school schedule to allow students to take up to 32 credits in four years.
4. Investigate distance learning, like SREB's Electronic Campus, to collaborate with community and technical colleges to add more Advanced Placement and career/technical courses to the curriculum.
5. Make student assessments and assignments relate to proficient-level knowledge. Require students to analyze and research information, to interpret and apply concepts, to draw conclusions and connect them to other information, and to use reason to solve problems.
6. Provide a broad, deep base of academic skills and knowledge in each career/technical course so that students have to read, write and apply mathematical and scientific concepts

To enhance the quality of career/technical education, teachers must require students to:

- read articles related to the content area;

- read technical manuals;
- complete short writing assignments about the articles they read;
- use graphing calculators, spreadsheets and databases to solve real-world problems;
- research and write a paper related to their career/technical concentration;
- work together to create a project which will be assessed by community members from the appropriate industry; and
- master a comprehensive final exam demonstrating both career/technical and academic knowledge, including a technical literacy component aligned with industry standards.

These lofty goals require that career/technical teachers and academic teachers work together as a planning team. Many career/technical teachers will need to enlist support from academic teachers in developing and using rubrics to score assignments, in developing quality projects that link technical skills to academic content, and in incorporating high-level academics into their content areas. Academic teachers will work with career/technical teachers to learn ways to help students link academic content to real life. This approach will raise both the academic and the technical achievement of students and will prepare students for postsecondary success that will last a lifetime.

States, districts and schools must consider the following steps to help connect students' experiences in school to life outside of school:

- Emphasize that learning occurs in ways other than through pencil and paper. Support teachers' efforts to make connections between home, school and the community.
- Ensure that fine and practical arts teachers have time to plan student activities with core academic teachers.
- Research examples of careers in the community that can serve as models and partners with the school through job shadowing and other volunteer activities.
- Invite alumni to return and describe their jobs and their education.
- Provide information to students and their families that underscores the importance of success in the middle grades to future education and career choices.

***Making College and Career Readiness the Mission for High Schools: A Guide for State Policymakers.* Achieve and The Education Trust; (Nov. 2008)**

<http://www.achieve.org/files/MakingCollegeandCareerReadinessTheMissionforHighSchool.pdf>

This document is a guide to help committed state leaders think through this new set of responsibilities. Prepared with the guidance of outside experts, and informed by a rich set of discussions with 28 state and local leaders; this document is formatted as a guide for broad-based discussions of next steps in every state.

***Set a Clear Goal: Align High School Standards with the Demands of College and Careers***

There are at least five questions that state leaders need to answer along the way when aligning their K-12 standards:

**Question 1-1: Have the two-year and four-year colleges in the state clearly articulated the baseline knowledge and skills entering students need to begin college without remediation?**

- bring faculty from two-year and four-year institutions throughout the state together around the question of what students need to know and be able to do to succeed in credit-bearing courses. To be useful for K-12, these requirements must be articulated as standards and competencies rather than just course titles or scores on admissions or placements tests.
- Have the state's public two-year and four-year institutions worked together to ensure a consistent message is being sent about what students need to know to begin college without remediation?

**Question 1-2: Have employers in the state helped define what it means to be ready for careers?**

**Question 1-3: Has the state aligned state standards for high school with these college and career readiness standards, so students who follow all the rules will be prepared for the demands of either college or careers?**

Once higher education and business leaders articulate what it takes to be college- and career-ready, states must revise their high school standards to reflect these expectations.

1. Do the state's end-of-high school standards reflect college- and career-ready expectations? Have they been validated by higher education and employers in the state?
2. If not, what's the strategy for making this happen? Who needs to be involved?

**Question 1-4: Are the state standards parsimonious?—are they restricted to what kids need to know, rather than what somebody somewhere would like them to know?**

The best standards are clear, rigorous, and focused on the essentials. They are notable not only for what they include but for what they leave out.

