

*Career development:
The Necessary
Prerequisite to College
and Career Readiness.*

James R. Stone III
National Research Center for
CTE at SREB

Analyzing the Career Development Problem

Labor Market
Dynamics

Technology
Impact

30 Years Ed
Reform

If your assumptions about a problem are wrong, then it is very likely your solution will be as well

Career Pathway
Systems

Robust Career
Development

Relevant Programs &
Powerful Pedagogies

A Brief Labor Market National Environmental Scan

*Three Perspectives:
Worse, Worser and
OMG!*



The Next 10 Years-BLS

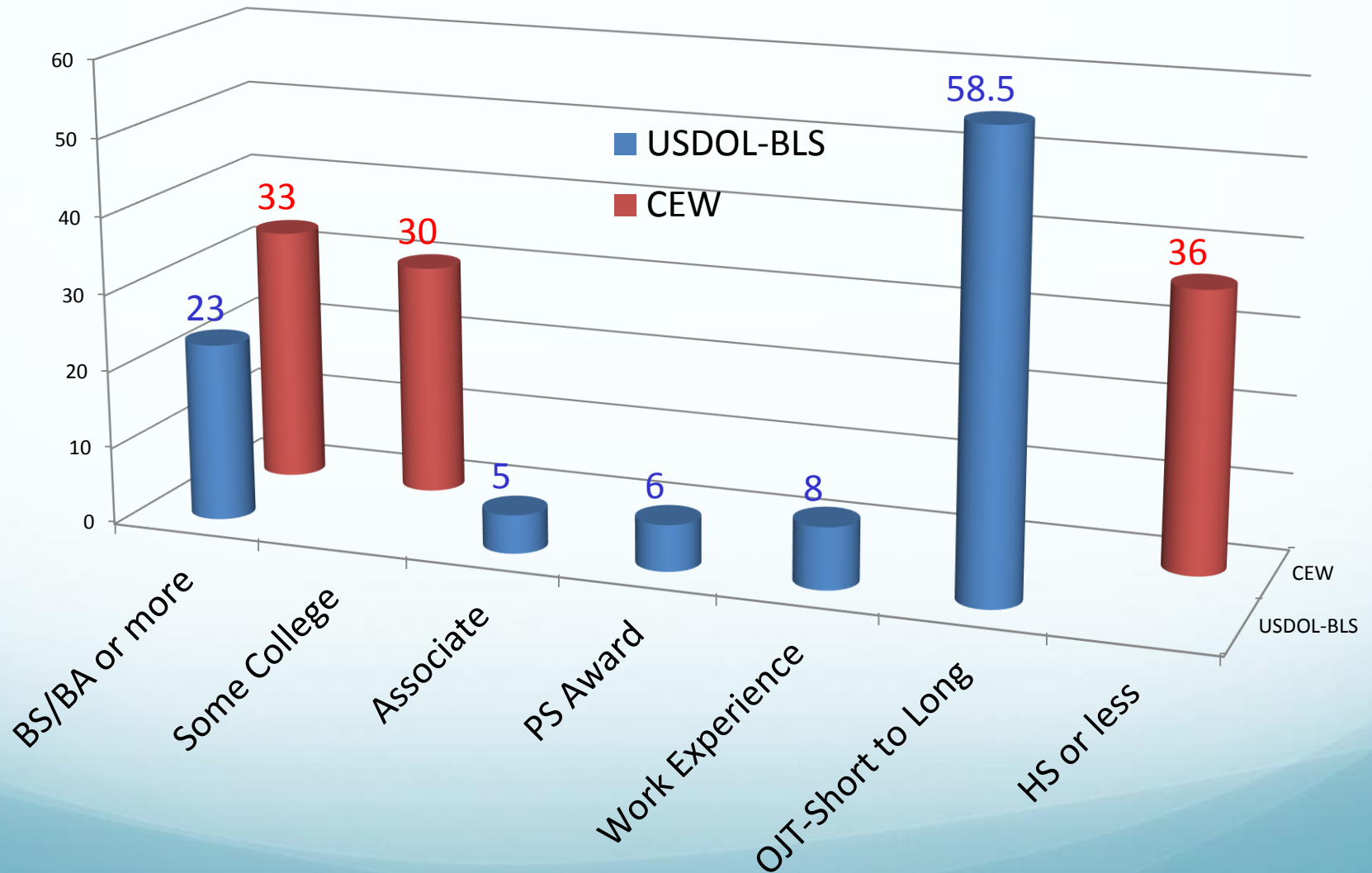
Largest Growth Jobs

1. **Registered Nurse** (+712,000)
2. Retail Sales Person (+707,000)
3. Home Health Aide (+706,000)
4. Personal Care Aide (+607,000)
5. Office Clerks (+490,000)
10. **PS. Teachers** (+306,000)
15. **Elementary Teacher** (+249,000)

Fastest Growth Jobs (%)

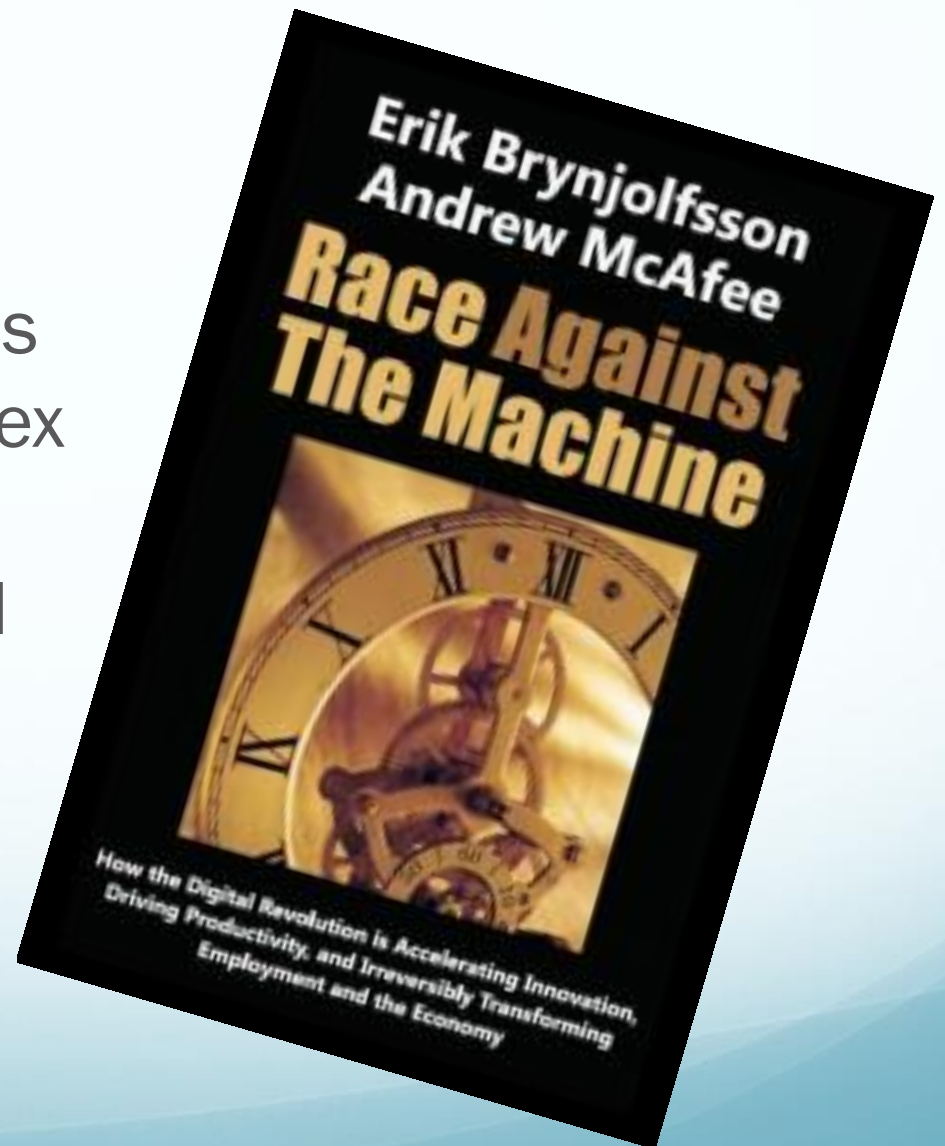
1. Personal Care Aides (+600,000)
2. Home Health Aide (+706,000)
3. **Biomedical Engineer** (+ 9,700)
4. Construction Helpers (+ 17,600)
5. Carpenter's Helpers (+ 25,900)
6. **VetTech** (+ 41,7000)
8. **Physical Therapist Asst** (+45,7000)

Education and Future Work: BLS & CEW



An Evolving Disrupter

- Computers now exhibit human-like capabilities not just in games such as chess, but also in complex communication such as linguistic translation and speech
- (Think Siri)
- Jobs vs. Work



Technology's Impact on Jobs

(The Machines are Winning?)

