



Building Career Pathways to Success

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CTE

Why Research?

“If assumptions you hold about a problem are wrong, then it is very likely your solutions will be as well”



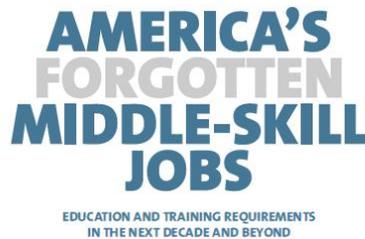
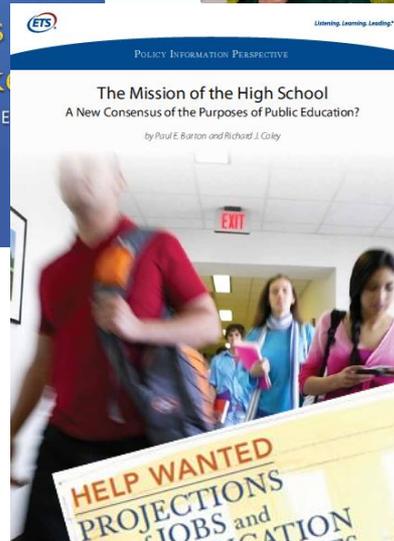
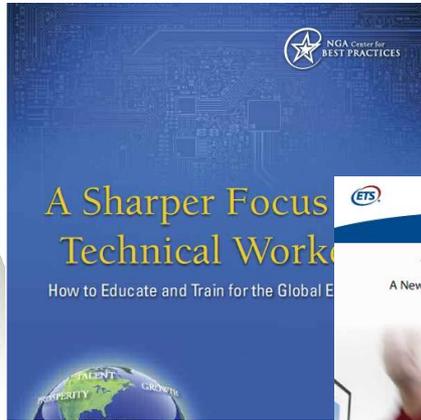
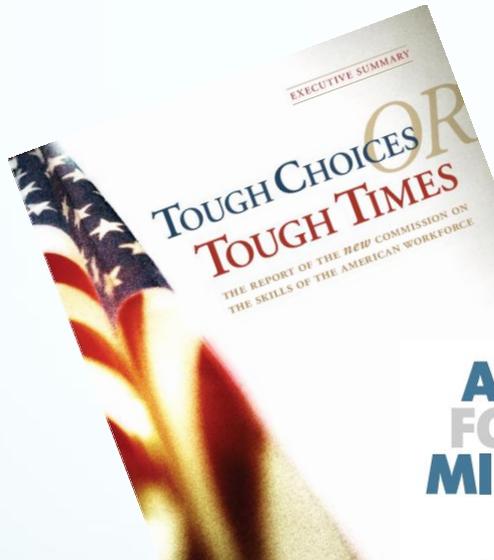
Many Perspectives . . .

Into the Eye of the Storm:
Assessing the Evidence on Science and Engineering
Education, Quality, and Workforce Demand

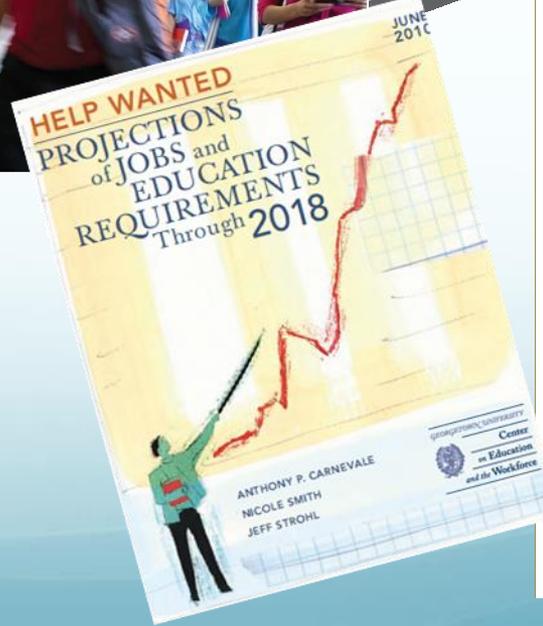
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center on reinventing public education

working papers

2 0 1 0

**Multiple Pathways To Graduation:
New Routes to High School Completion**

Shannon Marsh with Paul Hill

cpe working paper # 2010_2

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**College for all? Or College &
Career Readiness for all?**

Too Many College Grads?

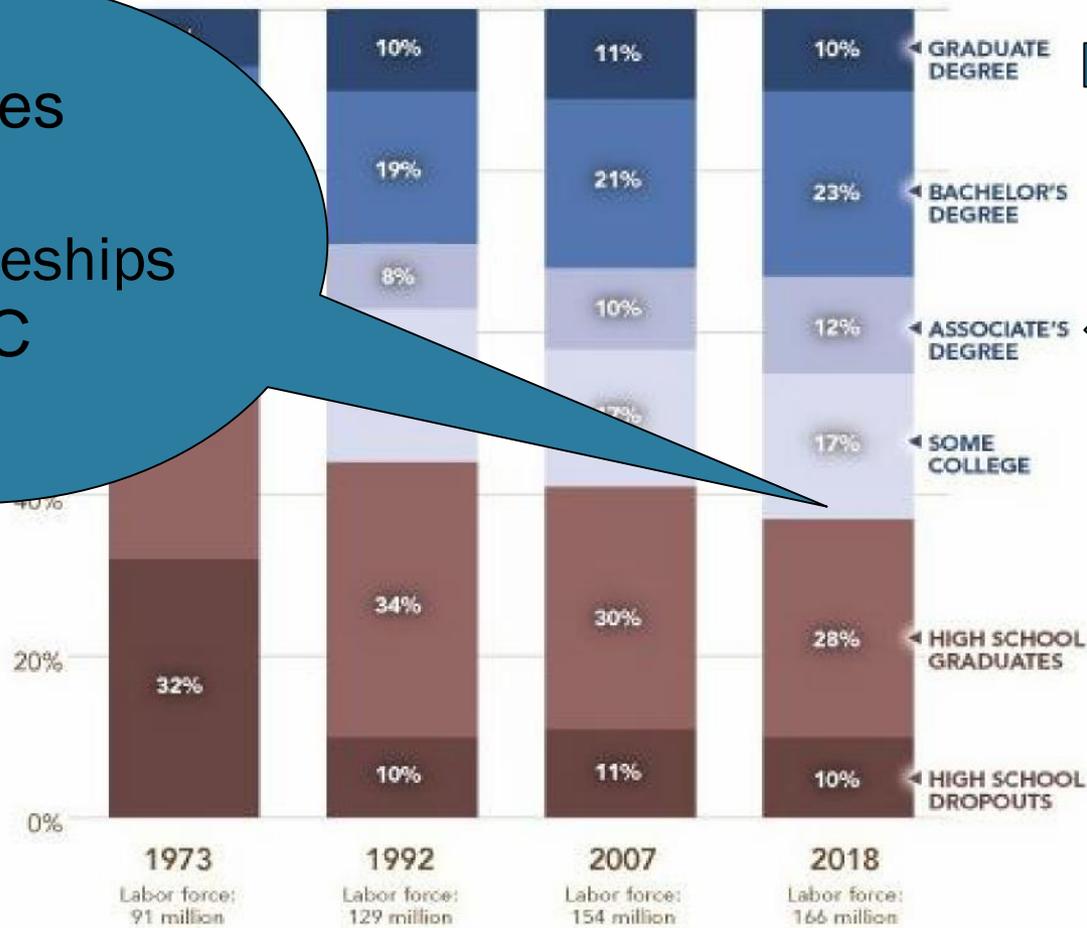
- ...turning out vastly more college graduates than there are jobs in the relatively high-paying managerial, technical and professional occupations to which most college graduates traditionally have gravitated.
- Roughly one of three college graduates is in jobs the BLS says require less than a bachelor's degree.
- College graduates, on average, are smarter and more disciplined and dependable than high-school graduates—so much of the reported earnings differential has little to do with college learning.
- We have engaged in massive and costly credential inflation to certify competency for jobs.

Not Enough College Grads?

