Why Auto Mechanics Matters:

Understanding College and Career Readiness

Presenters:

Jean-Claude Brizard
President, UpSpring Education Group

John Chadwick, AIA
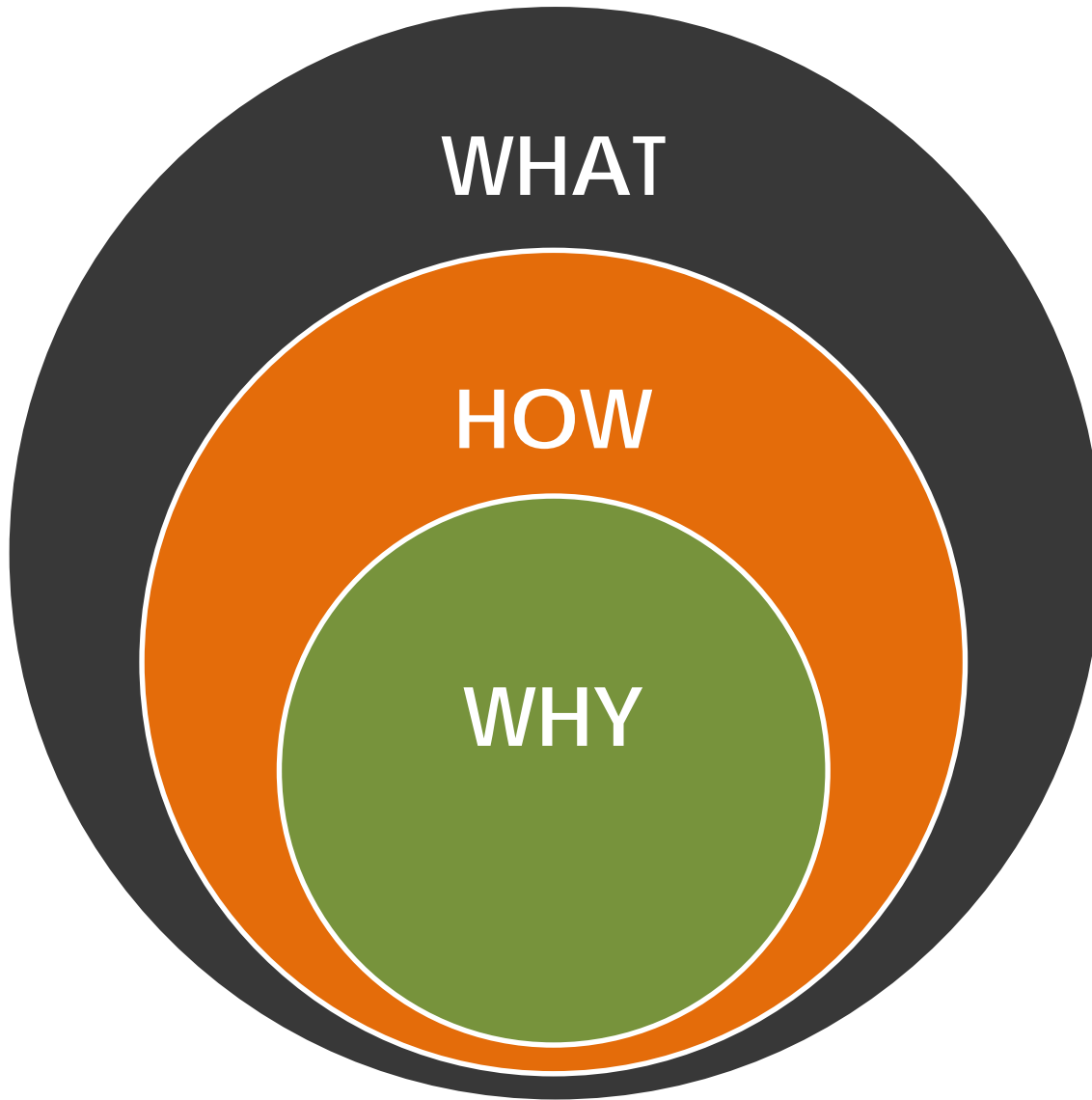Assistant Supt., Arlington Public Schools, VA

Derk Jeffrey, AIA
Senior Principal, Stantec Architecture

Council of Educational Facility Planners, International

Portland, Oregon

October 5, 2014

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WHAT

HOW

WHY

- Products / Services

- Processes / Value Proposition

- Causes / Motivation

Source: "The Golden Circle," Simon Sinek, Author, *Start with Why*

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Discussion Outline

1   **Ready, or Not?**

2   **"Readiness" Writ Large**

**3**   **Design as Catalyst**

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Ready, or Not?

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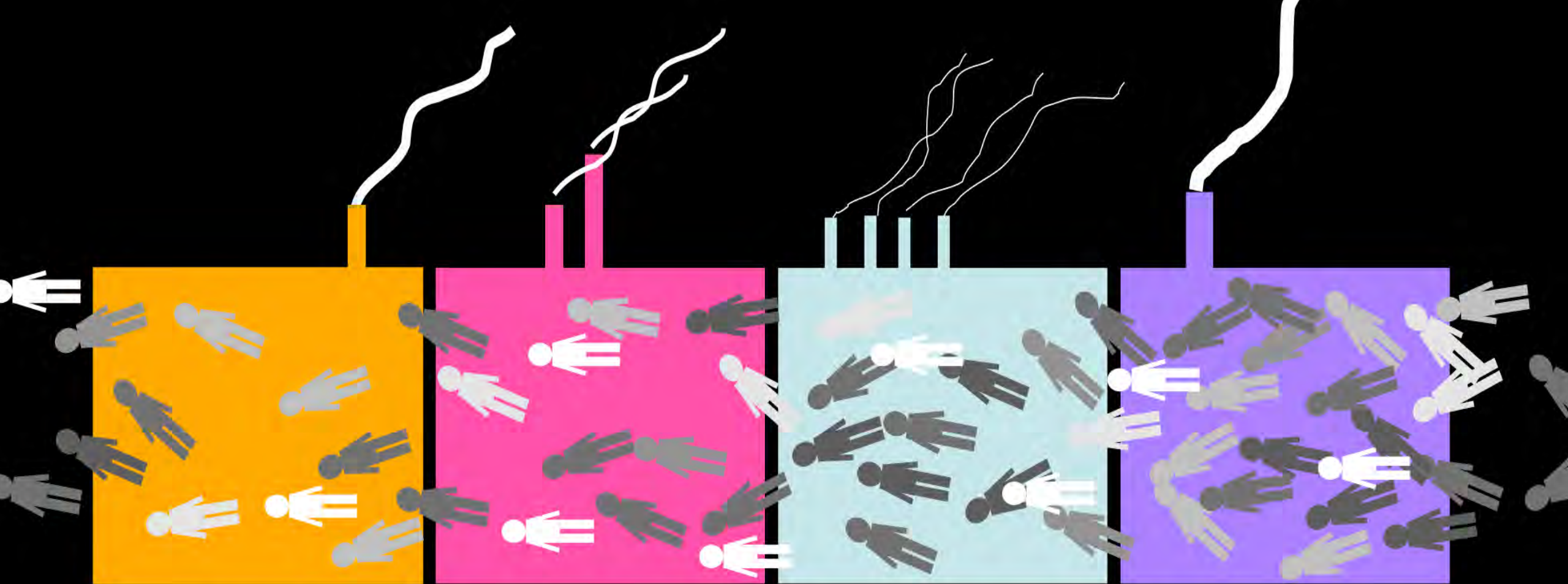
"Our high schools are obsolete --- they were designed 50 years ago to meet the needs of another age. Today, even when they work exactly as designed, our high schools cannot teach our kids what they need to know."

