STEM Learning and Research (STELAR) Center @ Education Development Center

STELAR Webinar:
Career Technical Education (CTE)

Wednesday, January 25, 2017

Who We Are

- Innovative Technology Experiences for Students and Teachers (ITEST) Program

- STEM Learning & Research Center (STELAR)

- Education Development Center

- Supporting the ITEST program and its grantees since 2003

- Available to assist those considering submitting an ITEST proposal

What We Do

- Facilitate projects' success through **technical support** with a focus on synthesis of findings

- Inform and influence the field of STEM stakeholders by **disseminating** project findings nationally

- Deepen the impact and reach of the ITEST program by **broadening participation** in the ITEST portfolio

Some of Our Activities

- **Webinars:** Effective Dissemination, Designing Research for ITEST Projects, Mentoring Models

- **Monthly Newsletter:** Information to stay updated on all things STEM and ITEST

- **Project Specialists:** A STELAR staffer who works directly with each project to provide resources and make connections

- **Regional and Thematic Meetings:** A way for current projects to network with each other

- **Management Information System (MIS):** Annual collection of project information about what projects do, who they work with, what they have achieved

Find Resources on STELAR Website

Get Ideas for Designing ITEST Proposals

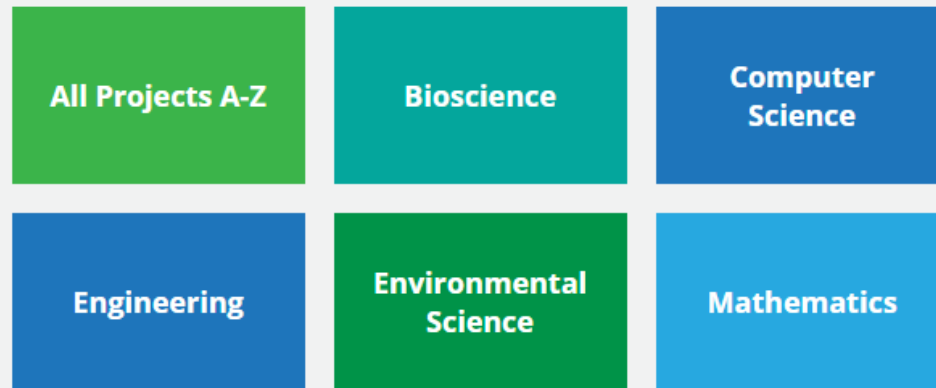ITEST Proposal Development: http://stelar.edc.org/proposal-development

- **+** GET TO KNOW ITEST
- **+** PREPARE YOUR PROPOSAL FOR SUBMISSION
- **+** DEVELOP A ROBUST RESEARCH DESIGN
- **+** CREATE AN EFFECTIVE EVALUATION STRATEGY
- **+** CONNECT WITH PARTNERS
- **+** REACH UNDERSERVED POPULATIONS
- **+** DEVELOP THE WORKFORCE OF THE FUTURE

Explore Project Profiles

Resource Library – Publications, Curricular Materials & Instruments

Connect with others via the People Connector

http://stelar.edc.org/opportunities/people-connector-directory

People Connector Form

People Connector Directory

Stay in Touch!

Contact us: stelar@edc.org

Facebook: https://www.facebook.com/stelarctr

Twitter: https://twitter.com/STELAR_CTR

LinkedIn: https://www.linkedin.com/groups/STELAR-Center

Find resources: http://stelar.edc.org/

Today's webinar:

Kimberly A. Green
Executive Director, Advance CTE

Kate Blosveren Kreamer
Deputy Executive Director, Advance CTE

Career Technical Education: Major Trends and Connections to STEM

Kimberly Green and Kate Blosveren Kreamer

January 25, 2017

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About Advance CTE

- *(Formerly The National Association of State Directors of Career Technical Education Consortium (NASDCTEc)*

- Non-profit established in 1920 to represent the state and territory heads of secondary, postsecondary and adult career technical education (CTE) across the nation

- Through leadership, advocacy and partnerships, support an innovative, high-quality CTE system

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CTE's Broad Scope

Career Technical Education prepares students of any age with the academic and technical skills, knowledge and training necessary to succeed in future careers and to become lifelong learners

- From early career exploration to highly technical training
- Includes all sectors and professions

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CTE's Organizing Framework

Agriculture	**Hospitality/Tourism**
Architecture/Construction	**Human Services**
Arts/Communication	**IT**
Business	**Law/Public Safety**
Education	**Manufacturing**
Finance	**Marketing**
Government	**STEM**
Health	**Transportation**

CTE in the U.S.