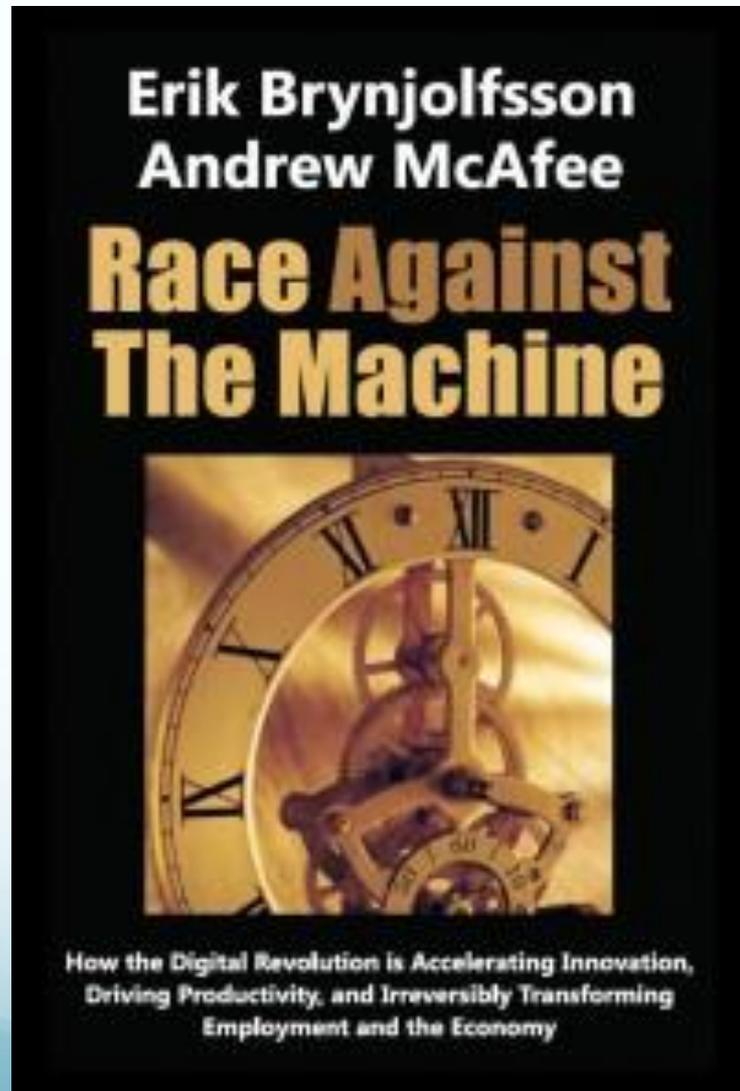
By 2020, our research projects that the United States may have 1.5 million too few workers with college or graduate degrees and 6 million more without a high school diploma than employers will demand. McKinsey Global Institute, 2012

63% of all jobs will require some college or better by 2018.

Certificates
Diplomas
Apprenticeships
Other IRC



A 3rd Perspective



Computers now exhibit human-like capabilities not just in games such as chess, but also in complex communication such as linguistic translation and speech. These new abilities stem from “pattern recognition” technologies – the same techniques that underpin, for example, the Siri voice recognition tool in Apple’s iPhone 4S.

A 3rd Perspective: The Race Against the Machine (The Machines are Winning?)

- The Google car
(truck?)
- IBM Watson
- Deep Blue
- The “Square”
- Text readers/ Pattern
recognition (goodbye legions of
lawyers-only 60% accurate)
- Automated ‘call centers’
(goodbye India)
- GeoFluent (goodbye translators)
- Vending machines for
... everything

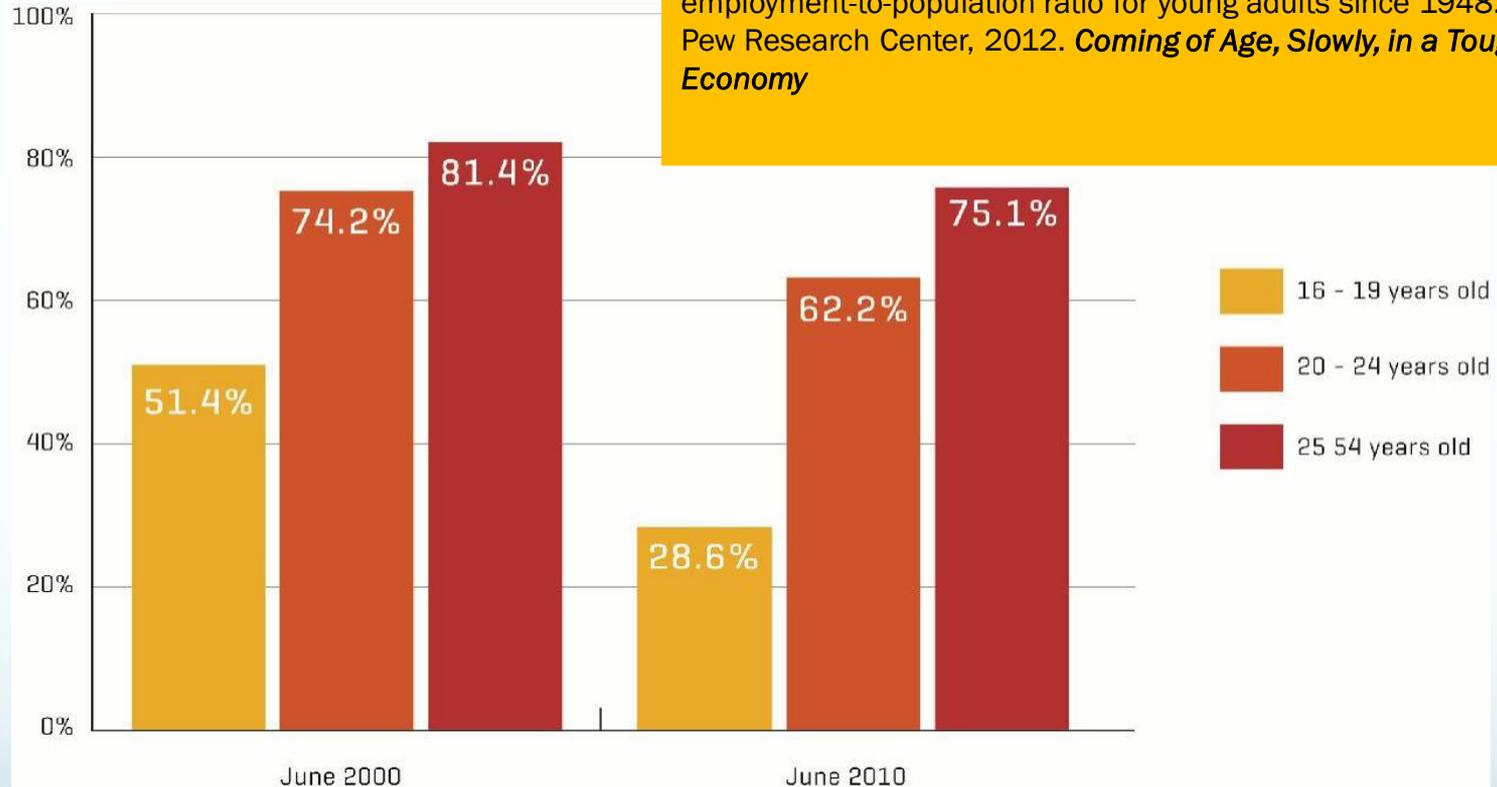


Can People Win?

- Instructional methods
- Softer skills
- Instructional focus
- The Human Advantage (for now)
- Khan Academy
- CTSOs/WBL
- Hyperspecialists, entrepreneurship
- Physicality of work
- Advanced pattern recognition
- General problem solving
- Creativity