**Question 1-5: Has the state developed standards with enough specificity to guide instruction in the earlier grades?**

*Assure that Students Enroll in a Course of Study Aligned with College and Career Readiness Standards*

**Question 2-1: In what courses will students have to enroll to provide reasonable assurance that they will be taught to the standards the state has adopted?**

In determining the essential high school courses, it will be important for states to look at the admissions requirements of public colleges and ensure the courses line up. For example, some colleges require students to have taken foreign language courses in high school to be admitted. It is equally important to cross-walk to entrance requirements for apprenticeships or training programs.

**Question 2-2: Do the state's current diploma requirements assure that all students complete those courses? If not, what changes are necessary?**

**Question 2-3: How many of the state's students are completing those courses now?**

As states raise course requirements, policymakers need to understand how many students currently are completing the college- and career-ready course of study, and what that percentage has looked like over the past five or 10 years. That information will provide the state's baseline and rate of change without new requirements in place. States will also want to look at where the biggest holes are (in terms of courses), how many additional sections of those courses would need to be offered, and in which districts or regions the leap would be the greatest.

**Question 2-4: Does the state have sufficient teachers with the right subject matter background to teach the additional courses?**

Need to address shortages of highly skilled teachers with content knowledge, especially in the areas of science and mathematics.

**Question 2-5: Should the state require all students to complete the new course sequence for a diploma, or, for the time being at least, make that the "default" curriculum?**

States should also hold schools accountable for increasing the percentage of students who complete a core college- and career-ready course of study so that there are incentives to help students succeed in these courses rather than opt-out.

**Question 2-6: Does the state encourage all students to earn college credit while in high school?**

*Provide High-Quality Curriculum and Teacher Support Materials for teachers to be successful, state policymakers need to provide greater leadership on the issues of curriculum and instructional supports.*

**Question 3-1: Who provides detailed guidance to teachers in the state in each course on what they are expected to teach?**

**Question 3-2: How do teachers in the state know what “good enough” student work looks like?**

States should create a virtual library through which educators can access concrete examples of what is “good enough” to meet the state’s standards, including model assignments, scoring rubrics, and examples of student work at various levels of performance. “Anchor assignments” are common prompts used by a number of teachers (that is, across a district or school) to facilitate sharing of expertise and collaboration on instructional practices; anchors provide an opportunity to ensure that students get a consistent level of content and rigor in their assignments.

**Question 3-3: Who is responsible for acquiring textbooks and related teacher-support materials?**

**Question 3-4: Does the state provide support for the “redesign” of priority courses for organizing the same general content into different (and perhaps more enticing) packages?**

- The key is to ensure that no matter what the course title or delivery approach, students will emerge having met the same college- and career-ready expectations.
- States should recognize that while all students need to learn the content, they don’t all need to learn it the same way. And they’ll need to invest in creative teachers who want to work with some combination of higher education and business to create high-quality alternatives that both cover the same content and produce equivalent, if not higher, levels of student learning as the courses for which they substitute.
- States should recognize that while all students need to learn the content, they don’t all need to learn it the same way. And they’ll need to invest in creative teachers who want to work with some combination of higher education and business to create high-quality alternatives that both cover the same content and produce equivalent, if not higher, levels of student learning as the courses for which they substitute.

**Question 3-5: Is the quality of teaching across the state reviewed regularly? By whom? How is attention paid to particular courses or disciplines? If not, what could we do to make that happen?**

- State leaders need to work with professional associations within and outside the education community to ensure a regular process for reviewing and updating not only content standards, but also standards of professional practice.
- There should be a systematic way to review periodically secondary teaching within the disciplines, with public reporting regarding the strengths and areas in which teaching needs to be improved.
- States should do more to enlist disciplinary leaders in a quality assurance and improvement process.