-Bill Gates

February 2005, National Summit on High Schools

- Teacher-centered instruction

- Comprehensive offerings

- Organized by departments

- Classrooms: 1 teacher, 25 students, 1 subject/1 hour
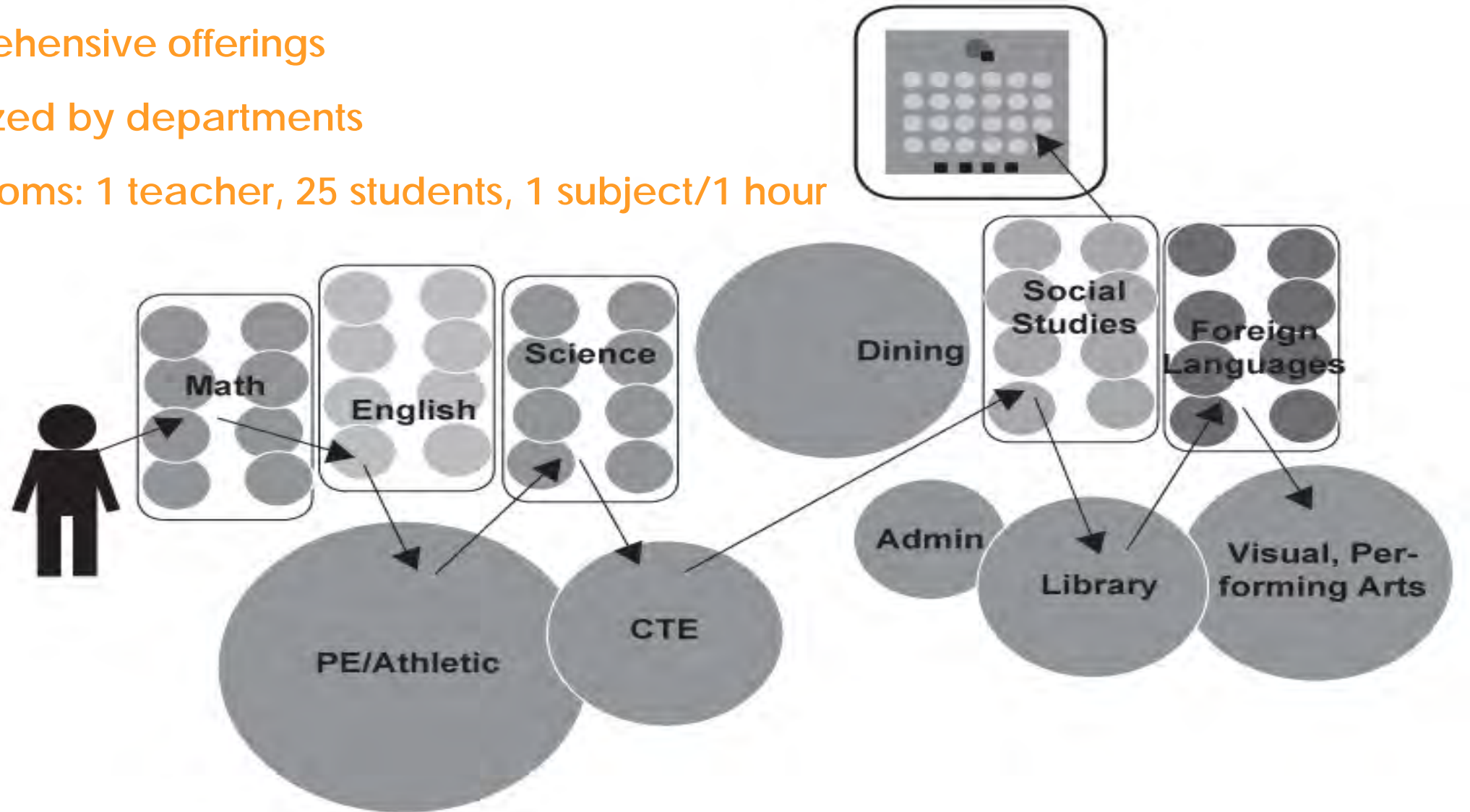
Absolutes | Artifacts

The Blank Stare of Disengagement

"...Anyone? Anyone?..."
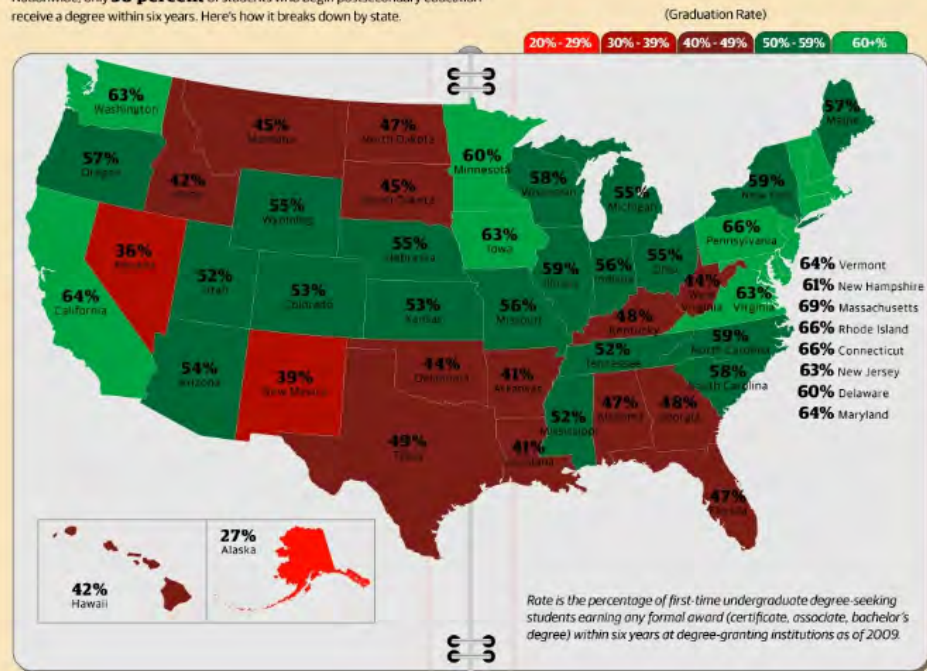
Source: "Ferris Bueller's Day Off," 1986

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THE UNPREPARED NATION: College Readiness Today

Many of today's high school students are graduating without the skills or knowledge necessary to succeed in college. As a result, many require remediation or drop out of college. We explore how unprepared U.S. students really are, and discuss the implications.

Dropout Nation

Nationwide, only **56 percent** of students who begin postsecondary education receive a degree within six years. Here's how it breaks down by state.
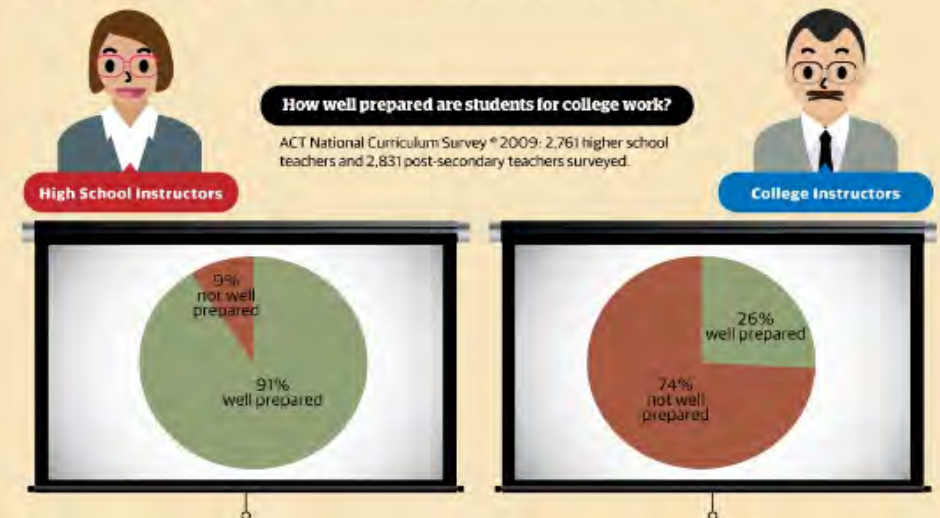
(Graduation Rate)
20% - 29% | 30% - 39% | 40% - 49% | 50% - 59% | 60+%

Rate is the percentage of first-time undergraduate degree-seeking students earning any formal award (certificate, associate, bachelor's degree) within six years at degree-granting institutions as of 2009.

How Unprepared Are Our Students?

According to administrators of the ACT college entrance exam, only a quarter of high school graduates in 2011 met college readiness benchmarks in all four subjects.

Percentage of ACT-tested high school graduates meeting college readiness benchmarks
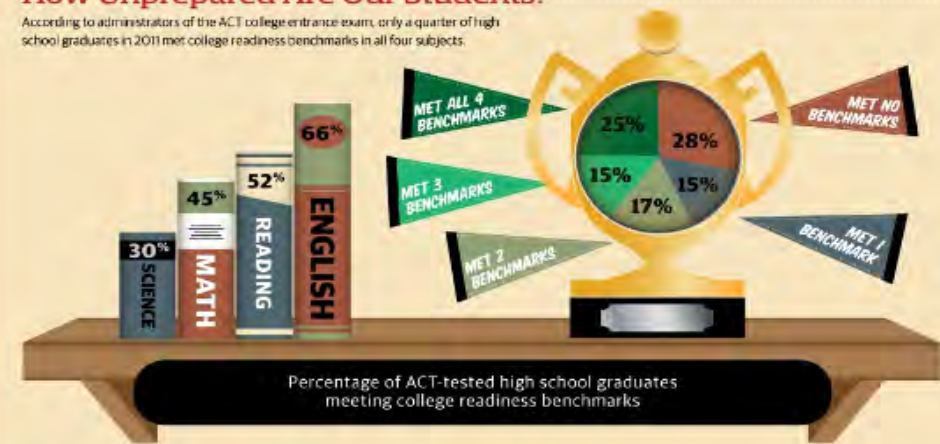
Preparedness Perceptions

High school and college instructors have vastly different perceptions of how ready freshmen are for college coursework. Increased collaboration among K-12 and higher education teachers around college readiness standards will be key to improving remediation rates.