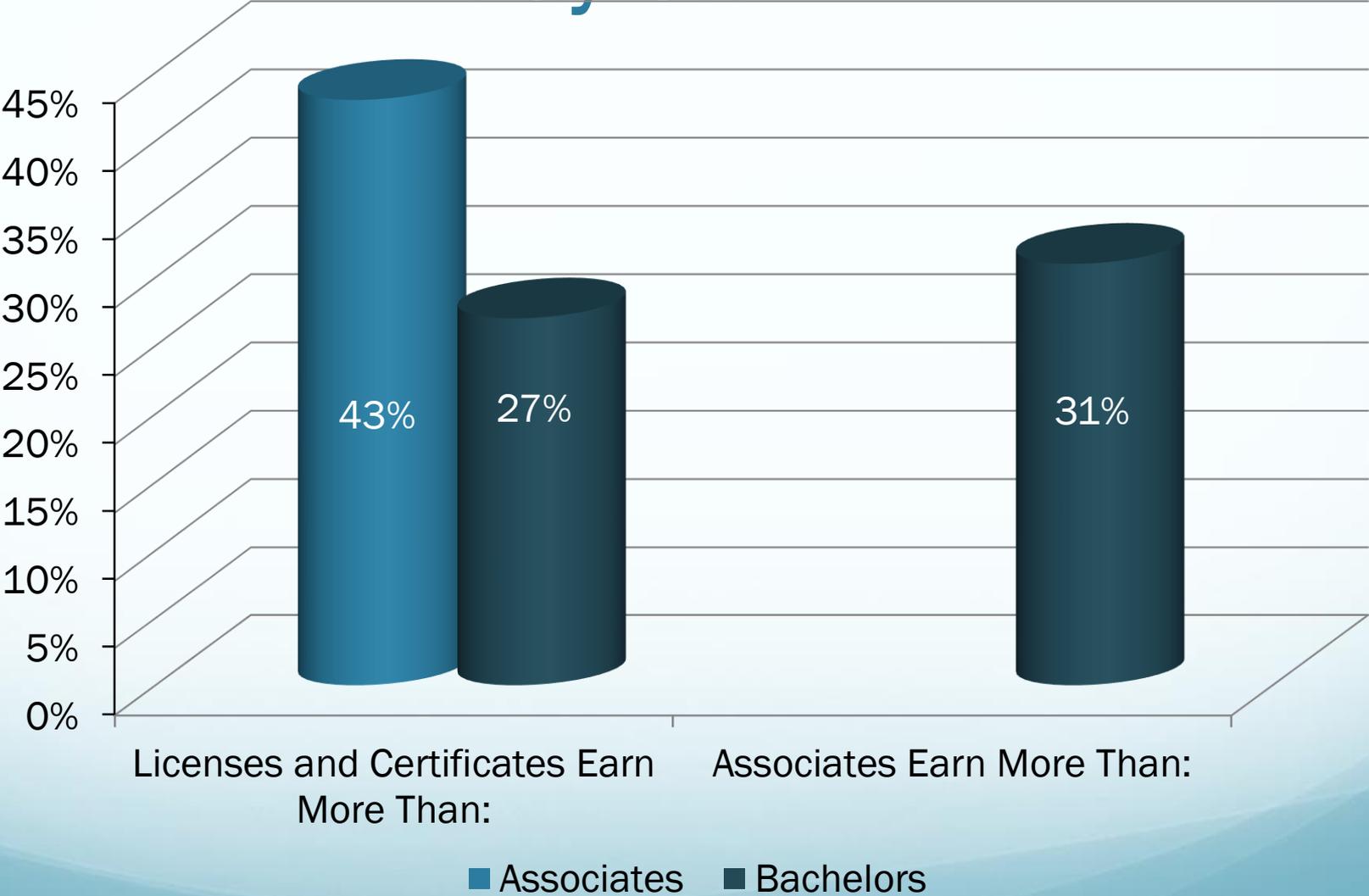
Teens and Young Adults have been hit the hardest by the Great Recession

54.3% of 18- to 24-year-olds (54.3%) were employed in 2011, compared with 62.4% in 2007, a 13% decrease. The lowest employment-to-population ratio for young adults since 1948. Pew Research Center, 2012. *Coming of Age, Slowly, in a Tough Economy*



Source: Center for Labor Market Studies; U.S. Bureau of Labor Statistics, "CPS Labor Force Statistics".

Sub-Baccalaureate Credentials Pay Off



So, Those are the Challenges . . .



To Address College & Career Readiness: *Make High School Matter*

Increase Engagement

Completing HS
Completing PS/
Industry credential



Improve Achievement

Academic
Occupational
Technical



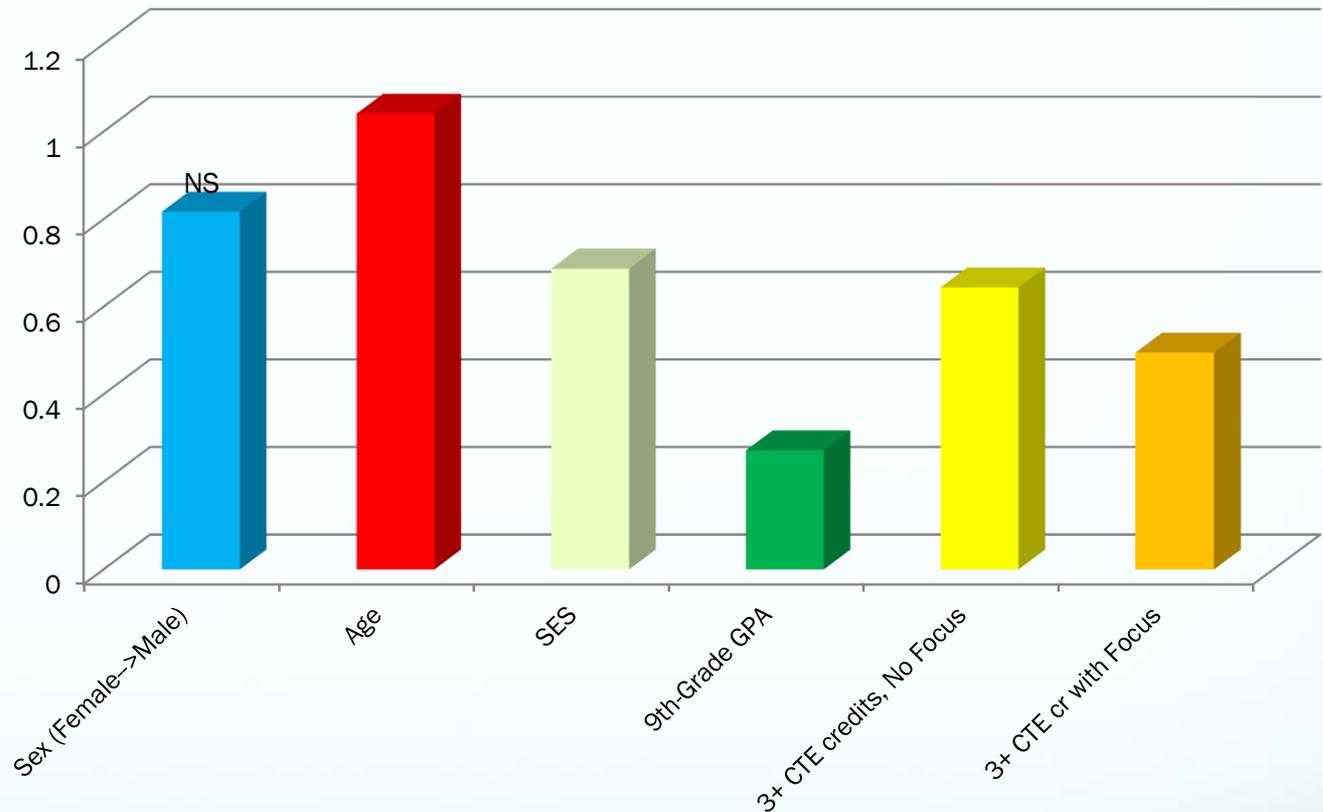
Enhance Transition

Through School
To continuing
education
To the workplace
To a successful
adulthood



CTE Keeps Kids in School

A Survival Analysis



NS=Statistically not significant

- CTE Participation helps students “survive” high school
- *Each CTE credit taken (at 3 or more) reduces the hazard of dropping out compared to students taking less than 3 CTE credits*