## *Measure Student Learning: A College- and Career-Ready Assessment System*

### **Question 4-1: What tests do high school students in the state take right now?**

- Before adding new assessments, we recommend that state leaders take stock of what tests students are currently taking—at both the state and local levels—and what those tests seek to measure. Taking stock will help point out gaps and redundancies in the assessment system.
- As state and district leaders review existing assessments and plan for new ones they should be very clear about the purposes the assessments are designed to serve.
- A coherent assessment *system* will include a combination of measures designed to meet the following goals: informing and improving the quality and consistency of instruction; indicating whether or not students are meeting mileposts that signify readiness; and holding schools accountable for readying students for postsecondary education and careers.
- It would be unfortunate if states simply layered on more tests on top of existing tests. The irony, of course, is that everyone wants less testing but no one wants to give up “their” test. States need to fight this tendency, working hard to ensure that if some tests are added, others must be eliminated or replaced. States and districts need to work together both to streamline the volume of testing and to ensure greater coherence within the assessment system.

### **Question 4-2: Is the state’s high school testing system firmly anchored by an assessment of the knowledge and skills students need to be college- and career-ready?**

- State assessments at the high school level must do a better job of measuring real world knowledge and skills that students will need to be successful after high school. And the rest of the assessment system must be aligned with the high school assessments—so that *proficient* means *prepared*—all the way up and down the line.
- Every state should have an “anchor” assessment (or assessments) that measures college and career readiness. Tests given earlier in high school need to signify progress toward that standard as well.

### **Question 4-3: If the state doesn’t currently administer a test of college and career readiness to all students, should the state augment the existing state tests to add the readiness dimension or design or purchase a test that is built to assess college and career readiness?**

We recommend that states study the advantages and limitations of these three approaches and select a strategy that will best meet the state’s own needs.

The costs and benefits of each approach are relatively clear but not necessarily easy to resolve:

- College admissions tests
- End-of-grade tests

- End-of-course exams

**Question 4-4: Have colleges in the state agreed on a common placement standard that can guide the development of high school assessments?**

**Question 4-5: How does the state ensure that high school assessments have the necessary credibility with higher education and employers so that performance on the assessments allows students access to postsecondary opportunities?**

**Question 4-6: What incentives will the state attach to the new high school assessments so that students and schools are motivated to perform well—without being overly-obsessed?**

- States might want to consider a range of stakes and incentives for student performance on the college- and career-ready anchor assessment. This could mean counting test performance for a portion of the course grade (an option that is exponentially easier with end-of-course exams than other types of assessments), providing bonuses in state financial aid programs for low-income students who perform well on the assessment, and ensuring that students who score at the college-ready level on these assessments can be guaranteed enrollment in credit-bearing (non-remedial) courses in college.
- States may also want to consider requiring students to perform at a lower, but still meaningful, level on the assessment in order to graduate.

**Question 4-7: Are the state's large-scale tests assessing the full range of skills students need to be ready for college and careers? If not, does the state need to make better use of performance-based measures?**

- To be sure that students are ready for these challenges, states are going to need both to improve the quality of their large-scale assessments and to consider adding other forms of evidence.
- States ought not rely exclusively on multiple choice items. States need to make far better use of constructed response and open-ended questions, which are often more effective at measuring more applied skills—problem solving in mathematics and writing in English, for example. This means simultaneously increasing the quantity of these items while also making sure they are of higher quality than many are today.
- States should supplement their summative high school tests with performance assessments.
- Given the constraints and challenges of implementing performance-at-scale, states need to distinguish between those types of complex skills that are actually better or even only measured via performance assessment. This will enable more judicious and focused efforts.