How well prepared are students for college work?

ACT National Curriculum Survey® 2009: 2,761 higher school teachers and 2,831 post-secondary teachers surveyed.

High School Instructors — 9% not well prepared / 91% well prepared

College Instructors — 26% well prepared / 74% not well prepared

The Real Reason New College Grads Can't Get Hired

By Martha C. White | Nov. 10, 2013 | 0

It's because college kids today can't do math, one line of reasoning goes. Or they don't know science. Or they're clueless about technology, aside from their myriad social-media profiles. These are all good theories, but the problem with the unemployability of these young adults goes way beyond a lack of STEM skills. As it turns out, they can't even show up on time in a button-down shirt and organize a team project.

The technical term for navigating a workplace effectively might be *soft skills*, but employers are facing some hard facts: the entry-level candidates who are on tap to join the ranks of full-time work are clueless about the fundamentals of office life.

A survey by the Workforce Solutions Group at St. Louis Community College finds that more than 60% of employers say applicants lack "communication and interpersonal skills" — a jump of about 10 percentage points in just two years. A wide margin of managers also say today's applicants can't think critically and creatively, solve problems or write well.

Another employer survey, this one by staffing company Adecco, turns up similar results. The company says in a statement, "44% of respondents cited soft skills, such as communication, critical thinking, creativity and collaboration, as the area with the biggest gap." Only half as many say a lack of technical skills is the pain point.

Getty Images

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"…more than 60% of employers say applicants lack 'communication and interpersonal skills'—a jump of 10 percentage points in just two years.

A wide margin of managers also say today's applicants can't think critically and creatively, solve problems or write well."

Source: **TIME**, *November 10, 2013*

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Fortune 500 Most Valued Skills

	1970	1999
1	Writing	**Teamwork**
2	Computational Skills	**Problem Solving**
3	Reading Skills	**Interpersonal Skills**
4	Oral Communications	Oral Communications
5	Listening Skills	Listening Skills
6	Personal Career Development	Personal Career Development
7	Creative Thinking	Creative Thinking
8	Leadership	Leadership
9	Goal Setting / Motivation	Goal Setting / Motivation
10	**Teamwork**	Writing

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21st Century Skills
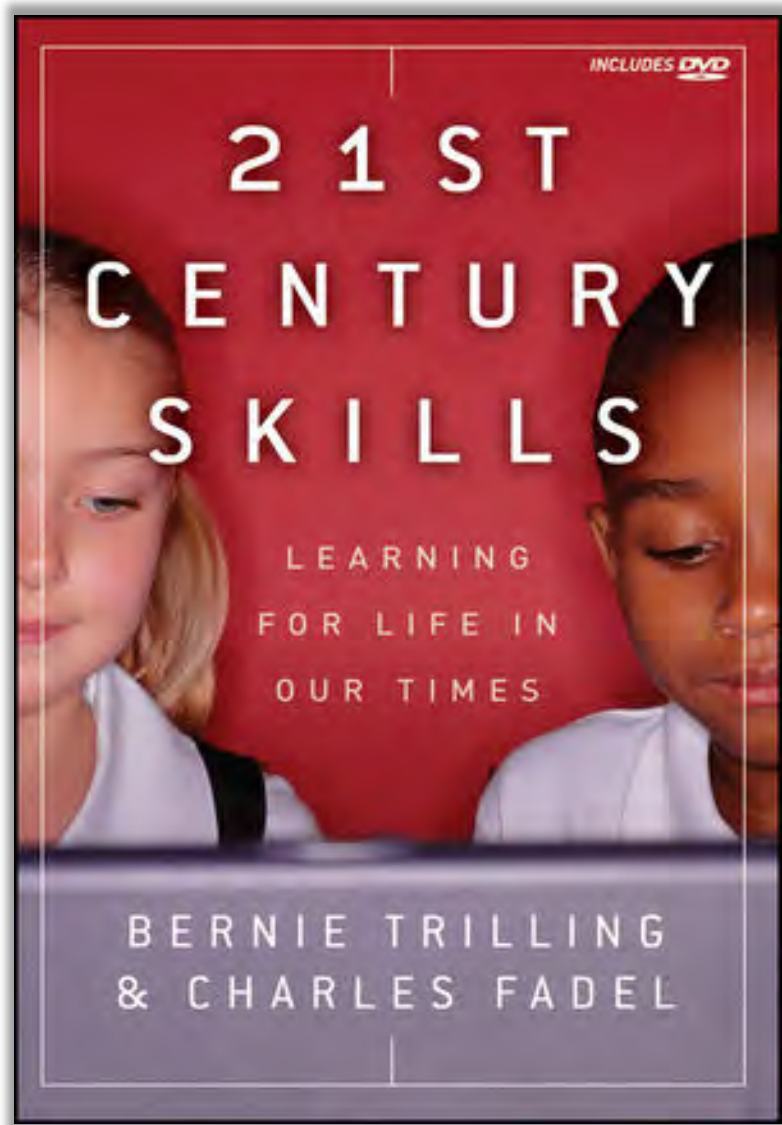
Partnership for 21st Century Skills (P21)

**FRAMEWORK FOR 21ST CENTURY LEARNING**

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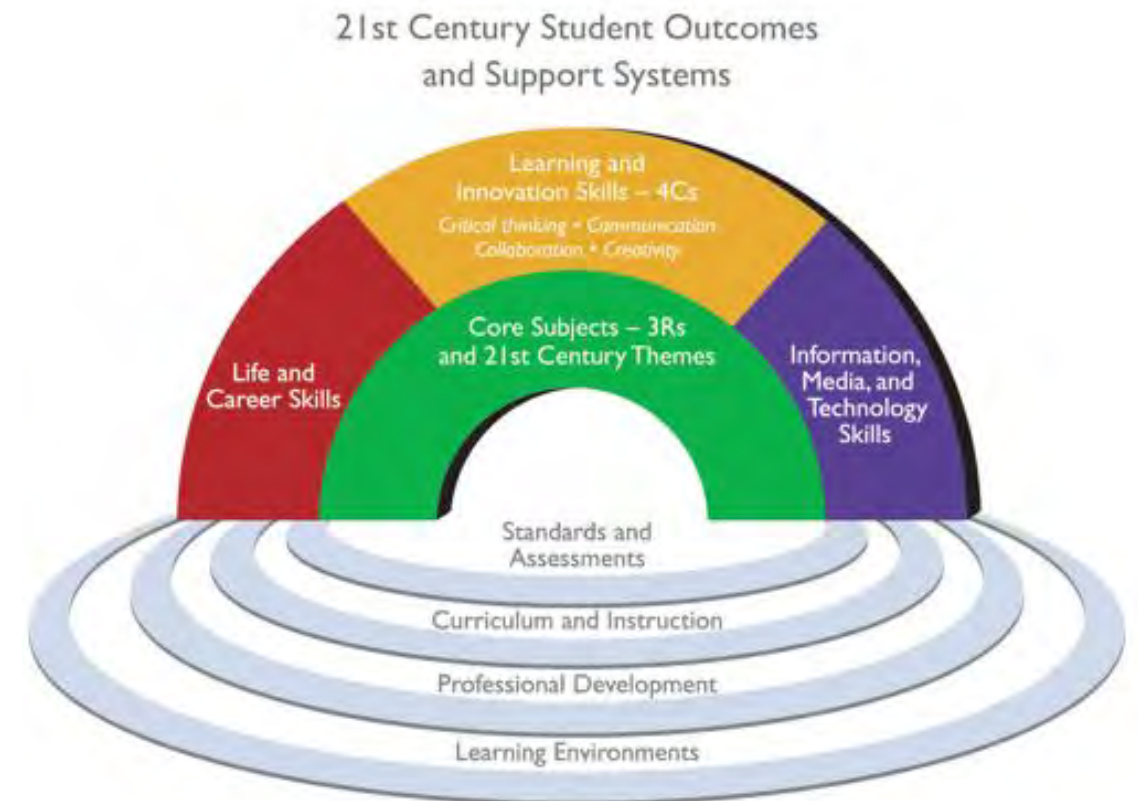
21ˢᵗ Century Skills and the Workplace

DETAILED FINDINGS

PERCEPTIONS OF SKILL DEVELOPMENT
Respondents are nearly four times more likely to credit the skills they use for their work to outside activities rather than to the classroom. The majority of respondents (59%) agree or strongly agree that most of the skills used in their current job were developed outside of school. Only 15% disagree or strongly disagree, indicating they felt that these skills were developed in school.

Most of the skills I use in my current job, I developed outside of school.