The Google car(truck?)

IBM Watson (+240%)

Deep Blue

The "Square"

Text readers/ Pattern recognition (goodbye legions of lawyers-only 60% accurate)

Automated 'call centers' (goodbye India)

Firefly removes kidneys

Amazon Drone Delivery





STEMania – it's sweeping the nation!

B Metropolitan Policy Program
at BROOKINGS



Job openings for STEM positions take longer to fill than openings in other fields.

If STEM Jobs are so hard to fill:

Most with bachelor's degrees in science, technology and math don't get STEM jobs.

Amid a U.S. push to get more students interested in science, technology and math, often called STEM, the Census Bureau reported Thursday that 74% of those with a bachelor's degree in these subjects don't work in STEM jobs.

(Census Report: July 14, 2014)

Engineering majors and majors in Computer, Math and Statistics	50%
Physical Science	26%
Psychology	10%
Social Science	7%

We've been here before...
Remember Sputnik?

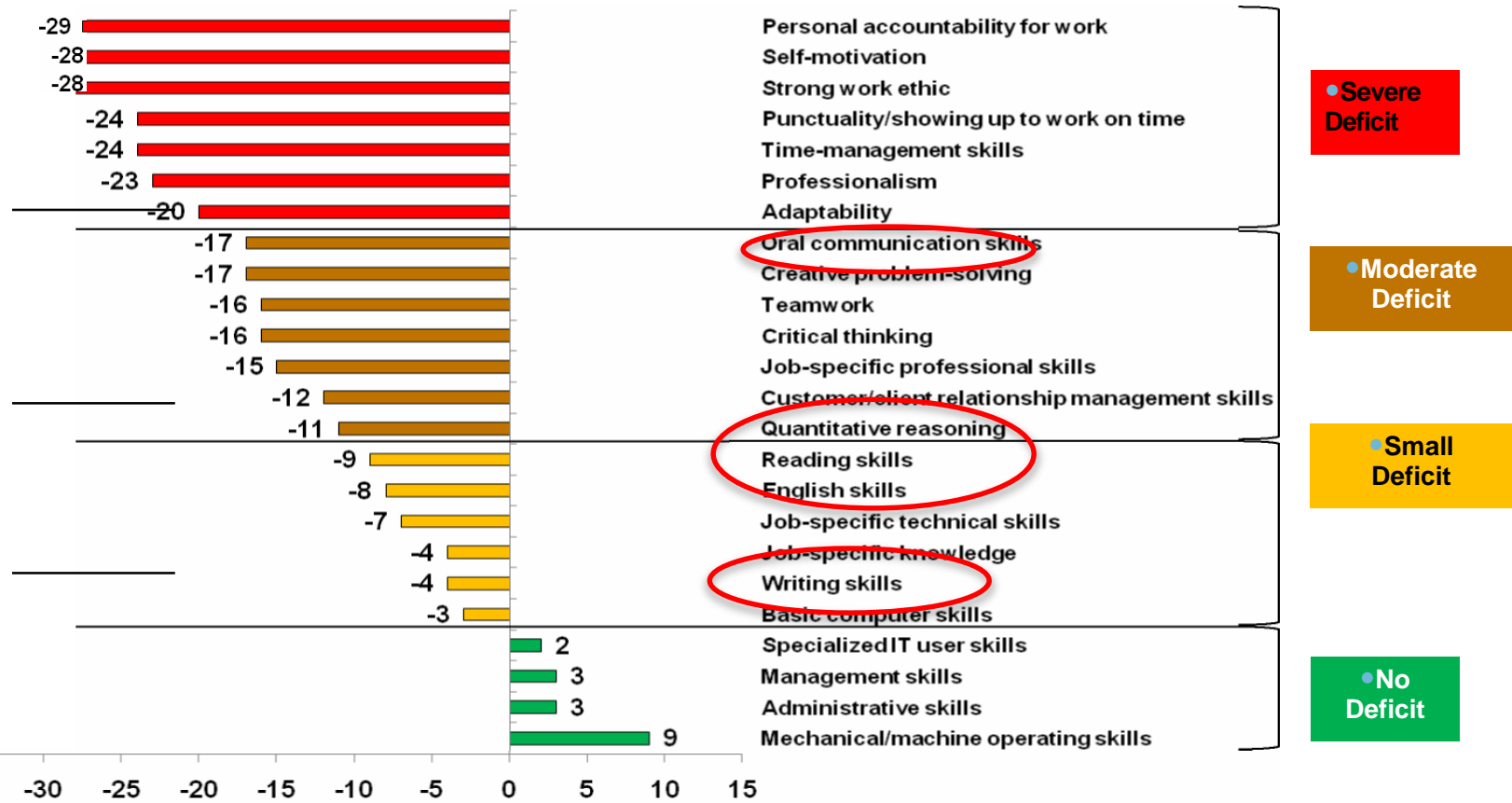


The Real Skills Gap

Business Roundtable Survey 2009



• **Gap Between Importance of Skill & Workers' Current Skill Level (As Perceived By Employers)**



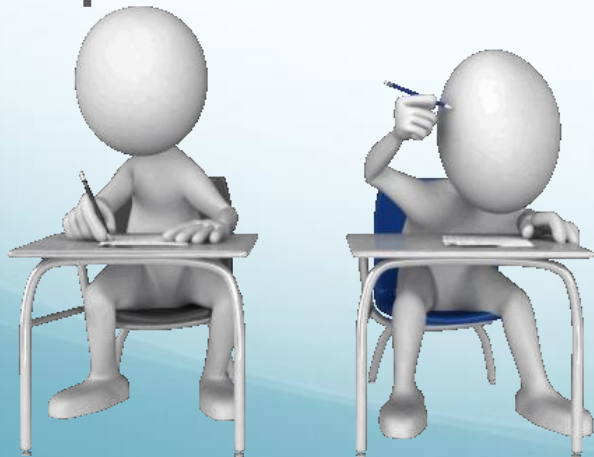
• Q17: You are going to see a list of skills and attributes that employees could have. Please rank how important each skill or attribute is for your employees to have right now using a 7 point scale. Q18: Indicate the level of your current employees' skills overall, for each of the following skills, using a 7 point scale. (Showing difference between 6+7s)

Solution?

Pile on more academics

Since the mid-1980s we have:

Added the equivalent of *one full year* of core academics (math, science, language arts) to high school graduation requirements.



- (NAEP) *Reading scores have not improved or significantly declined**
- (NAEP) *Science scores have not improved or significantly declined**
- (NAEP) *math scores have remained relatively unchanged*

*Depends on the starting and ending timeframe

Are you Literate?



Water-there is not a drop of water to spare!



His education was not yet completed

EMOJI DICK; OR THE WHALE

By Herman Melville Edited and Compiled by Fred

Benenson Translation by Amazon Mechanical Turk, 2010

**Mfg tell us
most adults
cannot pass
a 4th grade
math test**



Taking more math is no guarantee

(ACT College Ready Math=22)

- Only 26% of students who took Alg I, II & Geometry scored a **22** (ACT Benchmark for CCR) on the ACT exam. ($X=17.7$)¹
- Adding Trig increases to the average score to 19.9; **37% are CCR**¹
- Not until calculus is added, does the average score exceed 22; **55% are CCR** – 5 years of high school math.
- 43% of ACT-tested Class of 2005¹ who earned A or B grades in Algebra II did not meet ACT College Readiness Benchmarks in math²

1. ACT, Inc (2004) *Crisis at the Core*

2. ACT, Inc. (2007) *Rigor at Risk*.

Math for College & Career Readiness

NCEE, 2013

- Math needed is **mostly middle school**
- Alg II is not a prerequisite for CC success or most careers
- College **reading requires 11th/12th grade skills**
- Students enter CC weak in needed math and reading skills

NRCCTE, 2013

- Math associated with an ACT score of 22 is **mostly middle school math**, Algebra I and some geometry.
- Math associated with **middle skill job employment tests is higher** than that required for an ACT score of 22 but still found in middle school math, Algebra I and some geometry

Rhetoric

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.