**Question 4-8: Has the state made supporting instruction a high-enough priority in the assessment system? Would it be helpful to make high-quality interim assessments available to districts and schools?**

- States need to strike a better balance between tests that are mostly useful for accountability and tests that are useful for improving teaching and learning in the classroom.
- States should take responsibility for ensuring that all schools and districts have access to at least one full set of high-quality interim assessments. As one option, states could make an interim assessment available for district use, while the responsibility for administering, scoring, and using the assessment remains at the district level.
- Districts would be free to use their own interim assessments if they are determined to be of equally high quality.
- States may want to take a firmer approach with low-performing schools and districts by requiring those systems to use the state-provided tools.
- States' departments of education can also serve as quality-control clearinghouses by, for example, evaluating districts' use of interim assessments; vetting potential vendors of interim assessments; and providing information to districts on the characteristics of the interim assessments that are available commercially, focusing on the quality of the items and alignment with state standards.

**Question 4-9: Do tests earlier in school signal whether or not students are “on-track” to meet the college- and career-ready standards?**

Just as state standards need to be back-mapped from the end-of-high school standards, so too do the assessments given in elementary, middle, and early high school need to line up with the college- and career-ready anchor assessment. The goal is to signal, at each stage of schooling, whether or not students are on a path to college and career readiness. In essence, the college and career readiness tests should become the anchor for the entire statewide system.

*Get Everybody Pulling in the Same Direction: An Information and Accountability System Focused on College and Career Readiness.*

**Question 5-1: What information do stakeholders need to support college and career readiness?**

- At every point during their high school careers, students (and their parents) should know exactly where they are on the path to completing the coursework and mastering the competencies that they will need to be ready for college and careers. Teachers and administrators need to know the same information about the trajectory of each student in their school and district. Moreover, they need to know it in real time, when they can still do something about it. Educators also need a variety of other important information at their fingertips—information that helps them further diagnose student needs and provides them with the necessary supports and opportunities to accelerate their learning.
- The public and the policymakers who represent them have a right to know how the schools and districts they support are performing in getting the students with whom they are entrusted to the college- and

career-ready level, and whether or not their performance and progress is sufficient to merit continued confidence.

**Question 5-2: Are data available to meet these information needs?**

State leaders have a responsibility to ensure that stakeholders at all levels have access to the data necessary to answer key questions about student readiness.

**Question 5-3: How can the state ensure that college and career readiness is central, not peripheral, in the accountability system?**

- We recommend that states build their accountability systems around three types of indicators: *completion of and success in the college- and career-ready course of study*, *achievement*, and *attainment*.
- We recommend that states design their information and accountability systems in a manner that reflects a continuum of whether students are *progressing toward*, *achieving*, and *exceeding* college and career readiness.

Here is how this continuum could look in each of the key areas mentioned above:

***Course completion and success***

- We recommend that states include in their indicator system the proportion of students in each school that complete a college- and career-ready curriculum aligned with state standards.
- To help schools monitor student *progress toward* completing the college- and career-ready course of study and assist those at risk of falling off-track, accountability systems should collect timely information on credit accumulation, particularly for 9th graders, since most struggling students experience problems at this time. The system should also reward schools who help off-track students recover needed credits to get back on-track.
- In order to motivate students to *exceed* the college- and career-ready standard, states should incorporate participation in AP and IB courses as well as dual-enrollment programs and other college-level courses into their indicator systems.

***Achievement***

As states phase in more challenging assessments in high school capable of measuring college and career readiness, performance on those exams should become a central factor in accountability systems.

- States should establish “postsecondary readiness scores” on these exams and schools should be measured based on their ability to increase the proportion of students taking the exams and scoring at the readiness level over time.
- To monitor student *progress toward* college and career readiness, states should consider the role that exams taken earlier in high school can play in the accountability system.
- In order to encourage students and schools to *exceed* college readiness, the accountability system should take into account the percentage of

students who take and score well on AP, IB, and other advanced exams.

#### ***Attainment***

- States need to establish meaningful graduation rate accountability.
- Where states have a defined college- and career-ready course of study but do not require that students complete this course of study in order to graduate, they should include both the percentage of students who earn a regular diploma and the percentage who earn a college- and career-ready diploma in the accountability system and establish an expectation that both rates will increase.
- States should consider how to incorporate data on college-going and remediation into their accountability systems.