15%

25%
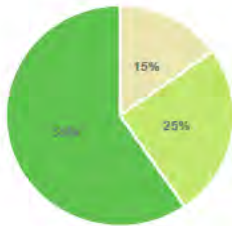
- Strongly disagree or disagree (1-2)
- Neither agree nor disagree (3)
- Strongly agree or agree (4-5)

This trend is even more pronounced among high school graduates. Nearly six in ten (59%) respondents with a high school education or less **strongly agree** the skills used in their current jobs were developed outside of school. Compared to respondents with college (35%) or post graduate work or degrees (21%), those with high school degrees or less do not seem to rely on the skills learned in the classroom in their day-to-day work, indicating a potential call to action for high schools to better prepare youth for work.

Thinking about your current work situation, one a five-point scale, where "5" means strongly agree and "1" means strongly disagree, please tell me how much you agree or disagree with each of the following items...
Percentage of respondents reporting "5 - Strongly agree" (n=901)

		EDUCATION			GENDER		AGE		
	Total	High school graduate or less	Some college or college graduate	Post graduate work or degree	Males	Females	18-22	23-29	30-35
Most of the skills I use in my current job, I developed outside of school.	33%	59%	35%	21%	36%	29%	35%	34%	33%

*Items only asked of those respondents with part- or full-time employment.

7

The **majority of respondents** (59%) reported that they agree or strongly agree that **they developed most of the skills they use in their current job outside of school.** Only 15% disagree or strongly disagree, indicating they felt that they developed these skills in school.

Developing 21ˢᵗ century skills in the last year of school is positively correlated with higher perceived work quality later in life. In fact, **those who have high 21ˢᵗ century skill development are twice as likely to have higher work quality** compared to those who had low 21ˢᵗ century skill development.

Across the 21ˢᵗ century skills included in this study, real world problem-solving is the significant driver of higher work quality; however, less than **two-thirds** (63%) of respondents reported developing this skill **often** in the last year of school and that number drops to **less than half** (39%) for **high school graduates.**

In their last year of school, those who often used 21ˢᵗ century skills are more likely to have had greater student aspiration and engagement; and **student aspiration and engagement is also positively correlated to work quality later in life.**

Across the student aspiration conditions, good teacher-student relationships is a primary driver; students who feel their teachers care and support them are more likely to perceive themselves as successful and valued in their jobs later in life.

Although a wide majority (86%) of respondents says they used computers and technology to complete assignments or projects in their last year of school, only 14% report they used technology for collaboration, indicating that students are not developing the type of advanced technology skills that would be used later in the workplace.
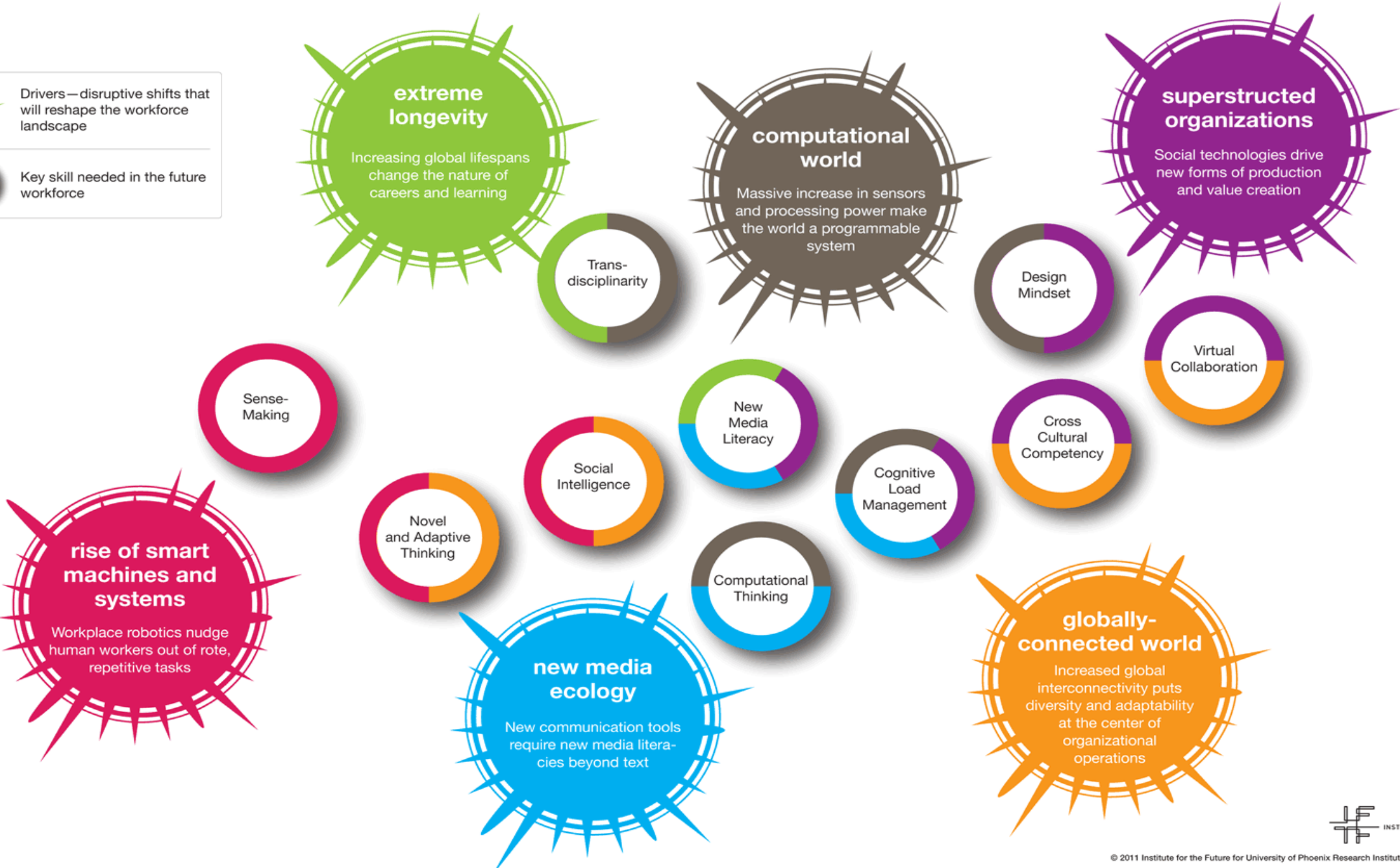
Younger respondents, aged 18-22, report slightly higher levels of 21ˢᵗ century skill development and this may be an indicator that teaching strategies are changing in the U.S.; however, the largest opportunity may lie with high school graduates who report the lowest levels of overall 21ˢᵗ century skill development.

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Future Work Skills 2020

While all six drivers are important in shaping the landscape in which each skill emerges, the color-coding and placement here indicate which drivers have particular relevance to the development of each of the skills.

extreme longevity

Increasing global lifespans change the nature of careers and learning

computational world

Massive increase in sensors and processing power make the world a programmable system

superstructed organizations

Social technologies drive new forms of production and value creation

Trans-disciplinarity

Design Mindset

Virtual Collaboration

Sense-Making

New Media Literacy

Cross Cultural Competency

rise of smart machines and systems

Workplace robotics nudge human workers out of rote, repetitive tasks

Novel and Adaptive Thinking

Social Intelligence

Cognitive Load Management

Computational Thinking

new media ecology

New communication tools require new media literacies beyond text

globally-connected world

Increased global interconnectivity puts diversity and adaptability at the center of organizational operations