11.7 million students participating in CTE (2012-13)

7.5 million at secondary level

3 million "concentrators"

4.1 million at postsecondary level

2.2 million "concentrators"

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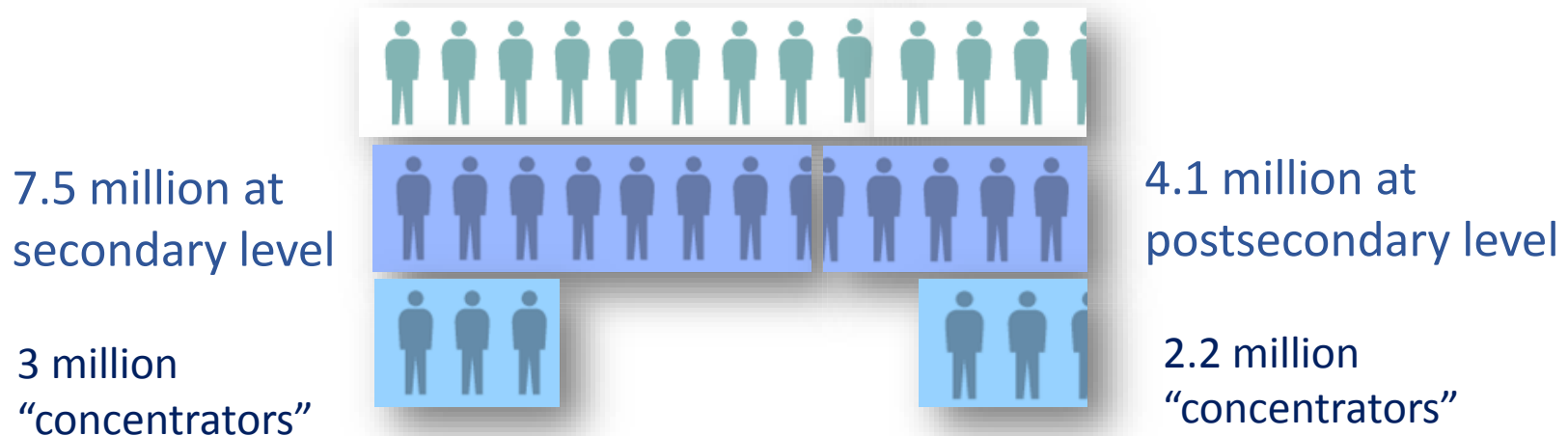
CTE's Delivery

- **Secondary** CTE is delivered at comprehensive high schools, technical centers, career academies and technical high schools
  - 85% of high school students in the class of 2009 took at least 1 CTE course
- **Postsecondary** CTE is delivered at technical/community colleges, vocational schools
  - In 2013, about 1.1 million learners earned associate's degrees and another 665,000 earned certificates or other credentials at public postsecondary institutions (half in technical fields)

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Top 5 Major Trends in CTE

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Trend 1: Career Readiness for **All** Students

4 in 5

employers report gaps in recent HS grads preparation

9 in 10

Parents want more career focus in high school

CTE concentrators are far less likely to drop out of high school – with estimated saving the economy **$168 billion** each year

1 in 5

Students concentrate in CTE

OUT OF 500 U.S. SENIOR EXECUTIVES SURVEYED:

44% Think Americans lack soft skills

Communication Creativity Critical thinking Collaboration

OTHER SKILLS EXECUTIVES THINK WORKERS LACK:

22% Technical 14% Leadership 12% Software

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Trend 1: Every Student Succeeds Act

- Title I:
  - "Well-Rounded Education" now includes CTE
  - Academic and CTE standards alignment
  - ESSA and Perkins plan coordination required
  - Local applications *must* focus on effective student transitions and *may* focus on work-based learning
  - "Fifth indicator" in accountability

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Trend 1: Career Readiness for **All** Students

- Focus on providing work-based/experiential learning for all
- Strategy for ensuring professional/career-ready skills
- State role:
  - Set a statewide (or district or school-wide) vision
  - Leverage intermediaries
  - Address legal and liability barriers
  - Measure work-based learning for continuous improvement
  - Bring work-based learning to scale

Connecting the Classroom to Careers

A Comprehensive Guide to the State's Role in Work-based Learning
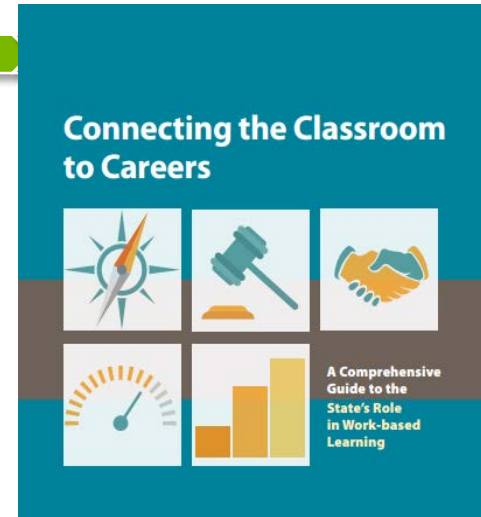
Trend 1: State Use of Career-Ready Indicators