#### **Question 5-4: How can the state set stretch goals for schools and ensure those goals are meaningfully tied to larger statewide goals?**

- states will need to adopt stretch goals that reflect ambitious expectations for the percentage of students who will graduate college- and career-ready, and then establish progress targets that communicate a clear path from where students, schools, and districts are to where we need them to be.

#### **Question 5-5: How can the state set expectations for multiple indicators while maintaining focus on college- and career-ready graduation?**

Develop a performance index in which different values are assigned to different indicators and to different levels of performance on the indicators.

#### **Question 5-6: What metrics of performance does the state want to evaluate? Does the state want to measure whether or not all schools have met a common target at a fixed point in time, whether or not they've shown adequate growth from year to year, or both?**

We recommend that states develop accountability systems that look at a combination of status and improvement/growth metrics.

#### **Question 5-7: How does the state set goals that recognize the unique role that districts play in supporting college and career readiness?**

There are two basic approaches here for state leaders to consider:

- States can think of districts simply as clusters of schools and, consequently, mete out positive and negative consequences based on what proportion of their schools meet targets.
- The other approach is to view districts as if they are one big school, with targets (and consequences) for getting more students college- and career-ready. In this approach, the district would be held accountable based on the percentage of students district-wide meeting key readiness indicators.

#### **Question 5-8: Are there some schools for which goals should be set differently than for most schools?**

**Question 5-9: What are the positive incentives—for students and for educators—to work hard to reach the college- and career ready level and beyond?**

State leaders should make a real effort to investigate and make known the practices of schools that are meeting the challenge of graduating more students at the college- and career-ready level.

**Question 5-10: What is the state doing—currently and to build future capacity—to ensure that schools and districts that continually perform below expectations will not continue to operate in the same ways?**

- Beyond the broad accountability categories, state systems need to provide additional information that pinpoints the specific areas in which schools are not meeting goals.
- States also need to develop the capacity to further diagnose the situations in the lowest performing schools so their problems are better understood.
- States will also need to think anew about where the capacity to help underperforming schools will come from.

**The Future of Middle Skills Jobs. Center on Children and Families;  
(Feb. 2009)**

[http://www.brookings.edu/papers/2009/02\\_middle\\_skill\\_jobs\\_holzer.aspx](http://www.brookings.edu/papers/2009/02_middle_skill_jobs_holzer.aspx)

Policy Implications:

Employers will adjust to tight labor markets in a variety of ways—such as with higher wages, more aggressive recruitment, and more selective screening. They will likely also invest more in training. But these investments take time and significant resources. Furthermore, private sector training investments by firms are often limited by a variety of market failures that lead to suboptimal investments, especially among less-educated workers. These market failures include imperfect or asymmetric information between employers and employees, liquidity constraints in capital markets, and wage rigidities that prevent employers from financing training partly through lower wages. Another reason for underinvestment is that employers who train workers fear they will be unable to recoup their investment if other firms hire workers away once they are trained. Underinvestments in employer-led training seem to plague less-educated workers.

These market failures might lead to lowered worker performance and productivity in some sectors in the absence of sound policy responses. And the education and earnings levels of disadvantaged workers will also remain below the levels that could have been achieved with appropriate policy measures. The likely short supply of workers in several key sectors offers opportunities to improve the earnings of disadvantaged workers. In particular, low-income youth or adults can raise their earnings substantially and fill many middle-level jobs by undertaking training and postsecondary education. The result will be to improve efficiency and equity in the labor market. How might this be accomplished?

For at-risk youth—especially those in school—it means expanding opportunities for high-quality career and technical education. Options include:

- career academies, which have demonstrated positive impacts on the earnings of youth and especially at-risk young men.
- Tech Prep and “Career Pathway” models, which provide ladders into certain well-paying occupational clusters based on school curricula and work experience, beginning in secondary school (or earlier) and continuing into postsecondary education.