INSTITUTE FOR THE FUTURE

Careers of the Near Future

vertical farmer

underwater welder

genetic counselor

elder care worker

sustainability professional

statistician
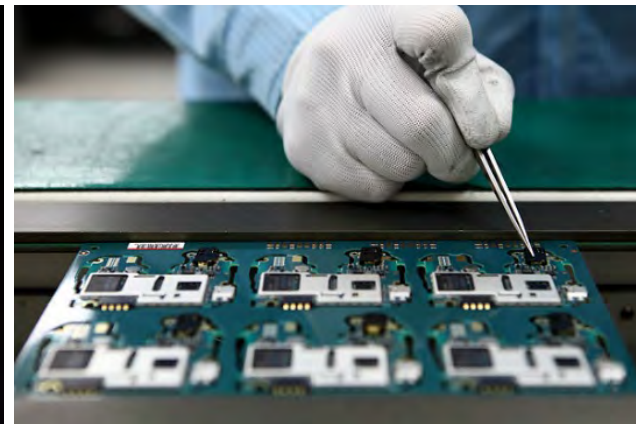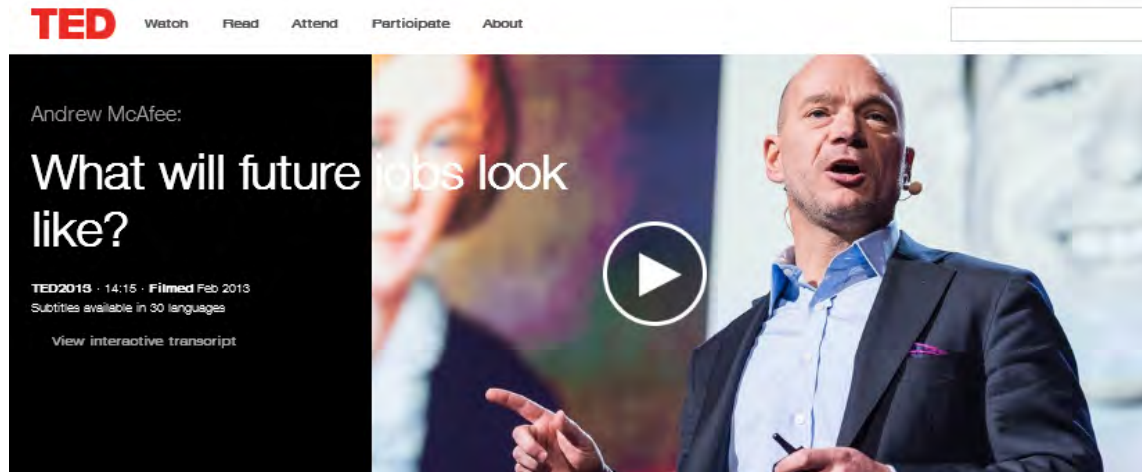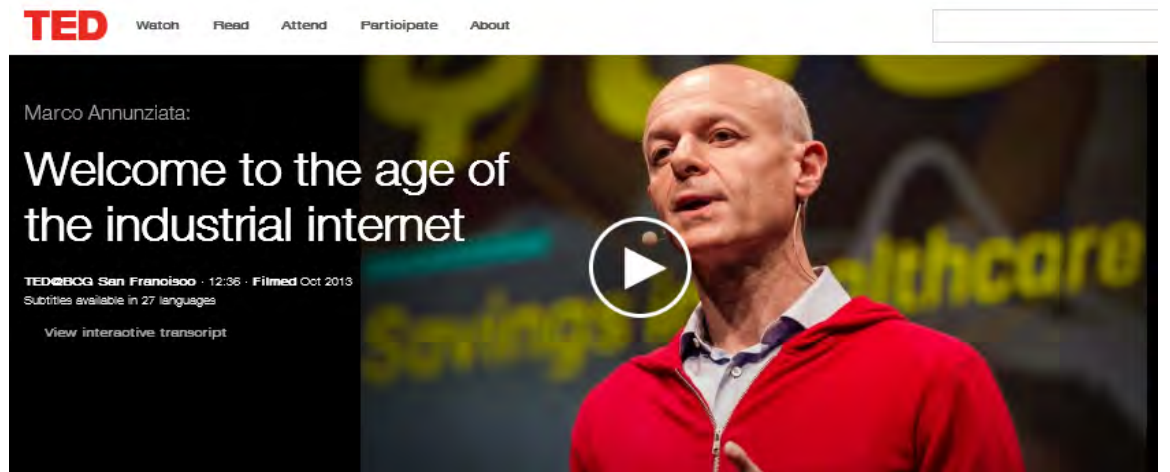
precision toolmaker
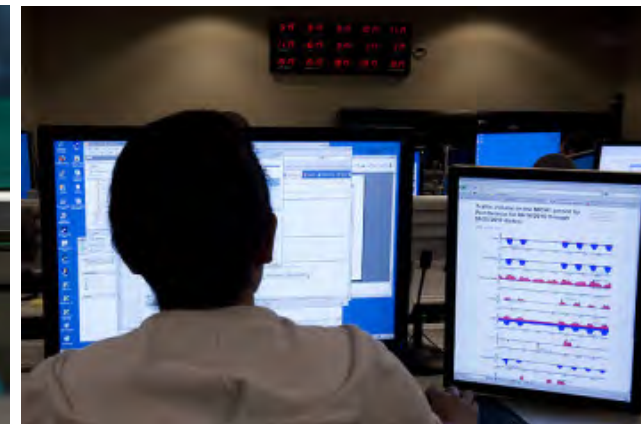
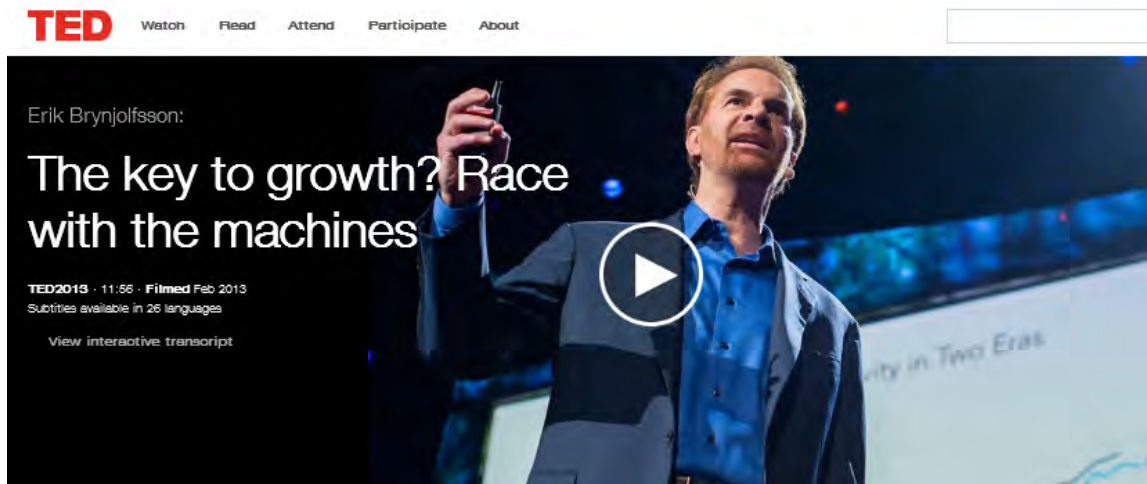**cyber security specialist**

Source: **TIME**, *November 21, 2011*
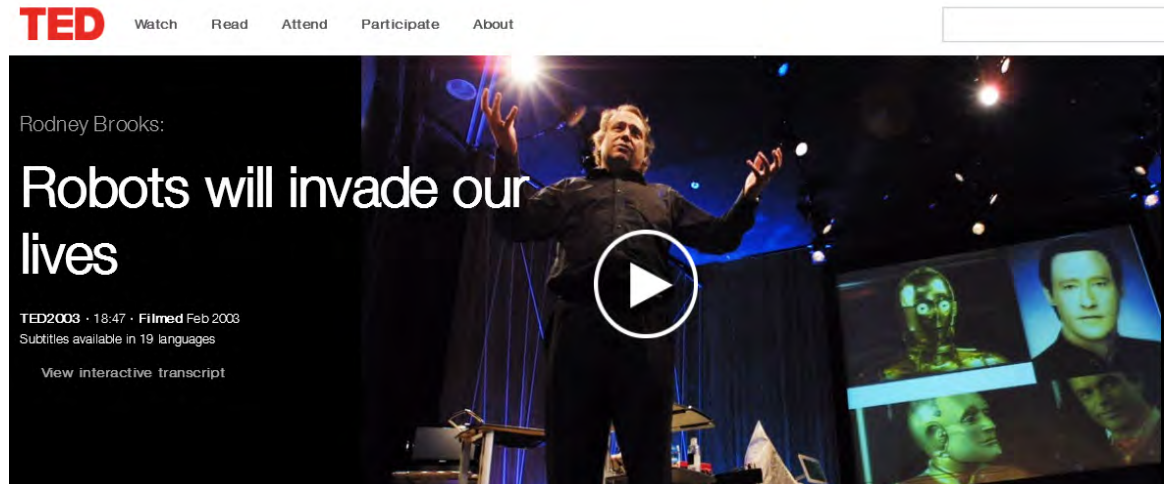
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Job-Sharing with Droids?

http://www.ted.com/talks/andrew_mcafee_what_will_future_jobs_look_like

http://www.ted.com/talks/marco_annunziata_welcome_to_the_age_of_the_industrial_internet

http://www.ted.com/talks/erik_brynjolfsson_the_key_to_growth_race_em_with_em_the_machines