How States are Making CAREER READINESS Count: A 2016 Update

Achieve & Advance CTE
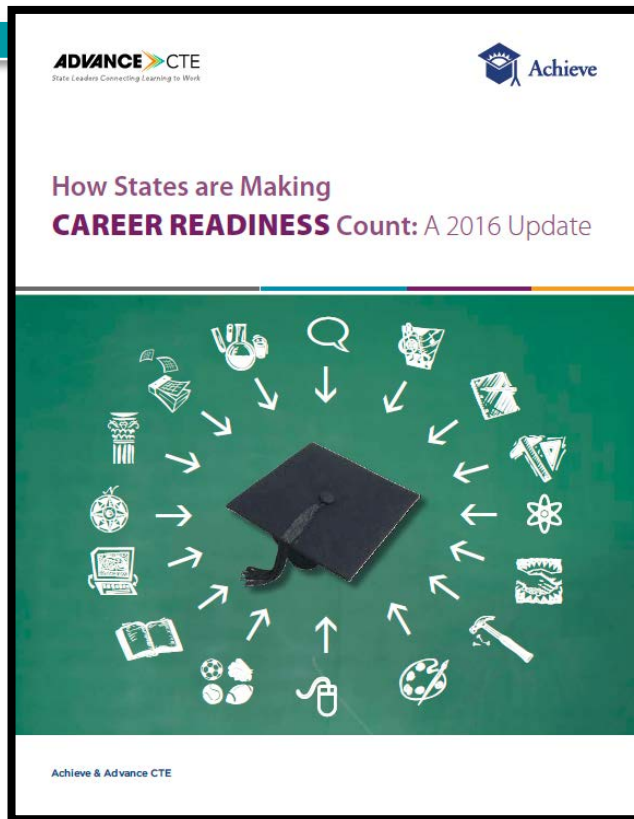
- New Skills for Youth – Career Readiness Expert Working Group

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Trend 1: Career Readiness for **All** Students

- Consistent state action on career development and advisement
  - Middle grades
  - Leveraging technology
  - Career coaches
  - Guided pathways

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Trend 2: Focus on Quality

- Equity
  - Access for all students to high-quality pathways
  - Use of data
  - Rural vs. urban access
- Validation
  - Role of employers
  - Use of labor market data
- Program approval & funding

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Trend 2: Focus on Quality

- Credentials of value (industry-recognized credentials)

- 4000+ certification bodies

- Question of value, utility, quality

- Lessons learned:
  - Business and industry brought in early;
  - Credential review process involves a concer[ted] cross-institutional effort;
  - Credentials differentiated based on rigor and industry demand; and
  - Systems are designed to be adapative.
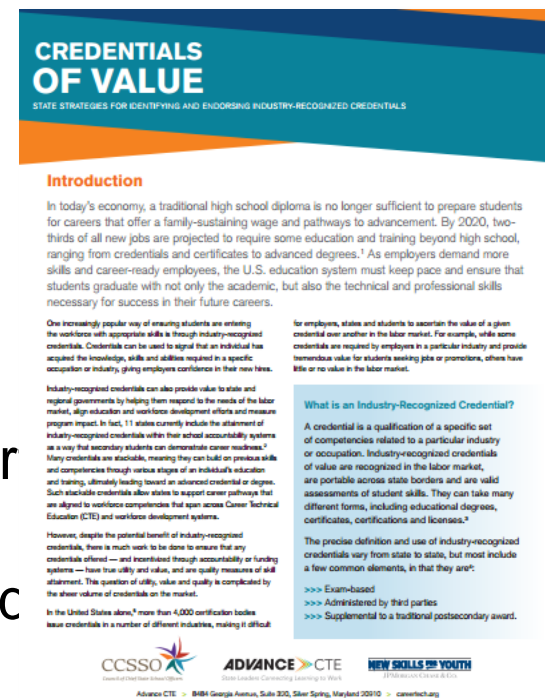
Trend 3: Shifting Authority

- In federal legislation:
  - Diminished Secretarial Authority
  - Many more "may's" than "shall's"
- Lots more activity in states than at federal level

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Trend 3: State Activity: 2013- 2015

- Between 2013 and 2015, every state and DC passed at least one policy impacting CTE
  - 400+ different policies in just a three-year period
- Common Areas of Focus:
  - New funding for CTE programs or initiatives;
  - Support and incentivize business-education partnerships and work-based learning; and
  - Industry-recognized credentials.