2012

161,000,000

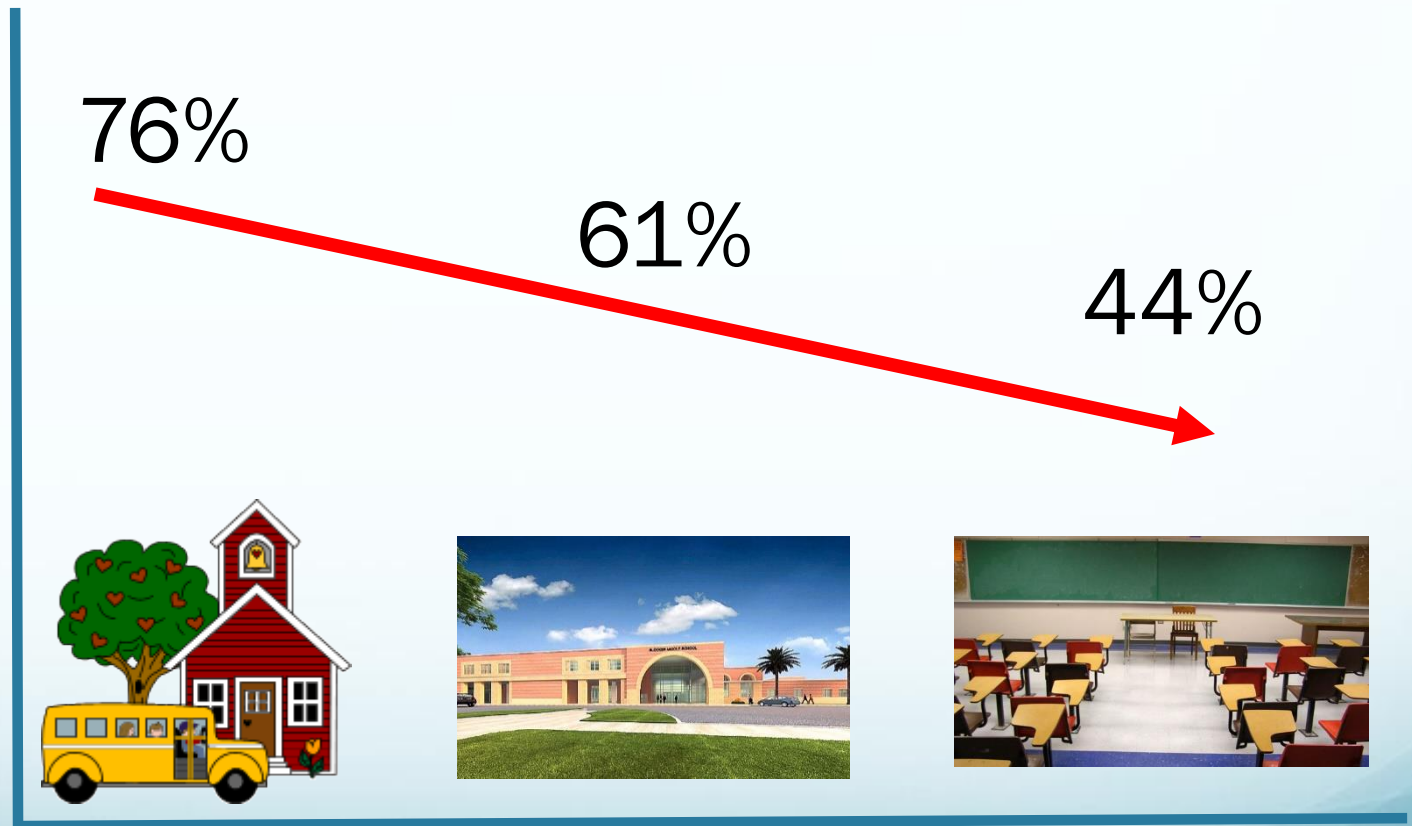
McKinsey Global Institute,

But: The Condition of Counseling

Recent reports document the challenge of providing adequate guidance and counseling to students in American high schools. The American School Counselor Association's data show the *average counselor is responsible for 471 students*. In California, the caseload is *1,016*. Budget cuts in public school funding portend future increases in caseloads (Hechinger Report, 2013).

These reports speak only to traditional counselors whose role tends to be focused on moving students to college. *In the best of times, career counseling has taken a back seat to college counseling.*

While test scores remain flat, Student **Engagement** plummets



Brandon Busted, Executive Director of Gallup Education
Presentation at the NASDCTEc October 21, 2014



Drop Outs? Better, but

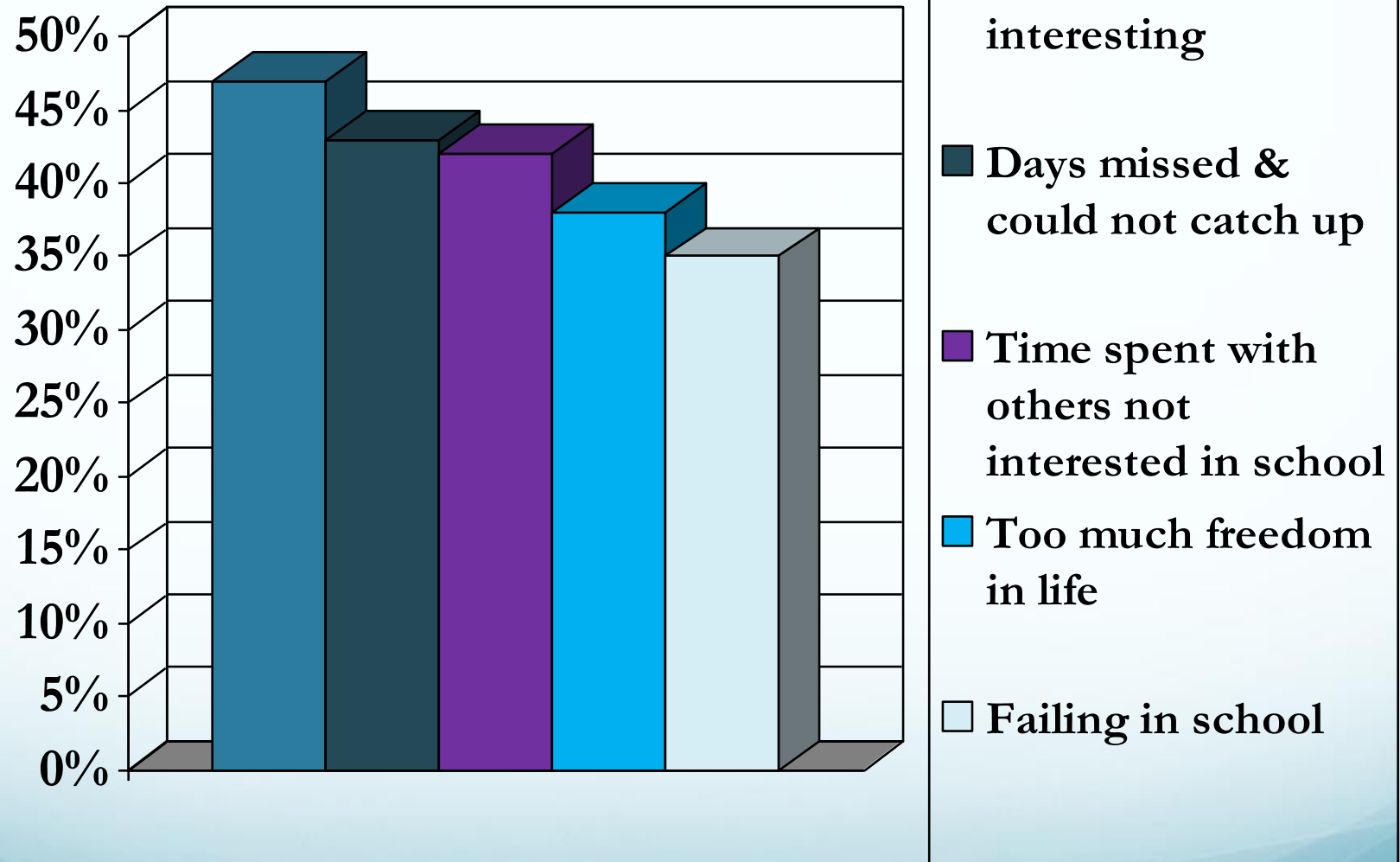
High school graduation in the US is at an all time high....

- about 80%;
- girls 84%, boys 77%.
- Minority and low income youth doing a bit better.
- That's the good news. But...