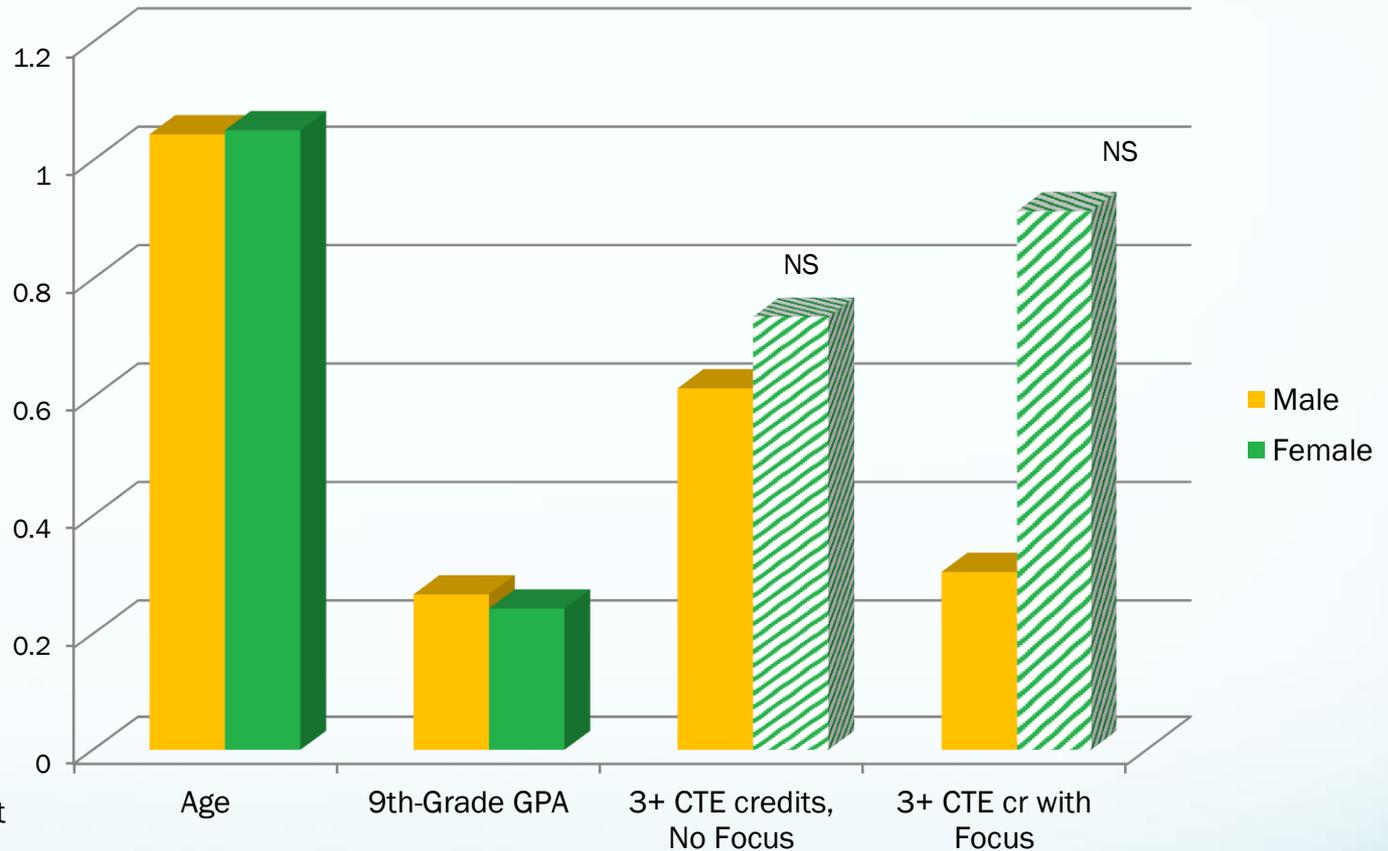
Engagement: We have a boy problem

... but many of the people who don't fit in are boys. A decade or so ago, people started writing books and articles on the boy crisis. At the time, the evidence was disputable and some experts pushed back. Since then, the evidence that boys are falling behind has mounted. The case is closed. The numbers for boys get worse and worse.

- By 12th grade, male reading scores are below females'
- 11th grade boys write at an 8th grade girl level
- Boys used to have an advantage in math and science, but that gap is nearly gone.
- Boys are more likely to have discipline problems
- Boys account for $\frac{3}{4}$ all D's and F's
- Men are a minority in college (40%)
- 2 million fewer men graduate from college over the past decade than women
- Grad school gap is even higher

CTE Keeps Boys in School!

A Survival Analysis



- CTE Participation helps boys “survive” high school
- *There is no CTE “survival” effect for girls; but it “does no harm”*

Why is this important?

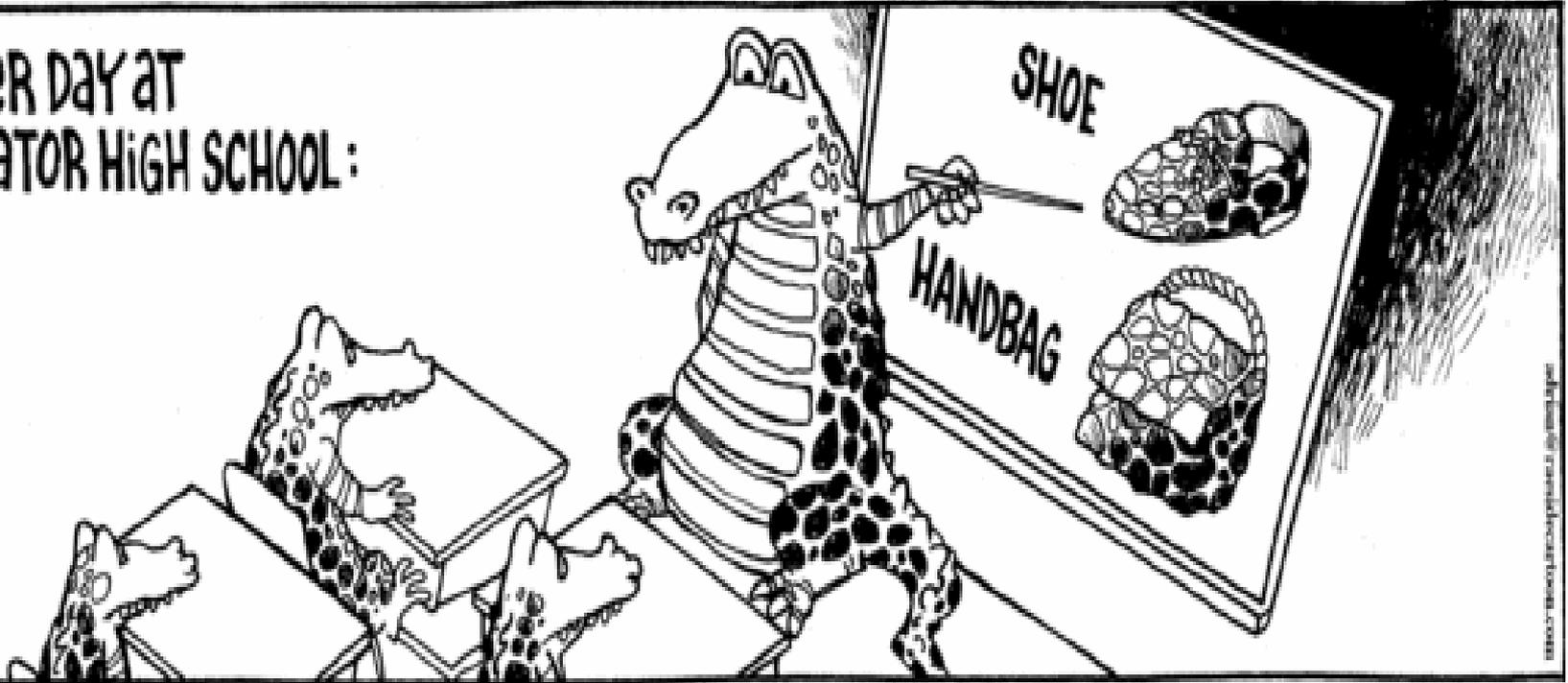
- Lower lifetime earning
- Increased risk they will never engage in sustained full-time employment
- 6.1 million NEETs in the U.S. = \$100 billion annual cost to U.S. taxpayers
- There are the social & emotional costs that are beyond dollars
- Higher risk of social conflict...look to Spain

Not Just Our Work: Economists' Perspective

“There is one approach that does tend to improve graduation rates and labor market earnings, especially for at-risk youth: high-quality career and technical education (CTE)”

Holzer, H.J., Lane, J.I., Rosenblum, D.B. & Andersson, F. (2011). *Where are all the good jobs going.*

CAREER DAY AT
ALLIGATOR HIGH SCHOOL:



The Curriculum – Career Pathways/Programs of Study



Youth
Apprenticeship
1980s

Tech Prep

1990-?

Career

Education

1970-1980

School-
to-Work

1994-2001

What is a POS?