State Policies Impacting CTE
2015 Year in Review

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Trend 3: State Activity: 2016-2017

- CTE referenced in 48% of Governors' State of State addresses in 2016

- Nearly 280 CTE-related bills, initiatives, grants, etc. proposed in 2016; about half passed

- Many CTE-related bills, rules or budgets already slated for 2017

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Trend 4: Systems Alignment

- WIOA, ESSA, Perkins encourage "shared" accountability
  - Combined state WIOA/Perkins plan
  - Required coordination
  - Integrated report cards
- Career Pathways

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Trend 5: STEM and CTE

- What do STEM and CTE have in common?

  - Problem-based/project-based learning

  - Secondary-postsecondary alignment / college and career readiness

  - Business-education partnerships

  - Use of technology

  - Integrated/Cross-Disciplinary

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Trend 5: STEM and CTE

- Significant interest/commitment to STEM education at all levels

- CTE programs can provide a strong foundation for and serve as a delivery system of STEM competencies and skills for a broader range of students.

- May not address everything within a STEM strategy, but policymakers, educators shouldn't be reinventing the wheel

- Stakeholders need to understand inherent connection and overlap in goals and content of STEM and CTE

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CTE Is Your STEM Strategy

CTE Is Your STEM Strategy explores…

- The elements of a high-quality CTE program of study that makes it an effective tool for delivering or implementing STEM education;

- How STEM is naturally embedded across the 16 Career Clusters®;

- Examples of states embracing the link between CTE and STEM; and

- Areas where CTE and STEM programs can learn from and strengthen one another.

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STEM Across Career Clusters

CAREER CLUSTER	SAMPLE STEM CAREERS	CAREER CLUSTER	SAMPLE STEM CAREERS
Agriculture, Food & Natural Resources	• Agriculture Technicians • Agriculture Engineers • Forest & Conservation Workers • Food Science Technicians • Veterinarians • Marine Biologists • Water Resource Specialists	Architecture & Construction	• Architects • Civil Engineers • Civil Engineering Technicians • Surveyors • Drafters • Cost Estimators
Arts, A/V Technology & Communications	• Graphic Designers • Telecommunications • Multimedia Artists & Animators • Audio Technicians	Business Management & Administration	• Accountants • Auditors • Operations Research Analysts
Finance	• Actuaries • Financial Analysts • Financial Planners • Loan Officers • Investment Bankers	Government & Public Administration	• Patent Officer • Cryptographers • Policy Analysts • Climate Change Analysts • Intelligence Analysts

STEM Across Career Clusters

CAREER CLUSTER	SAMPLE STEM CAREERS	CAREER CLUSTER	SAMPLE STEM CAREERS
Information Technology	• Programmers • Hardware, Software Engineers • Computer Support Specialists • Information Security Analysts • Database Administrators • Webmasters • Video Game Designers	Law, Public Safety, Corrections & Security	• EMTs • Firefighter/Inspectors • Fire-Prevention and Protection Engineers • Brownfield Redevelopment Specialists and Site Managers
Manufacturing	• Aircraft Mechanics and Service/Avionics Technicians • Automotive Mechanics • Mechanical Engineers • Electronics Engineering Technicians • Wind Turbine Service Technicians • Welders	Marketing	• Interactive Media Specialists • Market Researchers • Forecasting Managers • Inventory Manager/Analysts
STEM	Any/all of careers listed	Transportation, Distribution & Logistics	• Transportation Planners • Transportation Engineers • Occupational Health and Safety Technicians

Green & Sustainability Knowledge & Skills

- The result are four Green & Sustainability standards that apply across all 16 Career Clusters

- Career Cluster-specific standards in six areas identified as those being the most likely to experience the greatest need for green and sustainability workers

  - Agriculture, Food, & Natural Resources;

  - Architecture & Construction;

  - Information Technology;

  - Manufacturing;

  - Science, Technology, Engineering & Mathematics; and

  - Transportation, Distribution & Logistics

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National Efforts Supporting CTE

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- Goals of State Competition
  - To dramatically increase the number of students in the U.S. who successfully complete career pathways that begin in secondary school and culminate in postsecondary degrees and/or industry credentials with labor market value; and

  - Catalyze transformational approaches to the design and implementation of programs and policies

- 10 states received Phase Two grants of $2m/3 years
  - Delaware, Kentucky, Louisiana, Massachusetts, Ohio, Oklahoma, Nevada, Rhode Island, Tennessee, Wisconsin

Putting Learner Success First

Lingering Challenges

- Inconsistent quality of programs
- Short-term vs. long-term labor market demand
- Inadequate data systems and quality measures
- Teacher recruitment and retention
- Stigma as lesser-than option for students

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Questions?

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