There is persistent problem with certain groups of youth who are still lagging way behind:

- urban youth,
- native American youth,
- youth from low income families, English Language Learners,
- and a disproportionate number of young males who are not graduating or participating in post secondary programs
- 69% of Blacks graduating;
- 73% Hispanic;
- 86% White; 33% of ELL in Louisiana and 24% in Arizona

Why they leave



Source: The silent epidemic: Perspectives of high school drop outs (2006)
by Civic Enterprises at www.civicerprises.net

Unintended Consequences:

More high school math, science linked to more dropouts

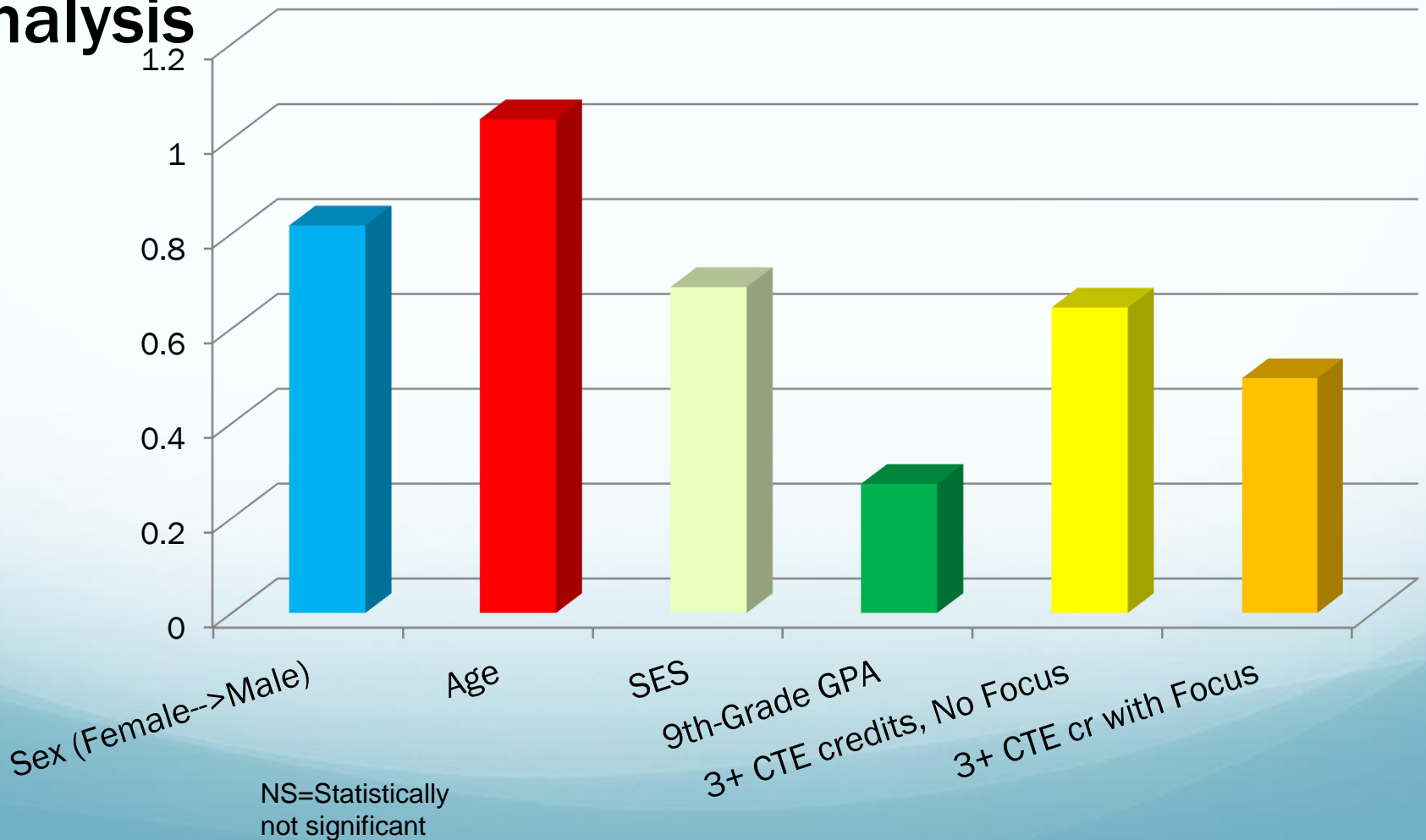
As math and science requirements for high school graduation have become more rigorous, dropout rates across the United States have risen, The tougher requirements appear to have had a major effect on high school graduation rates of Hispanic and African-American males.

Plunk AD, Tate WF, Bierut LJ, Gruzca RA. Intended and unintended effects of state-mandated high school science and mathematics course graduation requirements on educational attainment. *Educational Researcher*, vol. 43(5), June/July 2014