For adults:

- effective approaches involve supplementing education or training, with enhanced links to employers in sectors with strong growth in middle-skill jobs. These approaches should include job search and follow-up services.

Often, community or technical colleges, as well as for-profit career colleges, can deliver the relevant education and training. Labor market intermediaries can play a useful role in coordinating these components and developing connections with employers through “sectoral” training or “career ladders” that attach disadvantaged adults to these sectors and provide pathways of instruction qualifying them for specific occupations and industries.

Expanding apprenticeships is a particularly attractive option for upgrading the careers of both young and experienced workers. Apprenticeship training culminates in career-related and portable credentials that are recognized and respected by employers.

How might these and other education and training efforts be financed? Expansions of Pell grants would be an important first step. Currently, Pell grants cover occupational training at accredited colleges only for disadvantaged workers attending at least half-time and without any felony convictions. One approach would be to allow Pell grants to extend to shorter term training programs and to finance the classroom instruction used in registered apprenticeship programs.

Another option is to use federal funds from the Temporary Assistance for Needy Families (TANF) to finance training, an approach that may require changes in how occupational training counts towards the TANF program's work requirements. Expanded funding for Title I of the Workforce Investment Act is another way to help finance these programs for disadvantaged adults. This expanded funding could be accomplished through formula funding or through a new competitive grants program like the one outlined in a recent report by Harry Holzer for the Hamilton Project at Brookings. In this proposal, grants would be awarded to states to build comprehensive "advancement systems" for the poor that focus on education and training, pathways that link private employers to training providers and workers, and appropriate financial supports and services. The grants would match new state and local expenditures and require a great deal of rigorous evaluation. Financial incentives would also be provided for strong performance and for taking programs to scale at the state level (that is, making them large enough to affect earnings outcomes of a substantial share of workers).

**Measuring Technical and Academic Achievement: Employer/Certification Examinations' Role in High School Assessment. SREB; (2009)**

[http://www.sreb.org/publications/2009/09V01\\_Employer\\_Certification\\_Exams\\_ExecSum.asp](http://www.sreb.org/publications/2009/09V01_Employer_Certification_Exams_ExecSum.asp)

**As high school leaders work to create a curriculum that addresses students' unique talents, interests and goals, one size of state accountability and assessment will not fit all students. Schools and states must find methods for evaluating whether or not students in career/technical programs are developing their talents in a potential career field of interest. Employer certification exams provide one type of evaluation for certain career/technical fields. In fact, some states have already begun to use employer certification examinations to assess students' mastery of complex material that combines academic and technical content. In some cases, these exams are being used to replace some traditional high school graduation examinations.**

***Taking a Team Approach to Education Reform.*** The Boston College Center on Corporate Citizenship (BCCCC); (March 2009)  
<http://www.bcccc.net/document/docWindow.cfm?fuseaction=document.viewDocument&documentid=1264&documentFormatId=2226>

***Rule #1: Master the fundamentals: Going to school on education reform***

For analytical purposes, reform efforts dating back to the mid 1980's can be clustered into one of four categories:

- 1. Educational performance**
- 2. Work force readiness**
- 3. Systemic improvement**
- 4. Innovation**

***Rule #2: Appreciate the nuances of each ballpark: Getting to root cause***

***Rule #3: Field a winning lineup: Putting the right players in the right positions***

Successful business/education partnerships often operate by the same ground rules:

- Companies match their core competencies to a key education need (and vice versa, in the best circumstances)
- Effective third parties who understand both partners, can accelerate the match
- Everyone benefits

***Rule #4: Address player idiosyncrasies for the good of the game: Aligning the education system***

***Rule #5: Build a dynasty: Sustaining the impact of improvement efforts***

***Contemplating future seasons***

In planning for the future, education leaders need business for support and business leaders need education to succeed.