Perkins

Incorporate secondary education and postsecondary education elements;

Coherent and rigorous content in a coordinated, non-duplicative progression of courses that align secondary education with postsecondary education . . . to adequately prepare students to succeed in postsecondary education;

May include dual or concurrent enrollment programs;

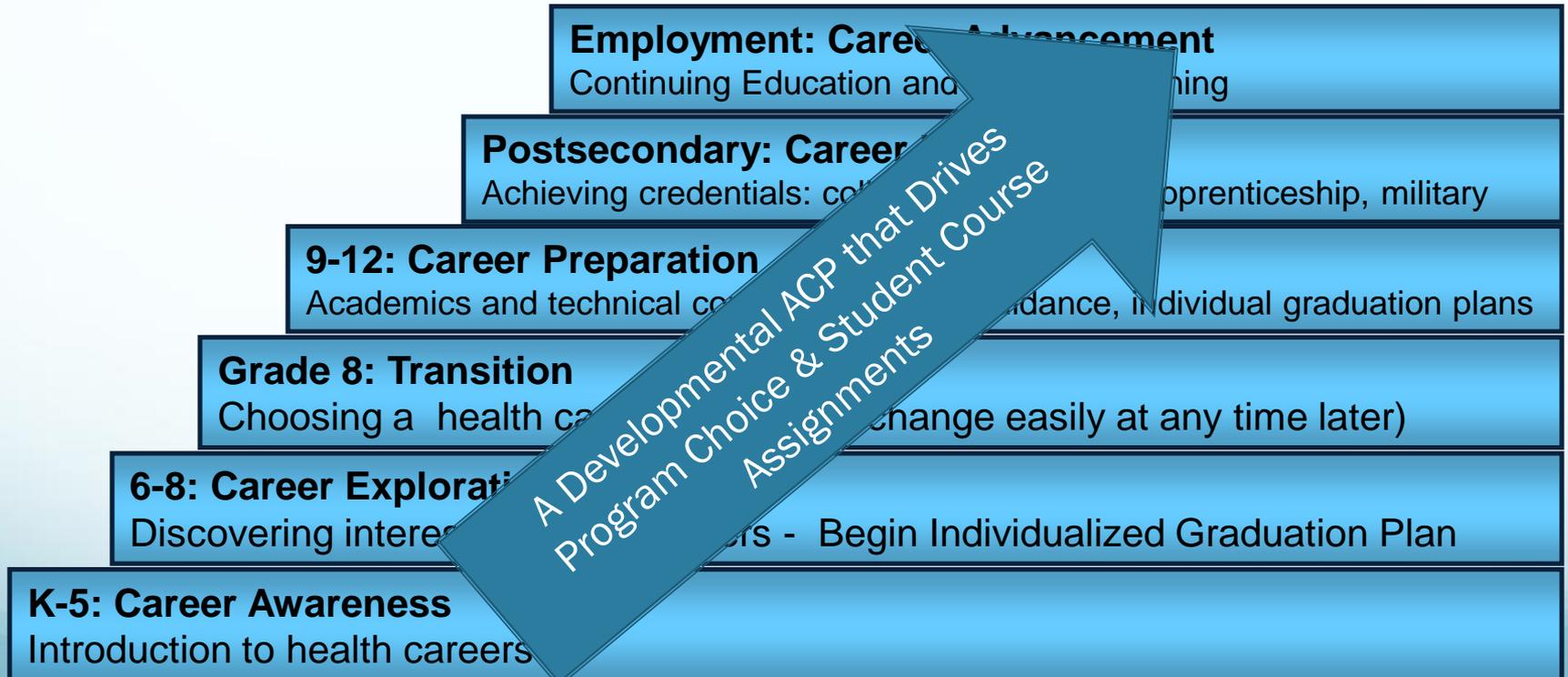
Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree.

To Test the Concept of POS . . .

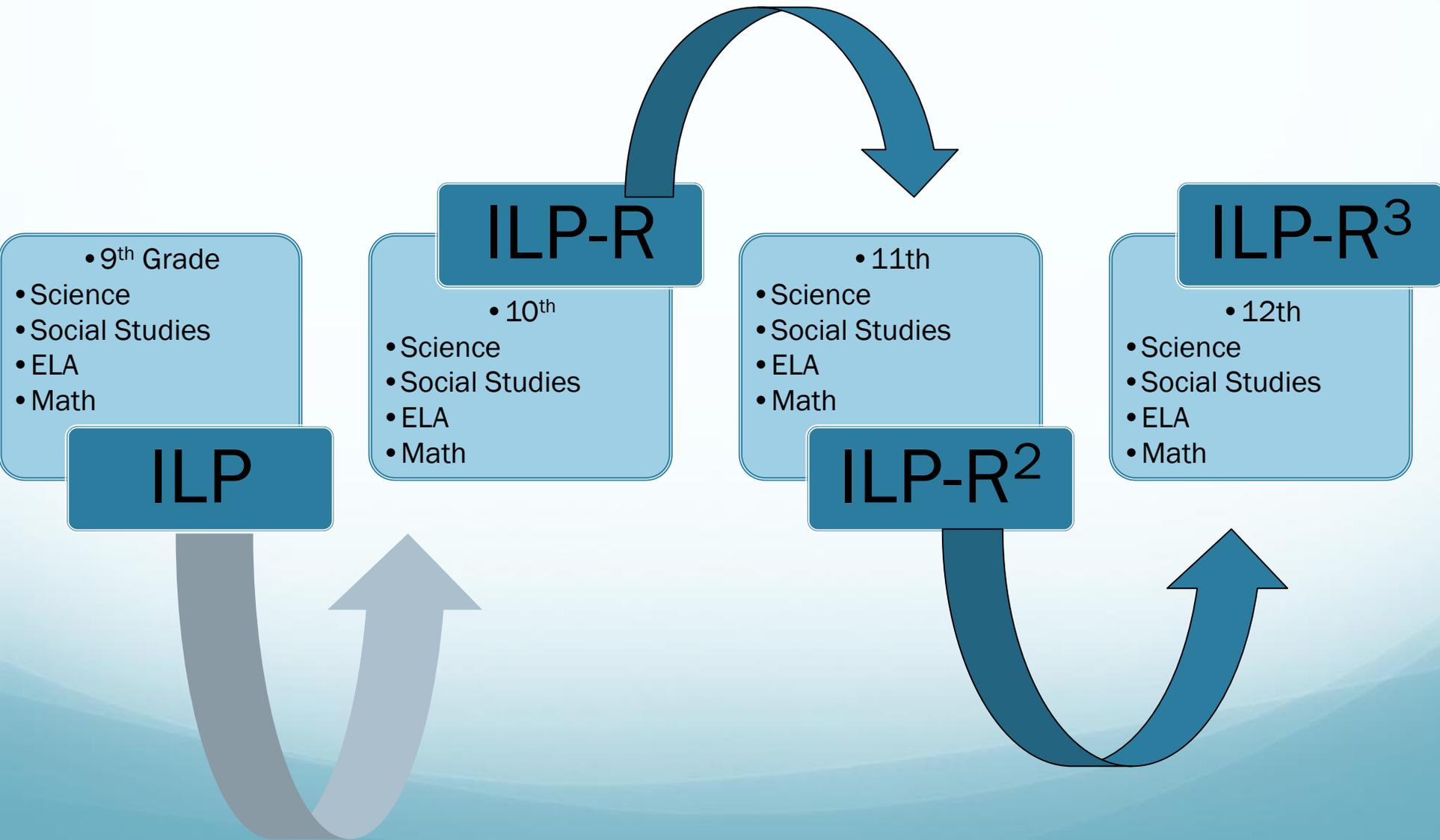
- Complete high school?
- Achieve academically?
- Achieve occupationally?
- Transition to life beyond high school?
- 3 rigorous, longitudinal studies to examine various elements of POS
- A Cross-Site Study examining 3 exemplary sites from the rigorous studies to determine common attributes and elements that make programs work
 - The 10 elements developed by OVAE and others used as interview/observation framework
- A qualitative study to examine development and technical assistance in 6 states (not reported here)

Research points toward:

Engaging Students through Career Development



Imagine this: A Robust I.L.P.



Integrating Career Development*

Class

- ELA
- Science
- Social studies
- Math

Assignment

- “Library research” on health careers
- Environmental impact of medical waste
- Labor/management relations
- Labor market analysis (statistics)

**All Aspects of an Industry*

3-Way Integration

System

- Vertical Alignment, “Articulation”
- Industry & Education Partnerships
- Career Clusters/Pathways
- Dual Credit/Enrollment



Programmatic

- Incorporate more academics into CTE
- Incorporate more CTE into Academics
- Career Academies/MCHS/TCTW



Curriculum/Instructional

- CTE to Academic & Academic to CTE
- Pedagogic framework; Signature Features
- Teacher skill/performance

Emergent trends

- Some evidence of academic achievement effect, but the evidence is mixed
- Mandate did not appear to have much effect on POS implementation (e.g., % of students engaged in POS, use of dual credit)
- 10 OVAE elements are not equally important or too costly to employ (e.g., TSA)
- Other elements may be more important (e.g., external funding)

Emergent Trends II

- Even when the policy is required by law, implementation is uneven and may be skewed towards lower performing districts.
- Career guidance/career development is emerging as a necessary condition for RPOS
- Cost is a barrier (counseling, TSAs, professional development)

Implicit Assumptions: With Policy Implications

- Education reforms operate independently of economic context
- Adolescents are rational, logical decision makers
- The 10 “elements” are the right elements to ensure POS success
- Accountability challenges for POS
 - What will POS success mean?
 - Enrolled in any college?
 - Pursuing same POS pathway?
 - Student sense of contribution of POS?