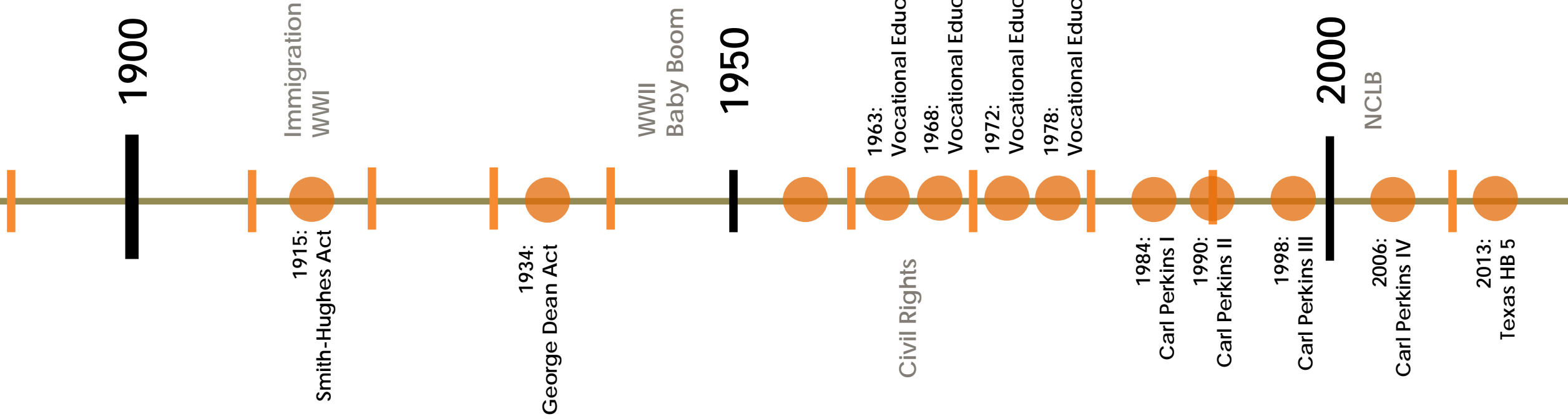http://www.ted.com/talks/rodney_brooks_on_robots

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"Readiness" Writ Large

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"Creativity is as important in education as literacy, and we should treat it with the same status."

-Sir Ken Robinson

Policy + Practice

1900

Immigration
WWI

1915:
Smith-Hughes Act

1934:
George Dean Act

WWII
Baby Boom

1950

1963:
Vocational Education Act

1968:
Vocational Education Act

1972:
Vocational Education Act

1978:
Vocational Education Act

Civil Rights

1984:
Carl Perkins I

1990:
Carl Perkins II

1998:
Carl Perkins III

2000

NCLB

2006:
Carl Perkins IV

2013:
Texas HB 5

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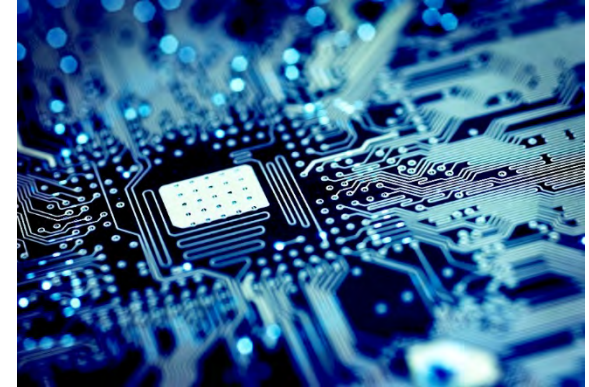
How Do States Define Career Readiness?

Kentucky

A career ready student is a student who is preparatory in a Career and Technical Education career major and has reached the benchmarks on WorkKeys or ASVAB and KOSSA or an Industry Certification.

Nebraska

A career ready person capitalizes on **personal strengths, talents, education and experiences to bring value to the workplace and the community** through his/her performance, skill, **diligence, ethics, and responsible behavior.**

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Real-World Experiences

WORK-BASED LEARNING OPPORTUNITIES FOR HIGH SCHOOL STUDENTS

Corinne Alfeld
Ivan Charner
Lisa Johnson
Eric Watts
FHI 360
National Institute for Work and Learning

NRC CTE
National Research Center for Career and Technical Education

February 2013
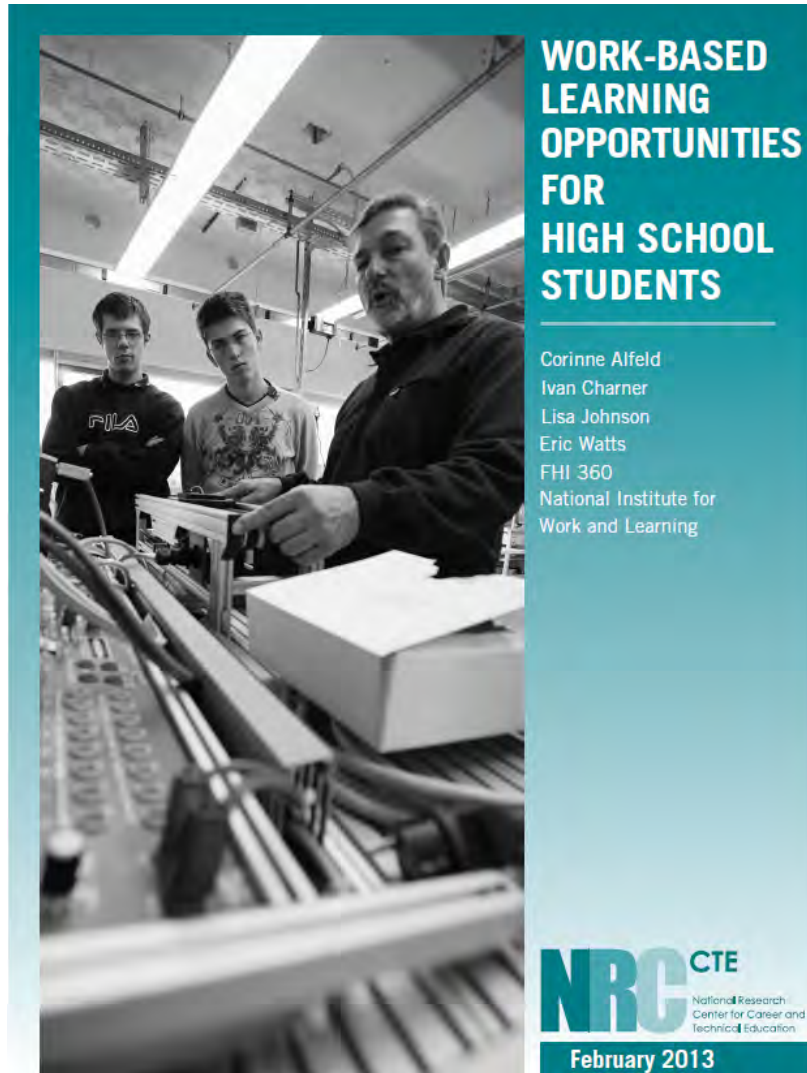
Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century

"…a network of multiple pathways that connect both work and learning.."

Learning for Jobs (OECD, 2010)

"…a high quality WBL component is the best way to prepare young people for careers."

"…integration of high-quality WBL more systematically into CTE programs…a promising way to increase students' educational engagement and their career readiness and attainment."

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Three Domains of Work

Three competencies that must be mastered for students to develop 21st-century competencies (as opposed to skills).

The cognitive domain, which includes thinking, reasoning, and related skills;

The intrapersonal domain, which involves self-management, including the ability to regulate one's behavior and emotions to reach goals; and

The interpersonal domain, which involves expressing information to others, as well as interpreting others' messages and responding appropriately.

