

Improving Readiness for College and Work

The Role of CTE in High School Reform



National Association of State Directors of Career and
Technical Education Consortium

Gary Hoachlander
April 12, 2005

Overview



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- What do we mean by readiness for college and work?
- What do we know about the impact of CTE on readiness for college and work?
- How might we improve the contribution of CTE?
- The Biomedical and Health Sciences Initiative—a comprehensive program of academic and technical study

College Readiness—about 40% of all high school graduates



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- **College-preparatory GPA (13 credits minimum)**
 - 4 credits in English
 - 3 credits in math (Algebra I and higher)
 - 2 credits in biology, chemistry, or physics
 - 2 credits in social studies
 - 2 credits in foreign language
- **SAT/ACT scores**
- **Extra-curricular involvement**

Work Readiness—no widely accepted standard



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- Occupational “concentrators”— about 25% of high school graduates
- Occupational “investors”— about 45% of high school graduates
- “CTE investors”—about 60% of high school graduates
- Other criteria—work experience, student organization, mentoring, certification, or assessment?

Combining College and Work Readiness



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- **Occupational concentrators completing the “New Basics”—about 12% of all high school graduates up from less than 6% in 1990**
- **Occupational concentrators completing a college-preparatory curriculum—about 8% of graduates, up from less than 3% in 1990**

CTE and Earnings



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- Seven years after graduation from high school, students earned 2 percent more annually (\$450) per CTE course taken in high school
- Equals \$1,350 annually for the 45 percent of high school graduates taking at least 3 occupational courses

CTE and Academic Achievement



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- CTE neither helps nor hinders achievement on standardized tests
- 15 percent of all seniors with GPA greater than 3.5 were occupational concentrators in 2000
- CTE concentrators are taking more academic credits
- NAEP scores of CTE concentrator rose in both reading and math during the 1990s

CTE and Postsecondary Transition



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- 55% of CTE concentrators enrolled in postsecondary immediately after high school in the 1990s, up from 40% during the 1980s
- Seven years after high school graduation, 75% of concentrators had participated in some form of postsecondary
- 18% of concentrators eventually earned a BA; 53% some form of degree or certificate

The Effectiveness of CTE



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- Clear labor market benefits
- Compatibility with taking more academics—high school students will work harder
- Little evidence that CTE makes a *direct* contribution to increased academic achievement

Can We Have It Both Ways?



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Not without

- New programmatic frameworks
- Curriculum redesign
- Professional Development—pre-service and in-service
- New assessments
- Public policy more focused on these four requirements

New Programmatic Frameworks for CTE



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- Capitalize on career clusters and industry/sector majors
- Comprehensive programs of academic, as well as technical courses



Curriculum Redesign

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- Strategic focus on *selected* academic knowledge and skills appropriate to the career or industry
- Greater technical rigor responding to industry and postsecondary professional education
- Academics in technical courses; technical application in academic courses

Professional Development



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- **Strengthen capacity of technical teachers to teach related academics**
- **Improve understanding among academic teachers of technical application of academic knowledge and skill**
- **More attention to higher-level technical knowledge in both academic and technical courses**

Assessment



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- **Assess broader conceptions of “academics”**
 - **Diagnostic ability**
 - **Applying interdisciplinary knowledge to complex problems**
 - **Understanding of systems**
 - **Authentic application**
- **Mastery of industry knowledge and skill**

An Illustration: The Biomedical and Health Sciences Initiative



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A Collaboration Among

- The National Consortium for Health Sciences and Technology Education
- Project Lead the Way
- The National Academy Foundation
- MPR Associates

BHSI Program Components



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- 4 core courses—9th through 12th grade
- Integrated curriculum units in major academic subjects
- Structured summer Internships
- Assessment
- Delivery through academies or comprehensive program
- Intensive two-week summer professional development