Other Approaches

An Industry Driven POS-Toyota

THE SKILL PIPELINE PROBLEM

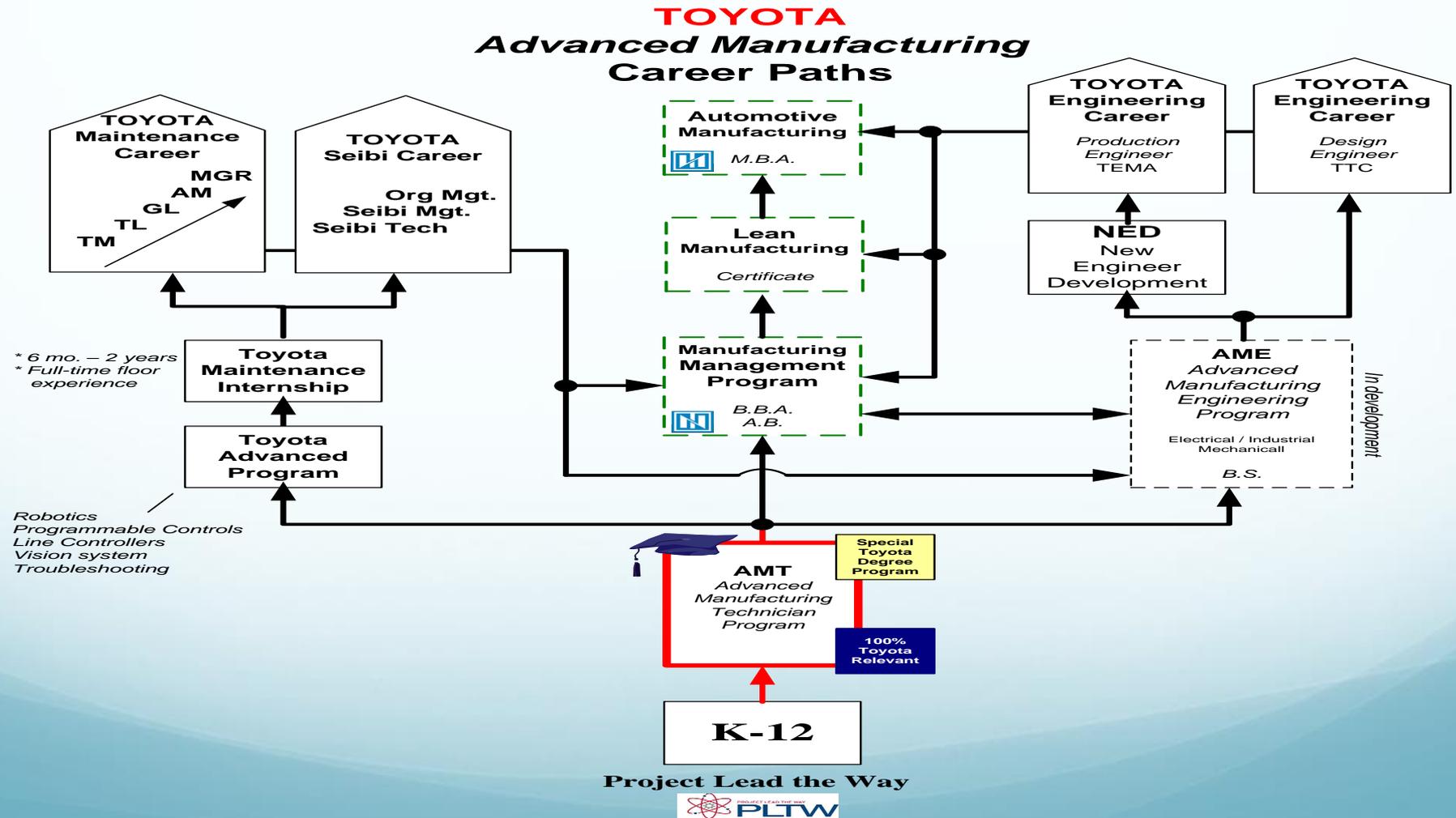
The U.S. community college system produces less capable graduates than parallel systems in competitor nations

Intentional preparation consists mostly of academic education only, i.e. pass technical courses and get a degree.

Schools do not produce graduates with vital preparation for workplace success, such as a highly developed safety culture, skills in workplace organization, lean work skills, and problem solving.

The Toyota Solution

Seamlessly Connect Paths for Career Long Growth
and to Strengthen the Whole Company



The Solution

Totally Redesign the Learning Environment

The New Model School

For Manufacturing

MORE REALISTIC
Looks Like a Factory
Feels Like a Factory

**MANUFACTURING
SIMULATOR**
Central Focus
Reason for Learning
Toyota Troubleshooting

**TOYOTA
LEARNING**
Safety, TPS, 5S
Learning Lab



**ORGANIZED BY
FUNDAMENTAL SKILL**
Electricity / Fluid Power
Mechanics & Fabrication

PROCESS LEARNING
Students learn in a
structure sequence

Students Learn
the *Right Way*
the *First Time*

USDOL: Career Pathways (POS)

- ◆ The term “career pathways” refers to a clear sequence of education coursework and/or training credentials that:
 - Is aligned with the skill needs of regional industries
 - Includes the full range of secondary, adult education, and postsecondary education options
 - Includes curriculum and instructional strategies that contextualize learning
 - As appropriate, integrates education and training that combines occupational skills training with adult education services, gives credit for prior learning, and adopts other strategies that accelerate advancement

The Answer: Career Pathways

(cont.)

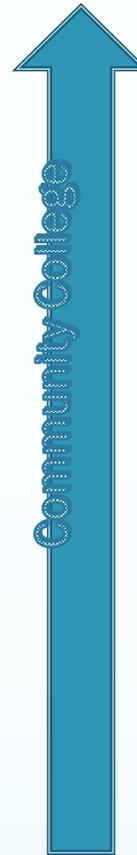
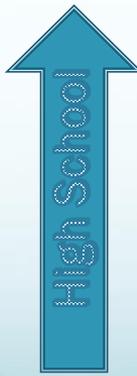
- Leads to the attainment of an industry-recognized degree or credential
- Includes academic and career counseling, and support services
- Is organized to meet the particular needs of adults, with flexible and non-semester-based scheduling, and the innovative use of technology
- Examples (I-Best in Washington State)

Career Pathway – Stackable Credentials

A recent McKinsey Global Institute study concludes, “policymakers and business leaders across the globe will need to find ways to vastly improve their capacity to provide job-relevant education and training. And, in both developing and advanced economies, new approaches to job creation for low and middle-skill workers will be required (Dobbs, et al, 2012)

- More than course credit pathways
- Portable: trusted by employers and institutions of higher education (external validation)
- Stackable: each credential has value (labor market signal) leads to another credential:
 - 51% of CC certificates require less than one year
 - Offer accelerated entry into the labor market
 - Credentialing process can begin in upper secondary education
- Part of a career pathway system