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College + Career Readiness
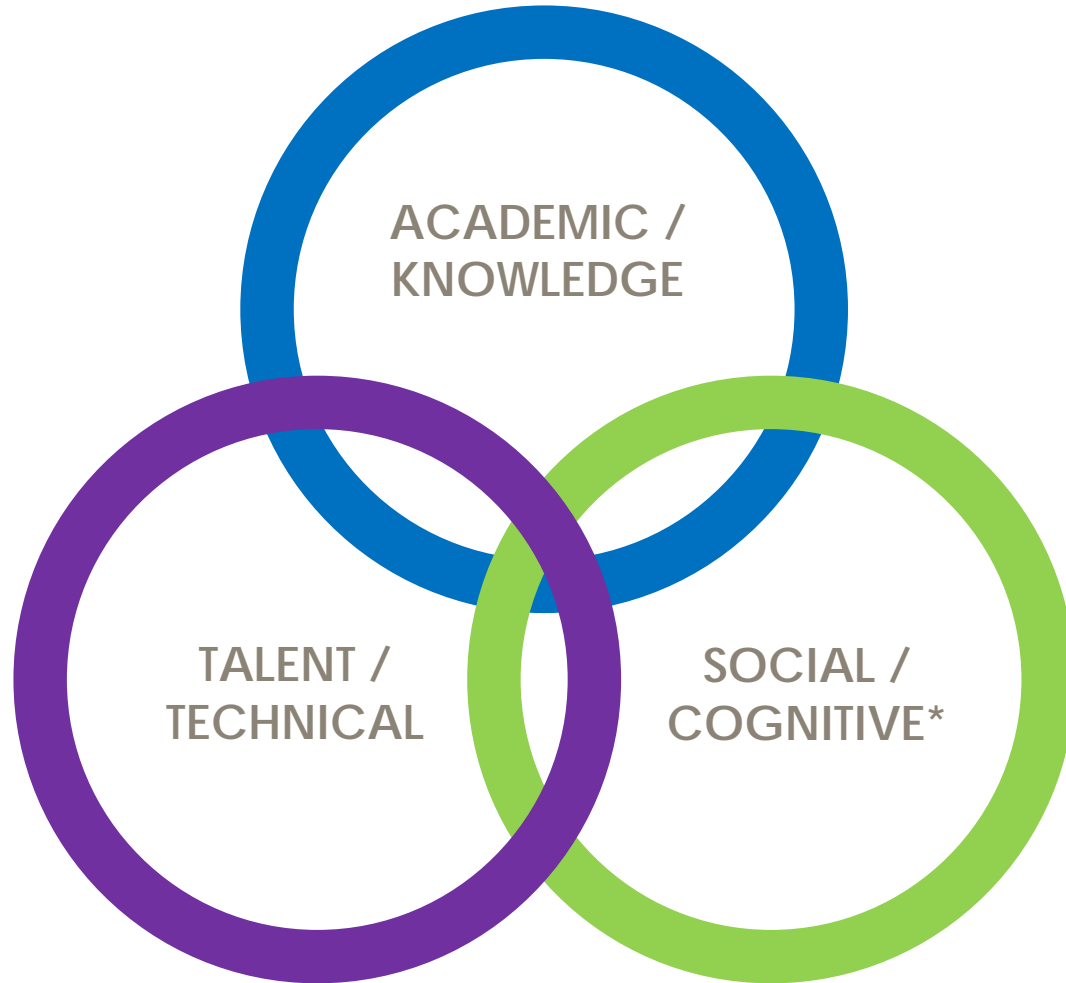
Skill sets are well understood. Students should have:

- Core Academic Competency

- Strong Social / Cognitive Capacity

- Marketable Technical Expertise or Talent

- Planning Skills that Apply Learning to College and Career Opportunity

*Social / Cognitive behaviors is a placeholder for the skill category that encompasses terms such as employability, social-emotional, soft-skills, critical thinking skills, learning behaviors, Habits of Mind, 21st century skills.

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CAREER AND TECHNICAL EDUCATION
FIVE WAYS THAT PAY
September 2012
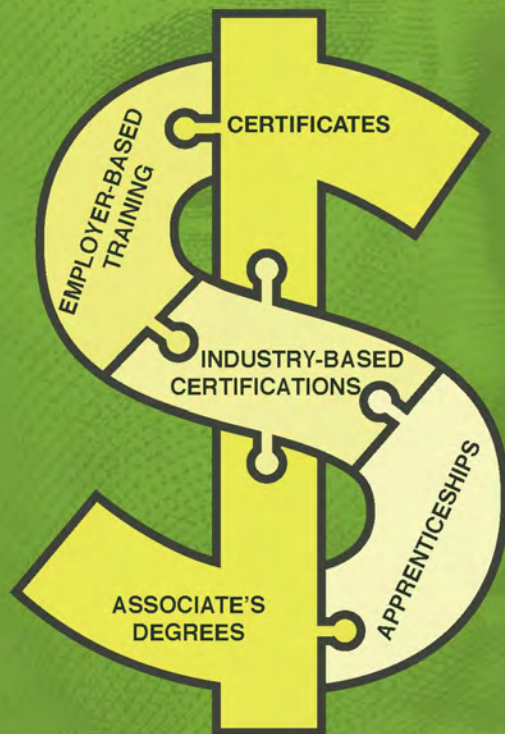
ALONG THE WAY TO THE B.A.

Anthony P. Carnevale
Tamara Jayasundera
Andrew R. Hanson

CIVIC ENTERPRISES

GEORGETOWN UNIVERSITY
Georgetown Public Policy Institute
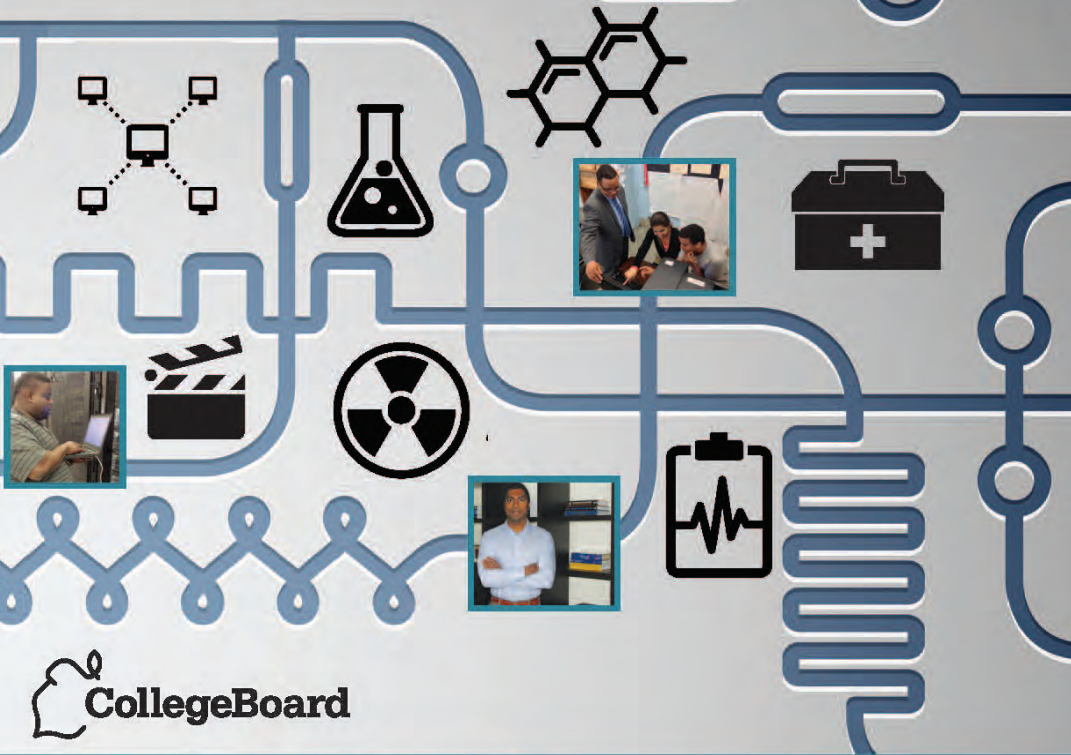Center on Education and the Workforce

"In the United States, postsecondary education and training has become more necessary than ever."

Figure 2. By 2020, nearly two out of every three U.S. jobs will require some postsecondary education and training.
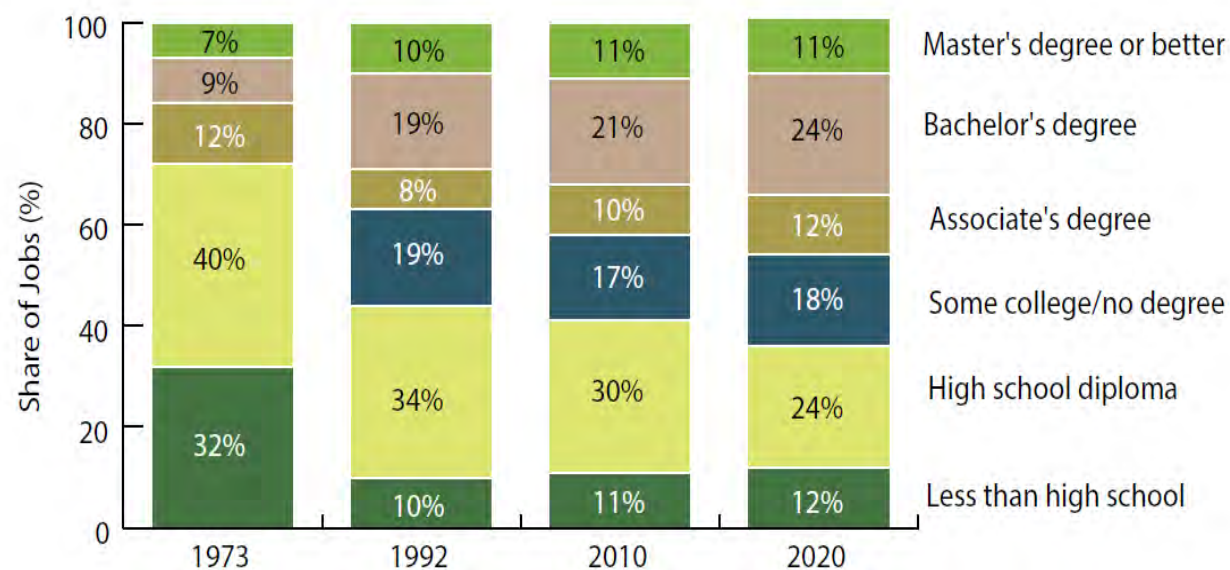
Common Core State Standards and Career/Technical Education