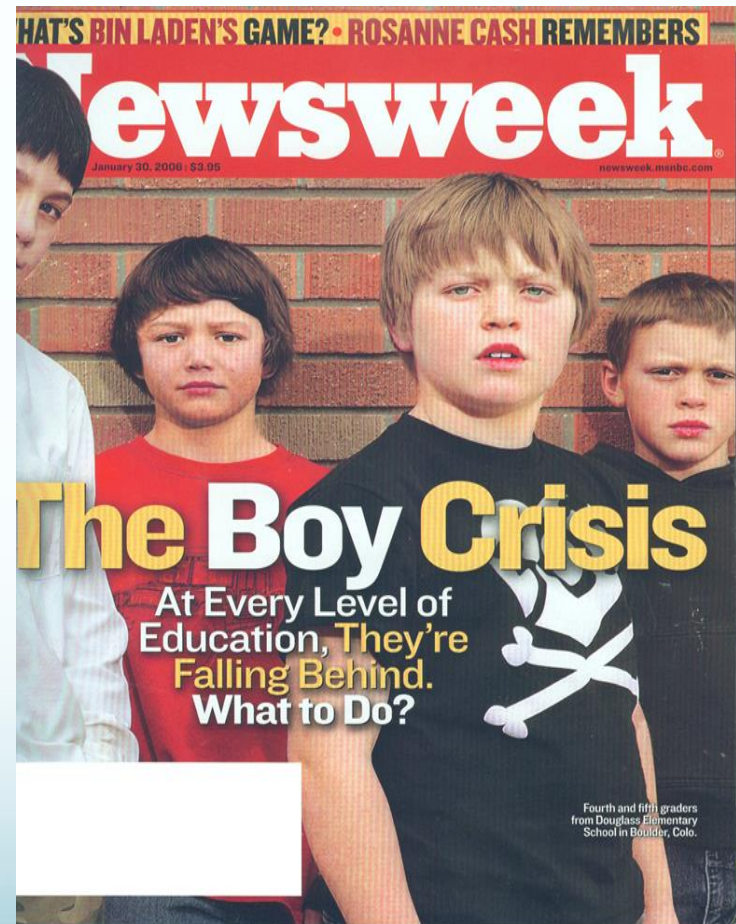
CTE Keeps Kids in School

A Survival Analysis



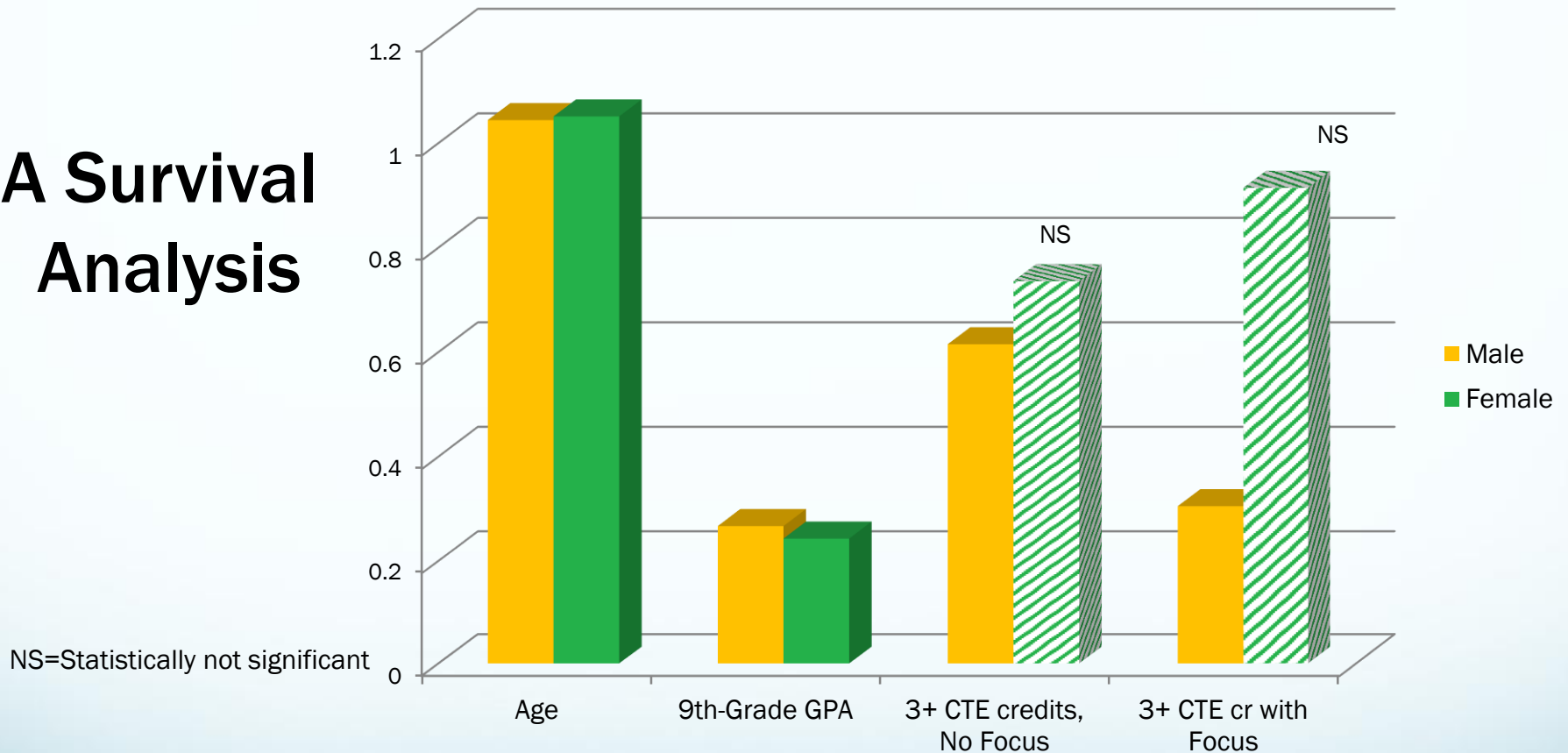
We have a 'boy' problem

- ❑ By 12th grade, male reading scores are below females'
- ❑ 11th grade boys write at an 8th grade girl level
- ❑ Boys advantage in math and science is nearly gone.
- ❑ Boys are more likely to have discipline problems
- ❑ Boys account for $\frac{3}{4}$ all D's and F's
- ❑ Fewer boys than girls finish high school, start and finish college, start & finish grad school (Brooks, 2012)



Engagement: 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”

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.*

Why is this important?

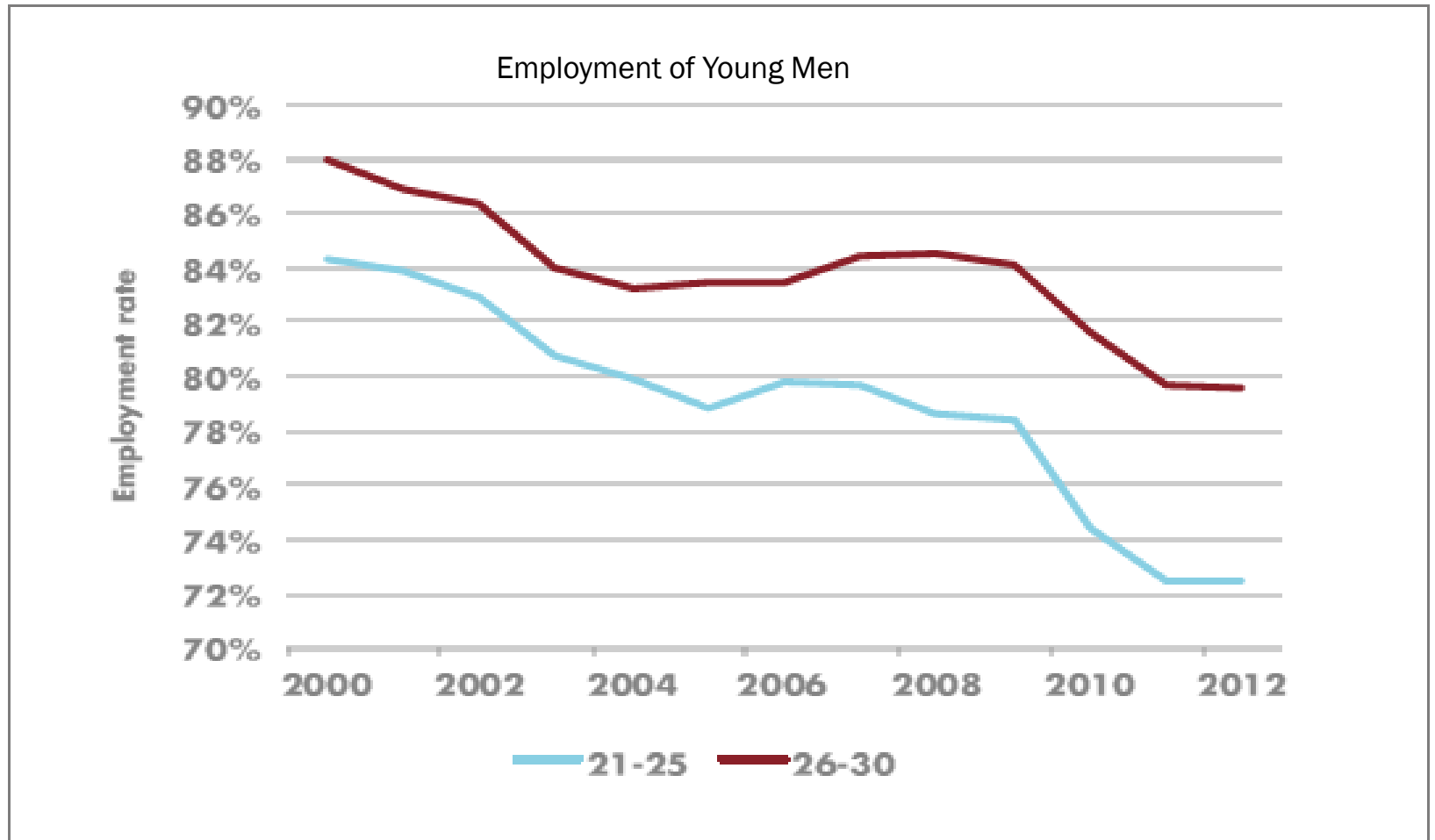
- Lower lifetime earning
- Increased risk they will never engage in sustained full-time employment
- 6.1 million NEETs in the U.S. = \$100 billion annual cost to U.S. taxpayers
- There are the social & emotional costs that are beyond dollars
- Higher risk of social conflict...look to Spain

81% of dropouts said “real world learning” may have influenced them to stay in school