Ohio Stackable Certificates for Welding Technology



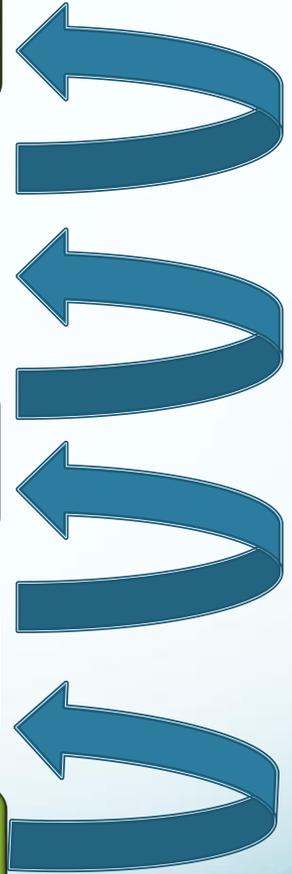
AAS
Welding
Technology

Advanced
Welding
Certificate

Welding
Tech
Certificate

Precision
Cutting
Certificate

Welding
Prep



Three POS Perspectives

A Summary

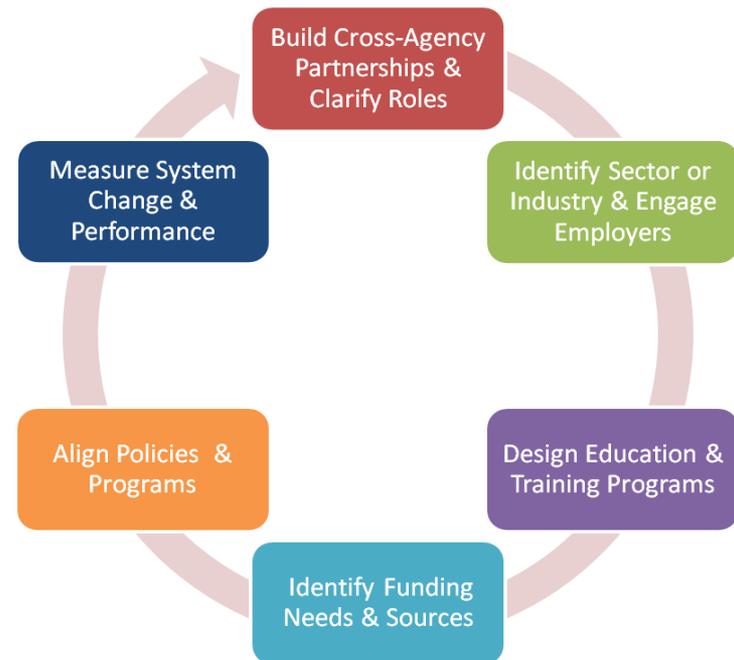
The OVAE Thinks You Need (OVAE, 2010)

- ✚ **Legislation and Policies**
- ✚ **Partnerships among Education, Business, and Other Community Stakeholders**
- ✚ **Sustainable Leadership and Shared Planning**
- ✚ **Rigorous Academic and Technical Standards Aligned with Curriculum and Assessments**
- ✚ **Aligned Secondary and Postsecondary Education Elements**
- ✚ **Credit Transfer Agreements**
- ✚ **Accountability and Evaluation Criteria**
- ✚ **Guidance, Counseling and Advisement**
- ✚ **Professional development**
- ✚ **Innovative Teaching and Learning Strategies**

The DOL Thinks You Need:

◆ Career pathway systems provide a clear sequence of education coursework or training credentials and have the following elements:

1. Build cross-agency *partnerships* & clarify roles
2. Identify industry sector or industry & engage employers
3. Design education & training programs
4. Identify funding needs & sources
5. Align policies & programs
6. Measure system change & performance



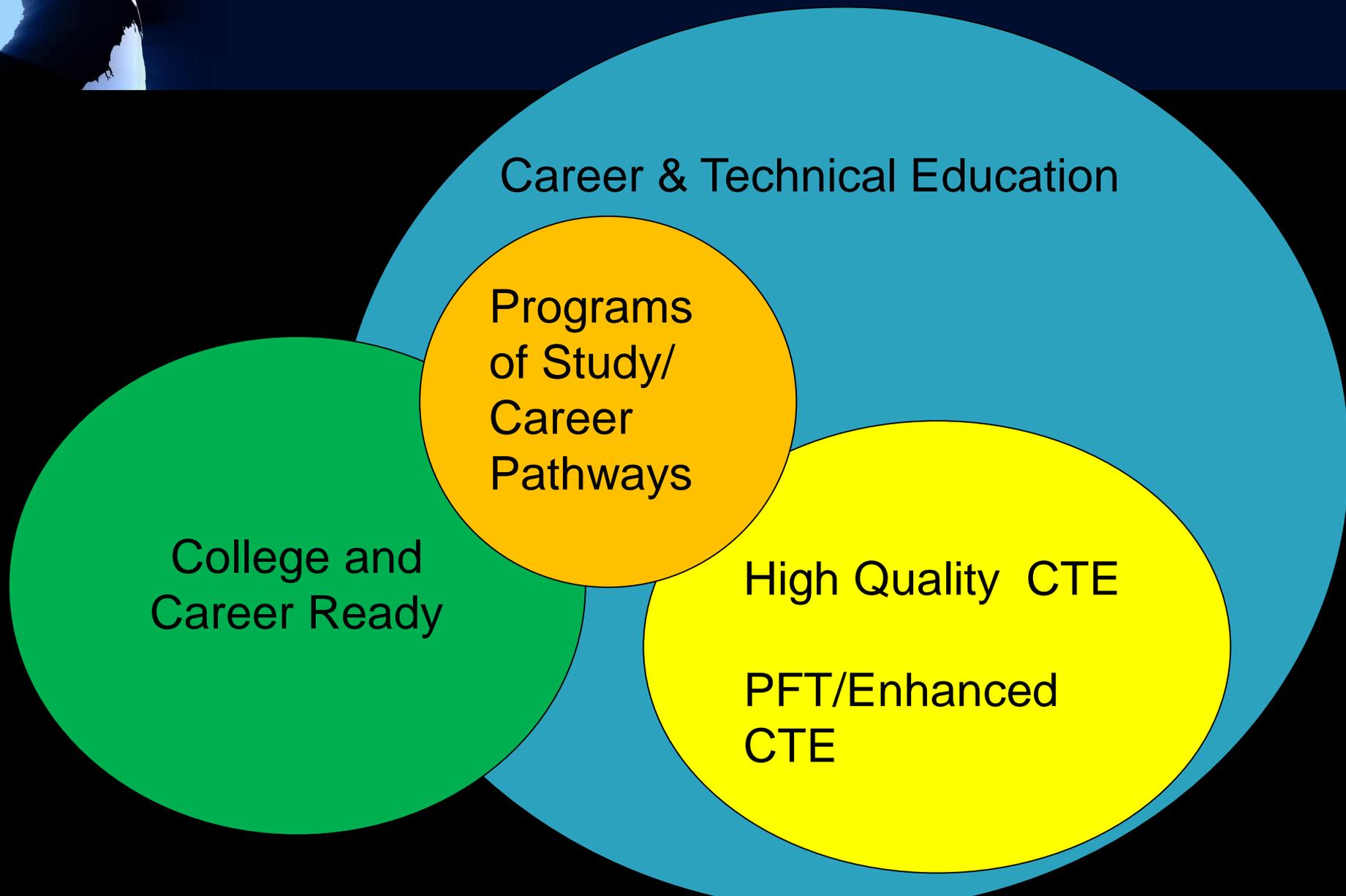
Career Pathway Principles (CLASP, 2013)

- ▼ Adopt and articulate a ***shared vision*** of the career pathway system and a governance
- ▼ Demonstrate ***leadership and commitment*** to institutionalizing career pathways (K-12, Adult Ed, Workforce Agency, CC & Higher Ed)
- ▼ Ensure that career ***pathways are demand-driven***, focus on sectors/occupations, and engages multiple employers within a sector or occupational area
- ▼ ***Align*** policies, measures, and funding
- ▼ Use and promote data and ***continuous improvement strategies*** focusing on continuously improving efforts by measuring participants' interim and ultimate outcomes as well as process indicators.
- ▼ Support robust ***professional development*** for career pathways practitioners and administrators.