***The new whats***

At the heart of education transformation is being able to articulate what it means to become a lifelong learner in the 21st century and what explicitly that would look like. Two issues will likely determine the outcome:

***First, who gets to decide?***

Consensus is emerging among business leaders and policymakers alike that the current education system, based on 50 different sets of state standards and assessments, is increasingly untenable in a global economy. The debates are not over what we have now, but what we need instead. Increasingly, the discussions are focusing on whether we should have national standards (more efficient, but also more politically difficult, particularly if the federal government decides) or accelerate the development of voluntary common state standards (less efficient and more time consuming, but also much more likely).

***Second, what specifications will be used?***

For many years, education reform efforts proceeded on dual tracks: one based on content (subject matter) areas, primarily for the college-bound, which drove the standards movement; and one based on skill sets, for entry-level workers, which drove the school-to-work movement. No longer is that the case. Today states are beginning to merge the two. For example, currently 11 states are working with the Partnership for 21st Century Skills to update their standards based on the following combination of core subject areas and skills. More recently, the new whats have focused on defining student competencies irrespective of subject matter disciplines. This 21st century view of learning assumes a more active 24/7 role for students, particularly as they grow up digitally. Since much of this learning currently occurs outside of, rather than because of schools, eventually it will fundamentally transform the teacher-student relationship: in co-creating learning, everyone gets to be both teacher and student.

An alternative approach starts with the end in mind – workers, parents/family members, and citizens/community members – the roles that learners are expected to play in adulthood (see table on page 25). This approach evolved out of the adult literacy world during the late- '90s, largely separate from the state standards and school-to-work efforts. But it is certainly worth revisiting, as a way to map backward, in defining policy and allocating resources, from the intended outcome.

### *The new hows*

#### *How to host the conversation*

Hosting such a discussion globally could also combine the best of low-tech community grass roots and high-tech netroots. Potential drivers include:

- Providing universal WiFi Internet access anytime, anywhere;
- Providing \$100 laptops in high poverty and remote countries;
- Increasing technology migration onto cell phones, now owned by most students;
- Creating formal structures to tap citizen interest, bubbling since 9/11, in participating in voluntary national service to transform education;
- Creating new collaborations that provide needed social and community services to poor children and their parents; and
- Helping a new presidential administration convert participatory netroots campaigning into transparent, involved netroots governing.

Companies that have redesigned their own business models using open source technology for product innovation have a special role to play in this discussion. They can apply their core competencies to a new challenge: helping government and education leaders structure a literal ongoing global discussion that defines, based on common adult roles, the prerequisites of lifelong learning.

#### *Business/education engagement 2.0*

##### *Business roles –*

Rethinking both the whats and hows of transforming the education system is a design challenge. It is one that many business leaders are well positioned to confront. And they have multiple roles to play. Here are some:

- **First do no harm, to adopt the medical profession's credo.**

In supporting education system alignment, business leaders can conduct a self assessment of their current initiatives to ensure that they are not, inadvertently, failing to maximize the potential of their own efforts as well as those of their education partners.

- **Second, help policymakers and educators reframe the issues.**

Figure 5 illustrates how to get beyond the traditional policy debates that may be stalling resolution. They convert the issues from separate policies (standards, teacher effectiveness, etc.) into processes, from the perspectives of individual students, teachers and the customer/supplier chains of organizations that support lifelong learning for both.

- **Lastly, align and reinvent the system.**

Figure 6 suggests how business can help policymakers and educators transform the education system by taking a “global-to-grass-roots” approach:

- 1) define expectations globally;
- 2) use digital lifelong learning plans to customize education service delivery for and with each student;
- 3) redesign the education system at all levels in between; and 4) concurrently provide an external support base that builds public awareness of, participation in, and ongoing support for the change.