Bridgeland, et al - Gates Foundation Report, 2005

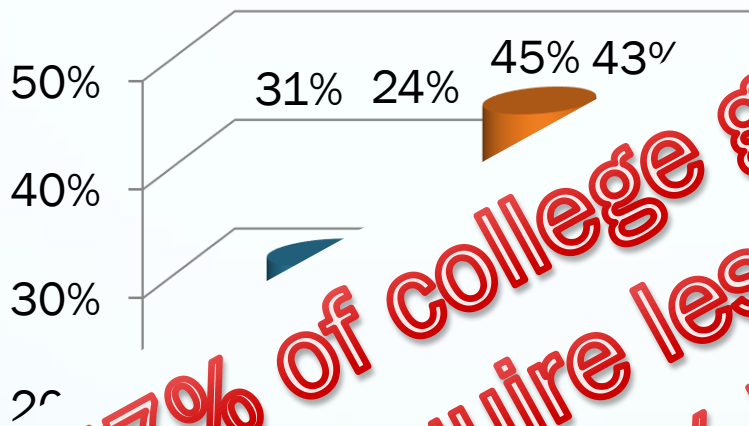


LABOR MARKET CONSEQUENCES

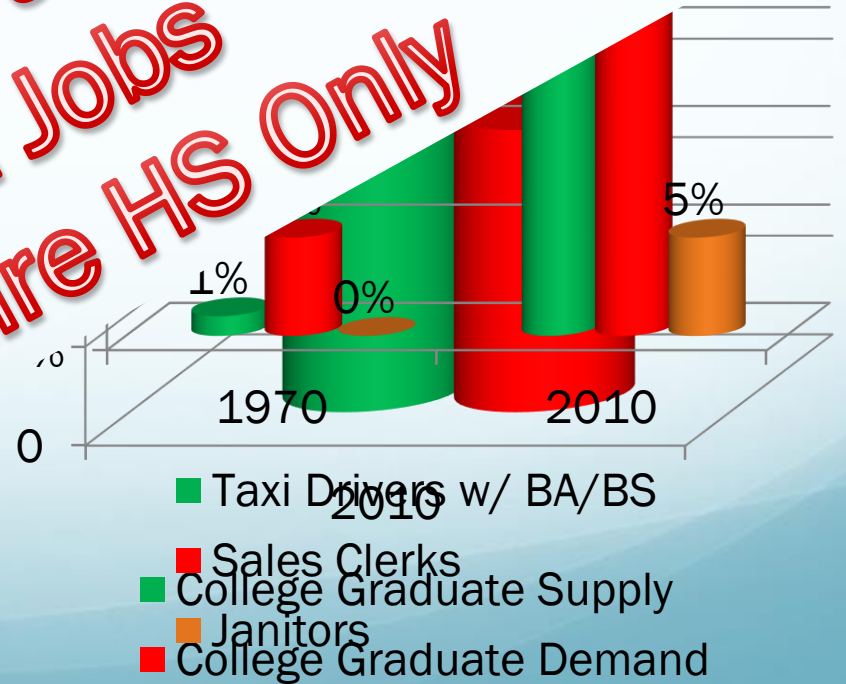


More Consequences

Credential Growth

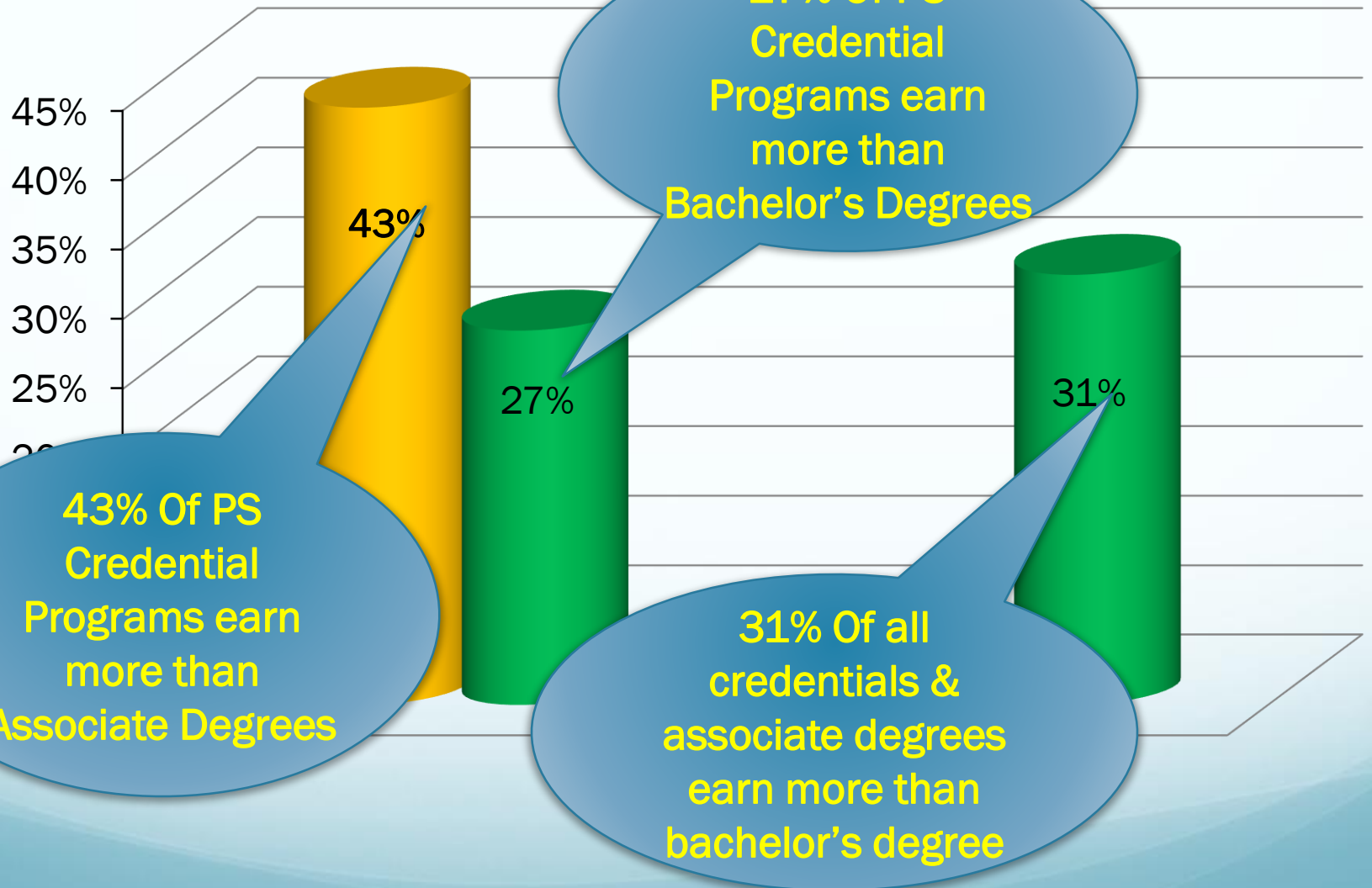


47% of college grads in jobs that require less than BA/BS;
37% in jobs that require HS Only



100

Middle Skill - Credentials Pay Off



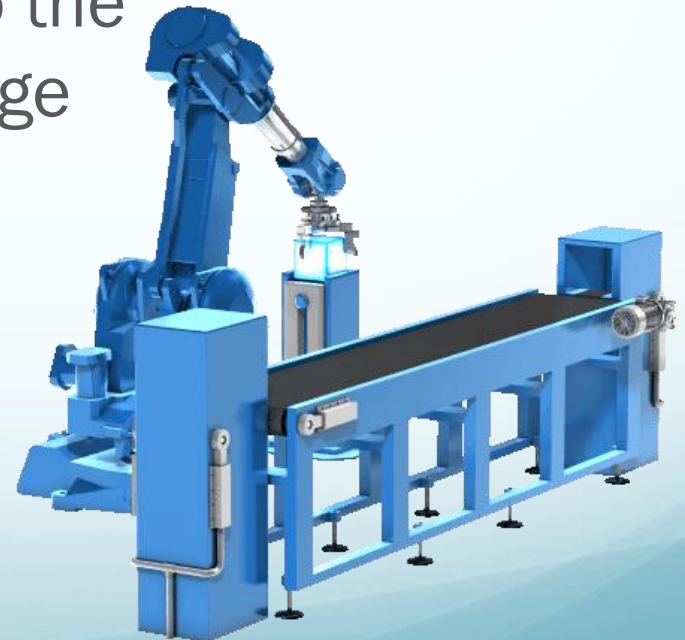
43% Of PS Credential Programs earn more than Associate Degrees

27% Of PS Credential Programs earn more than Bachelor's Degrees

31% Of all credentials & associate degrees earn more than bachelor's degree

Middle Skill Jobs: Another Way of Winning

47% of all new job openings from 2010 to 2020 will fall into the middle-skill range



Source: Harvard Business Review, 2012/12,
Who Can Fix the “Middle Skills” Gap?



More high schools teach manufacturing skills



[Paul Davidson](#), USA TODAY 7:02 a.m. EST November 12, 2014

The training targets a glaring imbalance in the labor market. Since bottoming out in February 2010, employment at U.S. factories has risen by 700,000 to 12.1 million, recouping about 30% of the jobs the industry lost in the downturn.

Manufacturers are increasingly looking to high schools and community colleges to fill current staffing needs and gear up for a wave of Baby Boomer retirements.