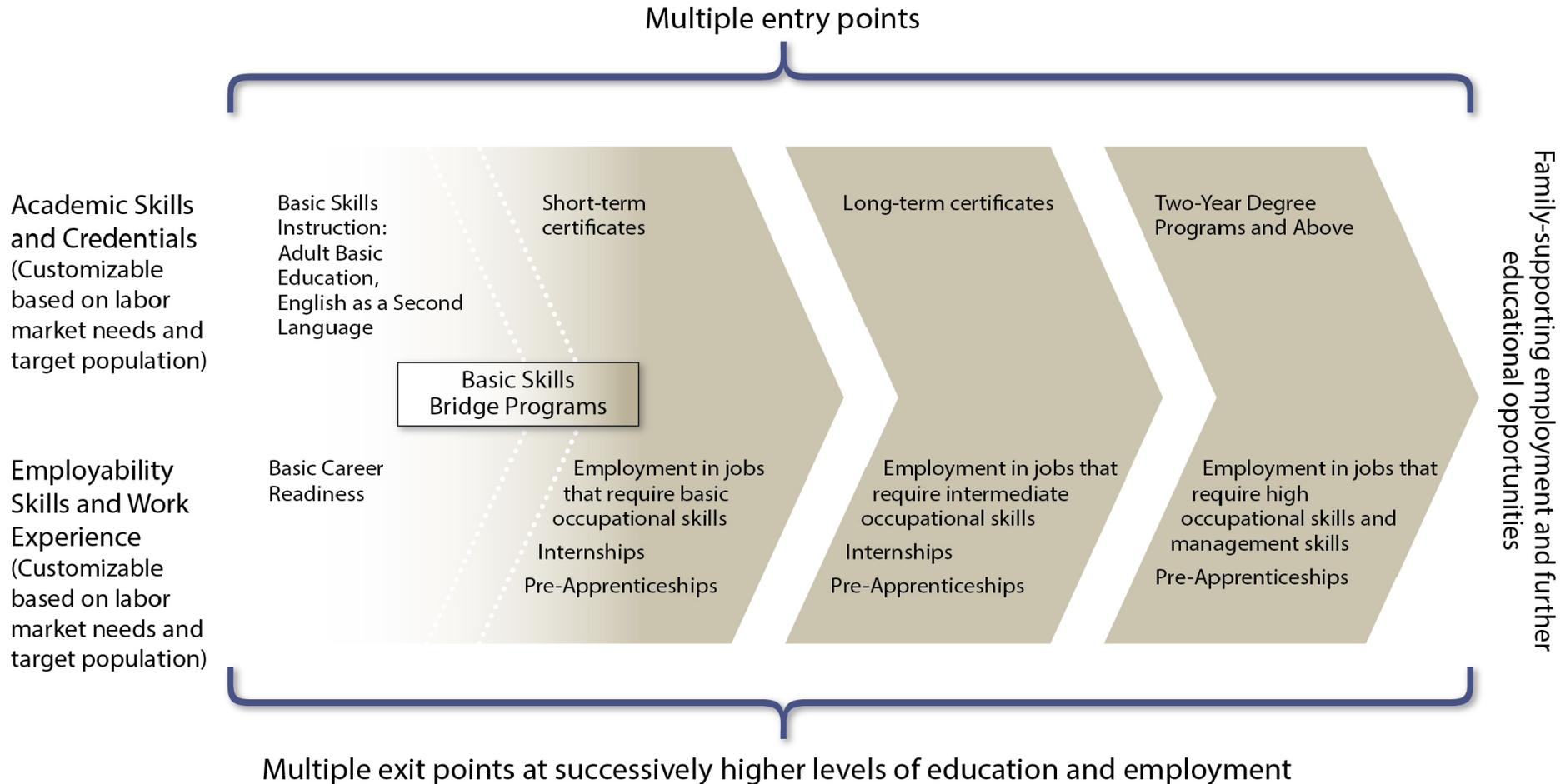
Commonalities: Labor, Education, Private Non-Profit Sector

- Partnerships
- Labor market demand focused balanced with individual focus (career development)
- Alignment – policies, measures, education programs and credentials
- Professional development
- Data driven: continuous improvement & accountability

The conversation today . . .



Build a System Based on Labor Market and Student Needs (CLASP, 2013)



Supportive Services and Navigation Assistance

Build a System: Curriculum & Pedagogy

- Classroom instruction



- Work based learning-
WBL



- CTSOs



- *Project based learning*
- *Contextualized learning*
- *Labs, Shops*
- *PFT/High Quality CTE*
- *Job shadowing*
- *Internships*
- *School-based enterprise*
- *Cooperative education*
- *Apprenticeships*
- *Leadership development*
- *Professional development*
- *Service/social engagement*
- *Competitive events*

Building an Effective POS: Focus on Signature Features

Program of Studies

- Vertical integration; alignment of systems (HS, PS & Industry)
- Partnerships – true partnerships
- Credentialed based career pathways: K-12 - adult

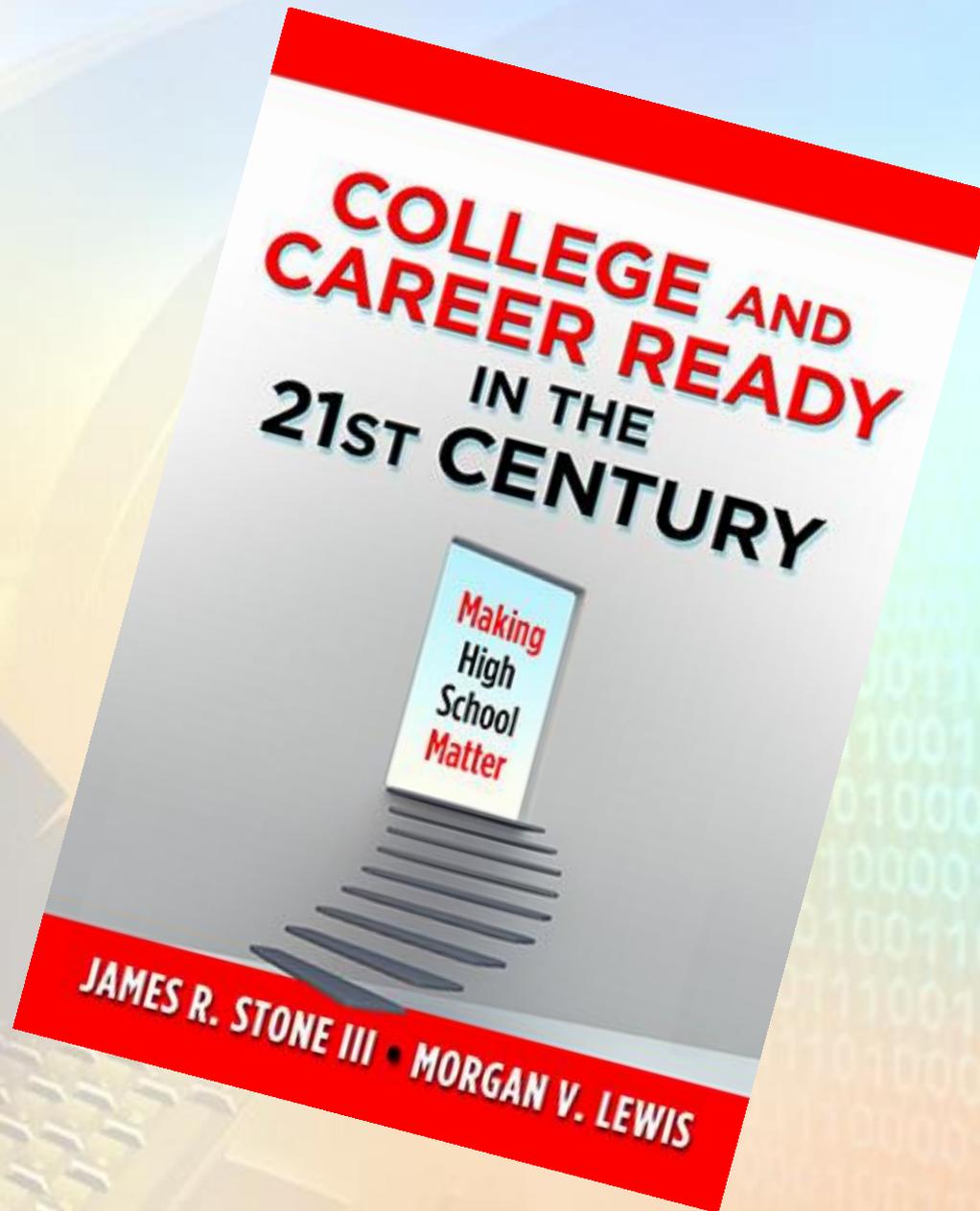
High Quality CTE

- Curriculum derived from industry requirements
- Curriculum delivered through authentic problems/projects
- Embeds related academics & 21st century skills
- Learning occurs in teams
- Highly qualified teachers (PD)
- WBL & CTSO

High school is the last education opportunity paid for wholly by the public. It's purpose has to be to do the best it can to provide all who leave it the foundation necessary to enter, or further prepare for, adult life.

Barton, 2006

Shameless Promotion . . .



If you remember nothing else

- There is no one solution to the challenges or preparing kids for the 21st century workplace in a global market place
- Career development is the keystone to any solution
- Employer engagement is the arch: public, private, non-profit
- A systems approach is required to build the bridge
 - Multiple pathways
 - 3-way integration
 - Vertical/systems
 - Programmatic
 - Curricular
 - Multiple pedagogies are required
 - YOU can make this happen



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