***The Forgotten Middle: Ensuring that All Students Are on Target for College and Career Readiness before High School.* ACT; (Dec. 2008)**

<http://www.act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

The report presents evidence indicating that middle, not high, school is the optimal time to begin college and career awareness and readiness efforts.

### **Recommendations**

*To maximize students’ readiness for college and career by the time they graduate from high school, we must address the needs of the students in the Forgotten Middle and the role that upper elementary and middle school must play in college and career readiness.*

This research study addressed the following questions:

▼ **How important is academic achievement in grade 8 for predicting academic achievement in grade 11 or 12?**

Of the academic factors we analyzed, eighth-grade academic achievement and being on target for college and career readiness in eighth grade have the greatest impact on college and career readiness by the end of high school.

▼ **How important are coursework and grades in high school for predicting college and career readiness in grade 11 or 12?**

Although high school coursework and high school grades have a positive relationship with college and career readiness by the end of high school, their impact is far outweighed by that of eighth-grade academic achievement and being on target for college and career readiness in eighth grade. Without sufficient preparation before high school, students cannot maximize the benefits of high school–level academic enhancements. All students must be prepared to profit from high school.

▼ **How much improvement in students’ college and career readiness could we expect from their taking additional rigorous courses and earning higher grades in high school?**

Taken individually, these enhancements provide modest benefits compared to raising student achievement and helping students get on target for college and career

readiness. However, when eighth-grade students are ready for high school coursework, the impact of taking rigorous high school courses and earning higher grades is optimized.

▼ **How does the academic progress that students make in high school differ given their level of achievement in grade 8?**

Compared to students who are not on target for college and career readiness in eighth grade, students who are on target make greater academic progress in high school—particularly between grades 10 and 12—and are more likely to be ready for college and career when they graduate from high school. High school coursework and grades are important predictors of students’ academic readiness for college-level courses, but the level of academic achievement by eighth grade and being on target for college and career readiness in eighth grade have the most significant impact on college and career readiness. As this report has shown, increasing eighth-grade students’ academic achievement by grade 8 and helping them get on target for college and career readiness would result in greater improvement in college and career readiness than their simply taking additional standard courses or advanced/honors courses in high school or earning higher grades in high school. Thus, making sure that all eighth-grade students have attained the knowledge and skills that put them on target to becoming ready for college and career is the single most important step that can be taken to improve their college and career readiness. Requiring high school students to take and pass more challenging courses and to earn higher grades, and working with teachers and administrators to improve the rigor of high school curricula, are important strategies for achieving the broad goal of improving the college and career readiness of our high school graduates. But the results of the research presented in this report suggest that we cannot expect such activities in and of themselves to change the picture of college and career readiness among our students until more of them are ready to learn the content of rigorous high school courses. In the current educational environment, the majority of students in the eighth grade will likely not benefit enough from high school–level enhancements to be prepared for college and career by the time they graduate from high school, so we must also focus on getting more students on target for college and career readiness by the end of eighth grade so that they are prepared to maximize the benefits of high school. Ultimately, we must reduce the number of students who are seriously under prepared by the end of middle school, which will require interventions well before grade 8. Furthermore, if we can improve students’ academic skills before grade 8, then the other high school–level enhancements will be far more effective. College and career readiness does not occur at a single point in time but is the result of a process extending throughout the K–12 years. Given the results of this study about the relationship among high school academic readiness, high school academic success, and college academic readiness, we offer the following recommendations to improve academic achievement and college and career readiness among our nation’s high school graduates:

- 1. Focus K–8 standards on the knowledge and skills that are essential for college and career readiness, and make these nonnegotiable for all students.**
- 2. Monitor student progress in becoming ready for college and career, and intervene with students who are not on target to becoming ready, beginning in upper elementary school and continuing through middle school.**
- 3. Improve students’ academic behaviors.**

- 4. Increase federal and state support for schools to implement intervention programs that help all students become ready for college and career.**