Research Points Toward . . . Change



- Systems change
- Program change
- Pedagogy change

A career pathway systems approach to the future



Multiple Ways of Winning

Building High Quality CCR SYSTEM

Systems

- Robust Partnerships: K-12, PS, B&I built on K-adult career development

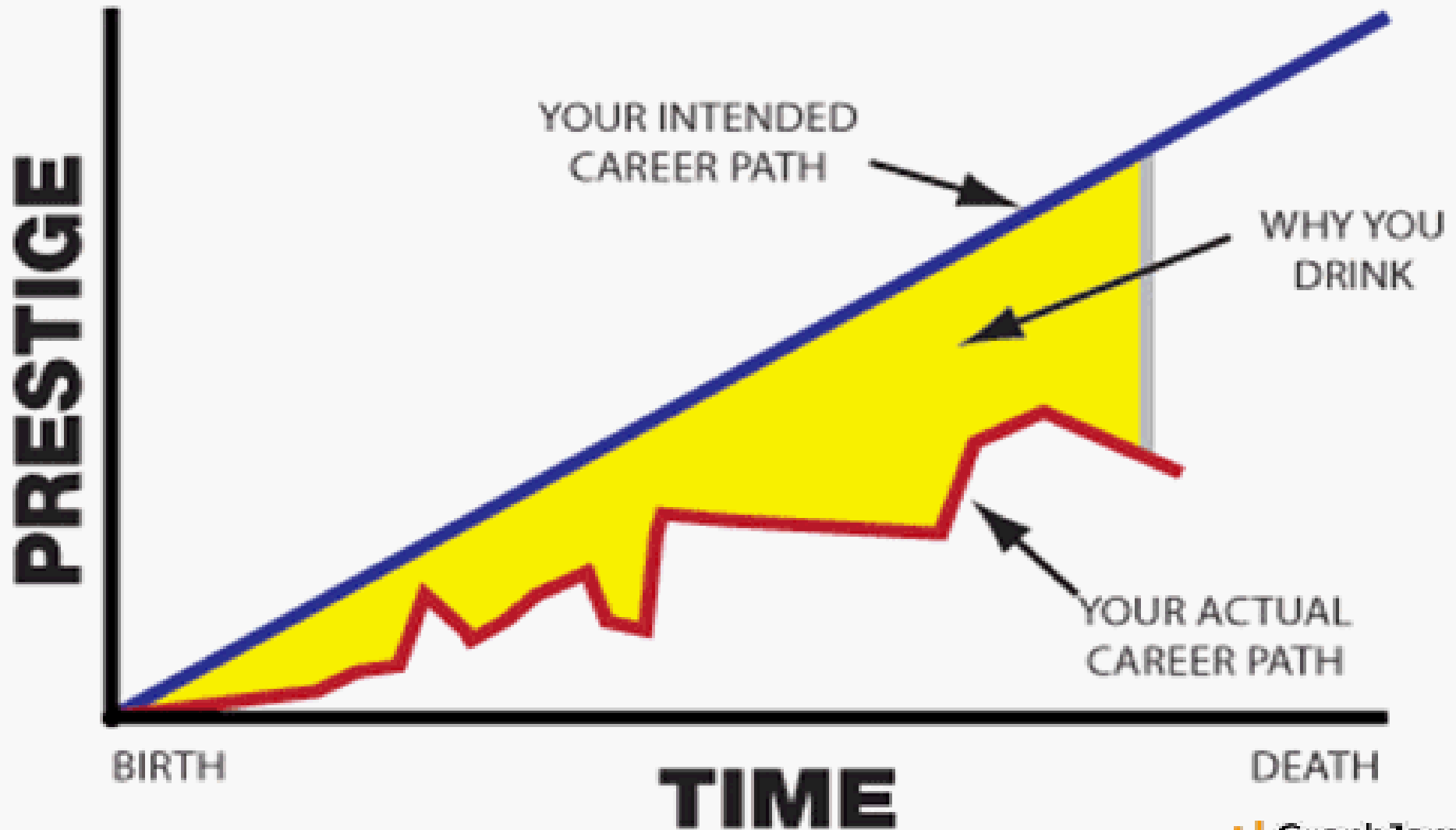
Program

- High Quality CTE, *Advanced Career, SREB Readiness Courses*

Pedagogy

- *Teaching to Lead, PBL for CTE, Math-in-CTE, LDC, MDC, Science-in-CTE, Work-based learning*

A Compelling Argument for Career Development



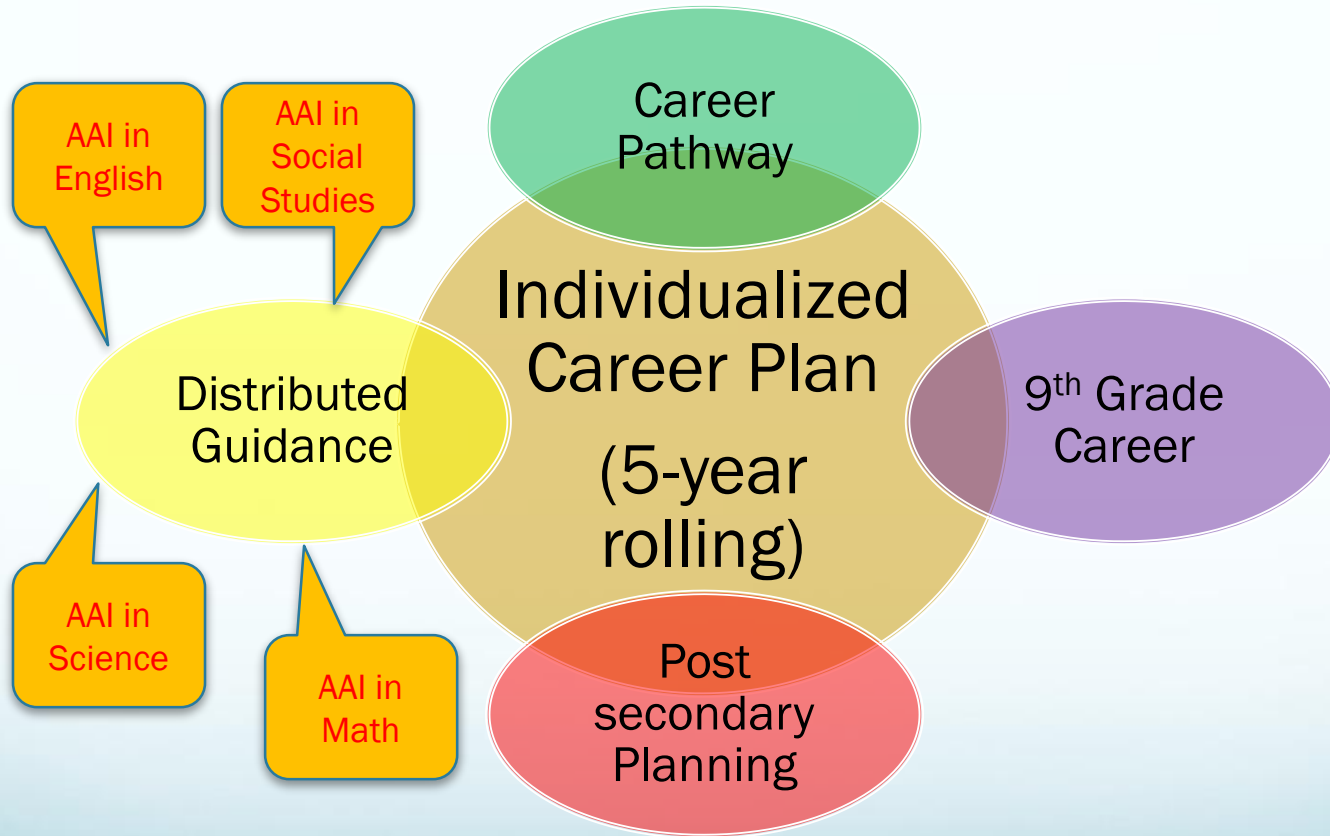
Goals of Career Development

- *Identify own talents, strengths and weaknesses*, family expectations and national requirements to sort out the personal relevance of the educational and vocational options available;
- *Understand the available education and training options* and the requirements for admission and success, and select an appropriate field of study;
- *Understand the work options* that are available, the qualifications required, the means of gaining entry, the life of the worker and the rewards of the jobs;
- Translate information about self, educational opportunities and the world of work into *short-range and long-range career goals*;
- Learn effective *job-search* procedures;
- Develop *career adaptability* to be able to take advantage of opportunities as they occur;
- Overcome self-defeating behaviors, gain *self-confidence* and learn life skills;
- *Cope* with the reactions to job loss of anger, depression, frustration and apathy, and learn to take continuing positive action to become employed again;
- *Identify alternative occupations* when current employment is in jeopardy.

Effective CCR Requires a Career Development Framework



Individualized Learning Plan for Career Pathways



Distributed Guidance

Health Career Pathway

ELA: Write a paper explaining infection control practices and procedures documenting examples of when safety protocols were violated.

Science: Conduct a study of local health care facilities to determine how medical waste is disposed.

Social Studies: Study the impact of war-time medical care on the advancement of medical techniques.

Math: Compute the number of calories in the school lunch and then calculate how long a person would have to walk to burn off those calories to maintain body weight

Career Development: Middle School

1. Identify and demonstrate their abilities, strengths, skills, and talents.
2. Identify sources of outside pressure and demonstrate the ability to handle it.
3. Demonstrate the ability to resolve conflicts and negotiate acceptable solutions.
4. Recognize that they are growing and changing and that growth and change will affect their careers throughout their lives.
5. Recognize that they will have many life roles and that these will be connected to their lifestyle.

Source: National Career Development Guidelines

Middle School Career Development

6. Recognize that their educational performance is important for reaching their goals and, if necessary, use strategies to improve it.
7. Identify short-term and long-term goals, including those related to their education, career options, and lifestyle.
8. Make decisions in a systematic way, including identifying options and potential consequences.
9. Recognize the need to compromise in making some decisions.
10. Use career information resources to evaluate their goals and help with their plans.

A Developmental Approach to Work-based Learning

WBL Approach

- *Job shadowing (Cross Curricular)*
- *Unpaid Internships (short)*
- *School-based enterprise*
- *Cooperative education or*
- *Paid Internships (extended)*
- *Apprenticeships (intensive)*

- *Service Learning*

Potential Learning

- All aspects of an industry-curriculum integration
- Relevance of academics
- SCANS/21st Century Skills
- Skills leading to industry certifications
- Career development

- ***Developmental***
- ***Increasing intensity***
- ***Linked to industry recognized credentials***

The Role of Counselors in:

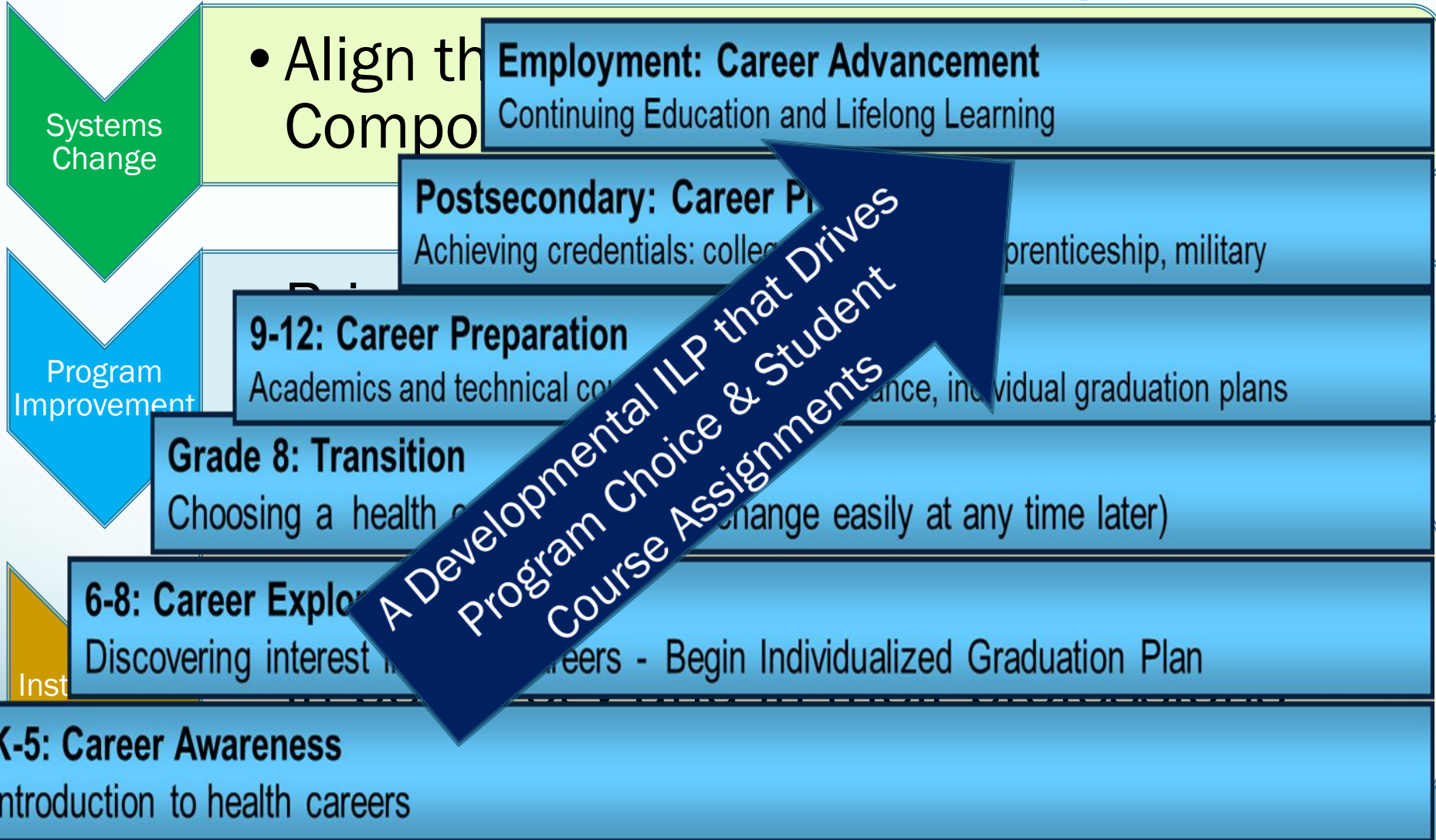
High Impact High Schools*

- Focus on preparing students for college and career success
- Emphasize learning
- ***Counselors are members of the academic team***
- ***Counselors meet with rising 8th graders individually***
- Businesses & college and college partnerships emphasize postsecondary opportunities
- Partnerships provide hands on experience with local businesses

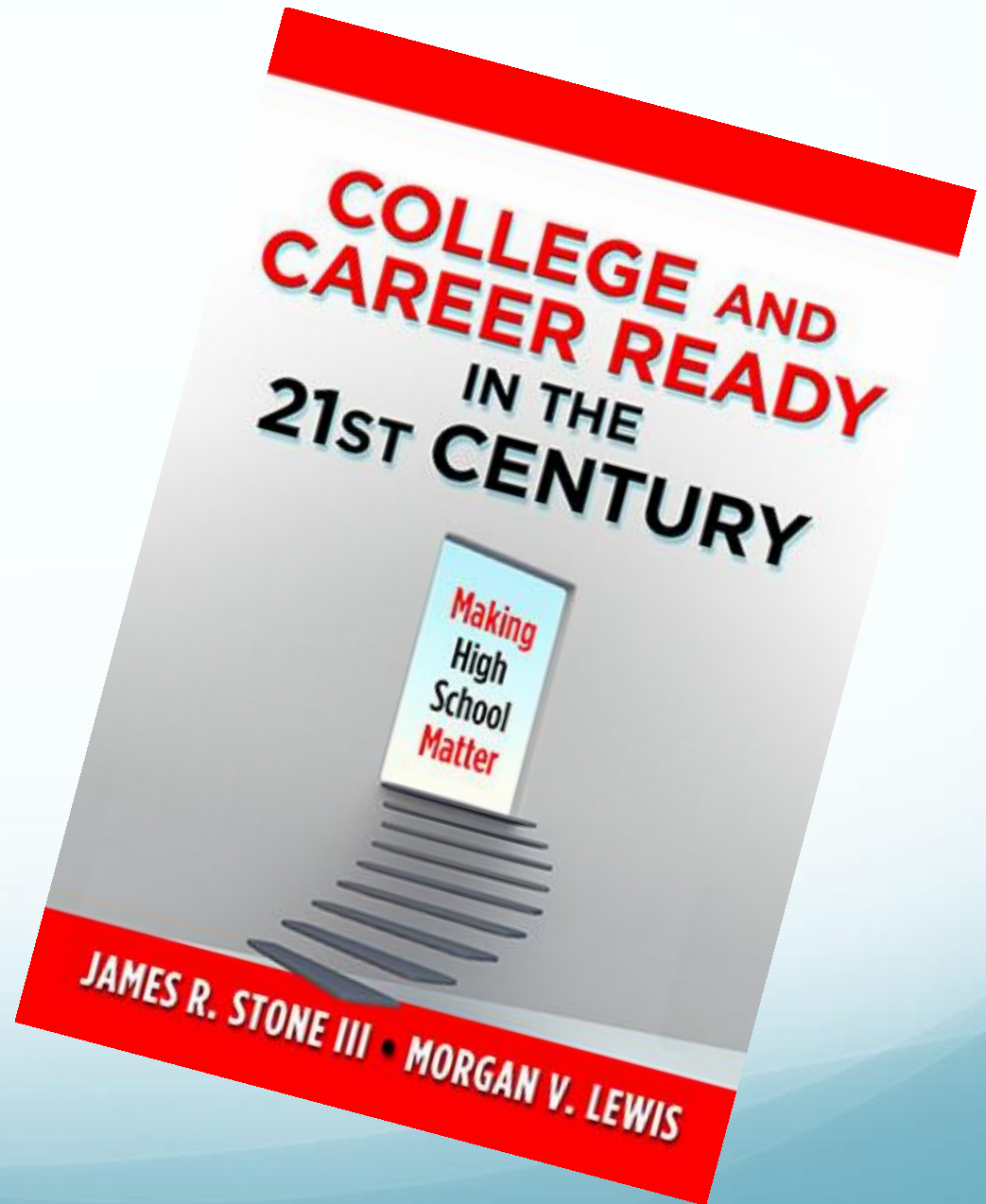
Low Impact High Schools

- Focus on graduation
- Emphasize rules
- *Counselors get involved through referrals*
- *Counselors rarely do this*
- Businesses & college and college partnerships emphasize dropout & drug abuse prevention.

Conclude Where I Began



**Shameless
Promotion:
Book
Signing
Friday
10:15**



**VISIT OUR BOOTH, OUR WEBSITE
OR SEND ME A NOTE**



www.nrccte.org



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