The core components of a great CTE program:

- Relevant and rigorous curricula that scaffold to third-party, validated, and recognized credentials;

- Teachers who are certified and whose skills are current in the industry certification area in which they are teaching; and

- Rich opportunities for work-based learning experiences.
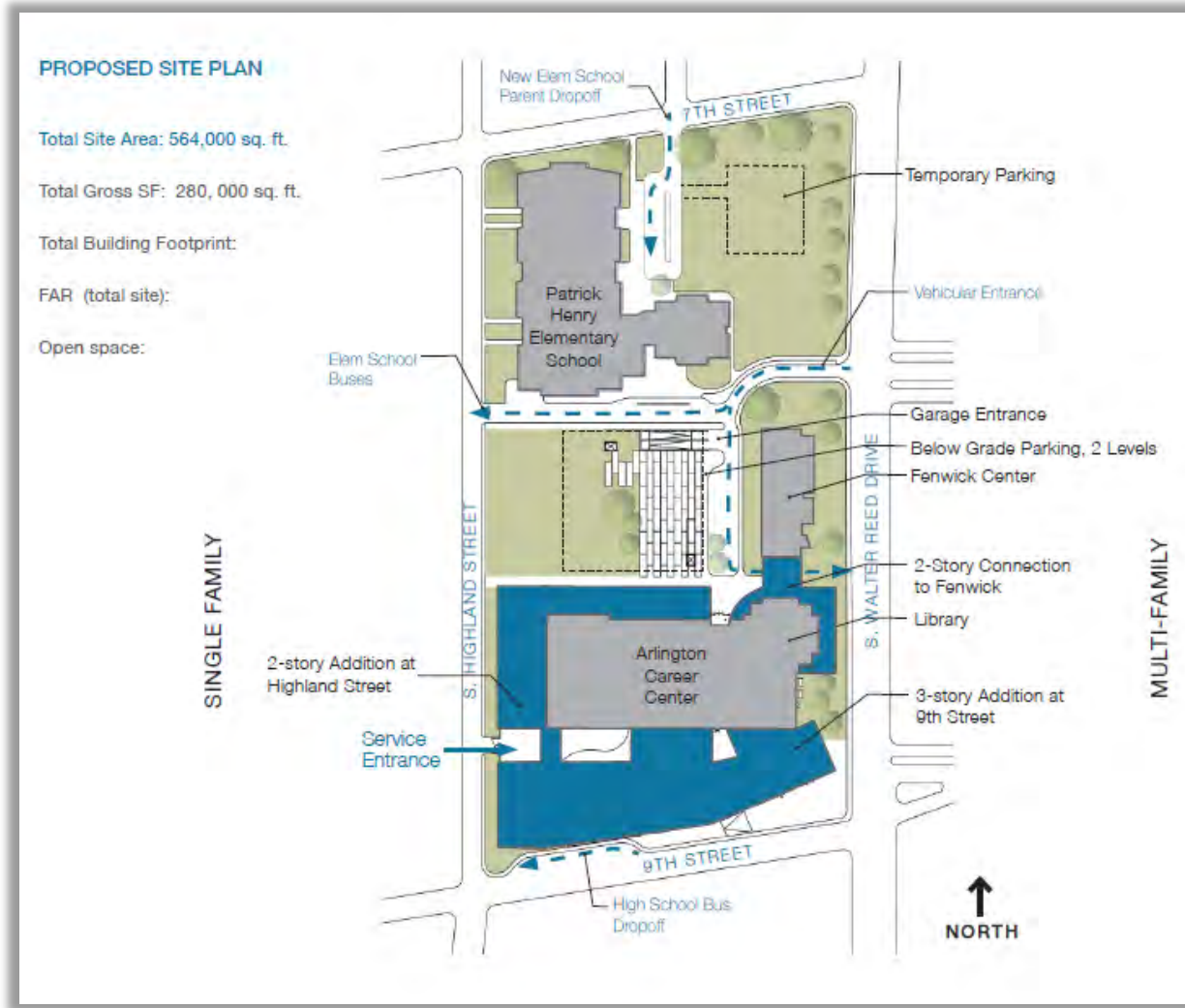
COLLEGE / TRAINING

SALLY

DICK JANE
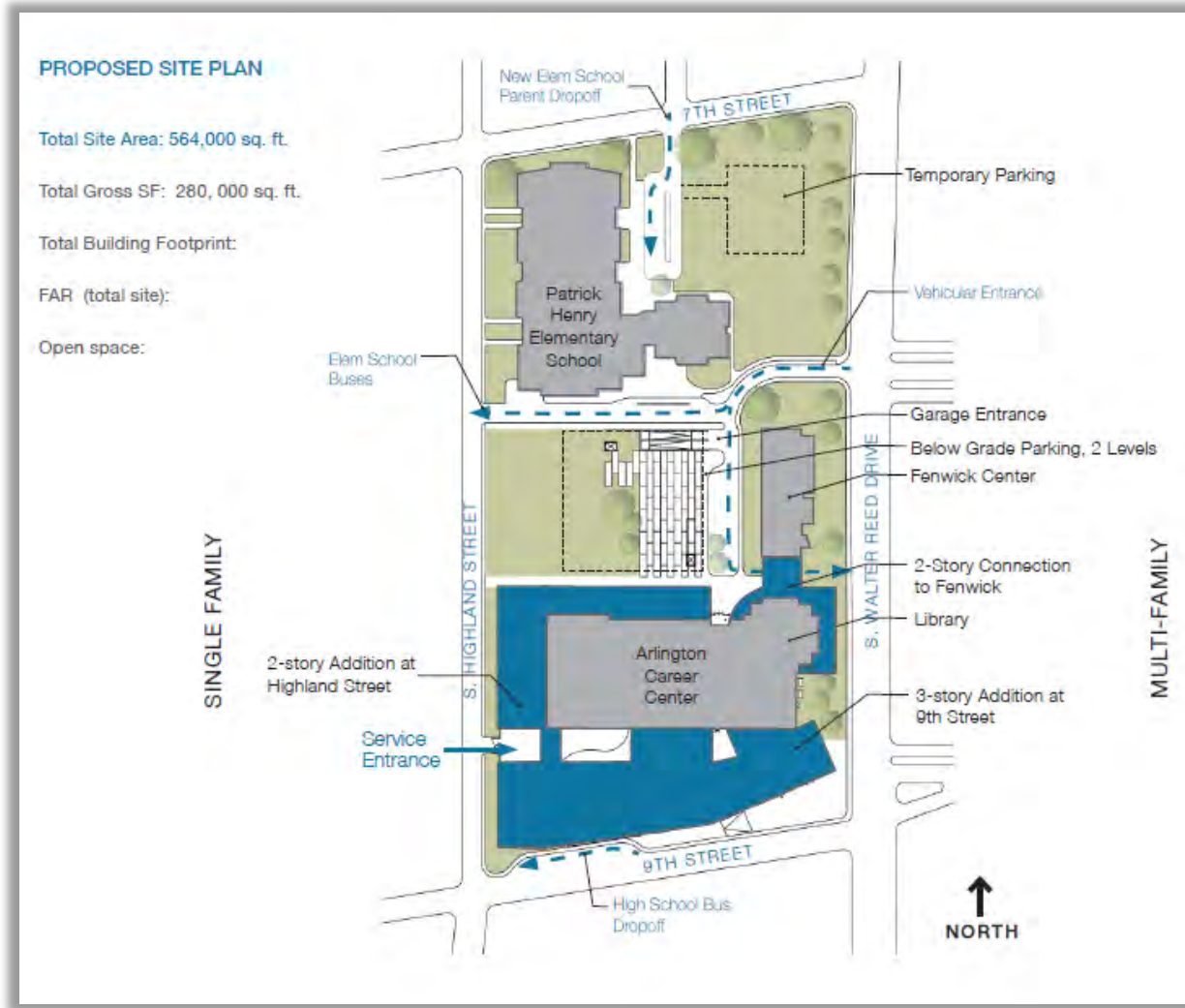
— COMMUNITY COLLEGE —

— CULINARY —

— UNIVERSITY —

SALLY

DICK

— HIGH SCHOOL —

— CAREER —

— FAST FOOD —

— FINE DINING —

— BUSINESS OWNER —

JANE

LIFE EXPERIENCES

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Design as Catalyst

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Arlington Career Center

PROPOSED SITE PLAN

Total Site Area: 564,000 sq. ft.

Total Gross SF: 280,000 sq. ft.

Total Building Footprint:

FAR (total site):

Open space:
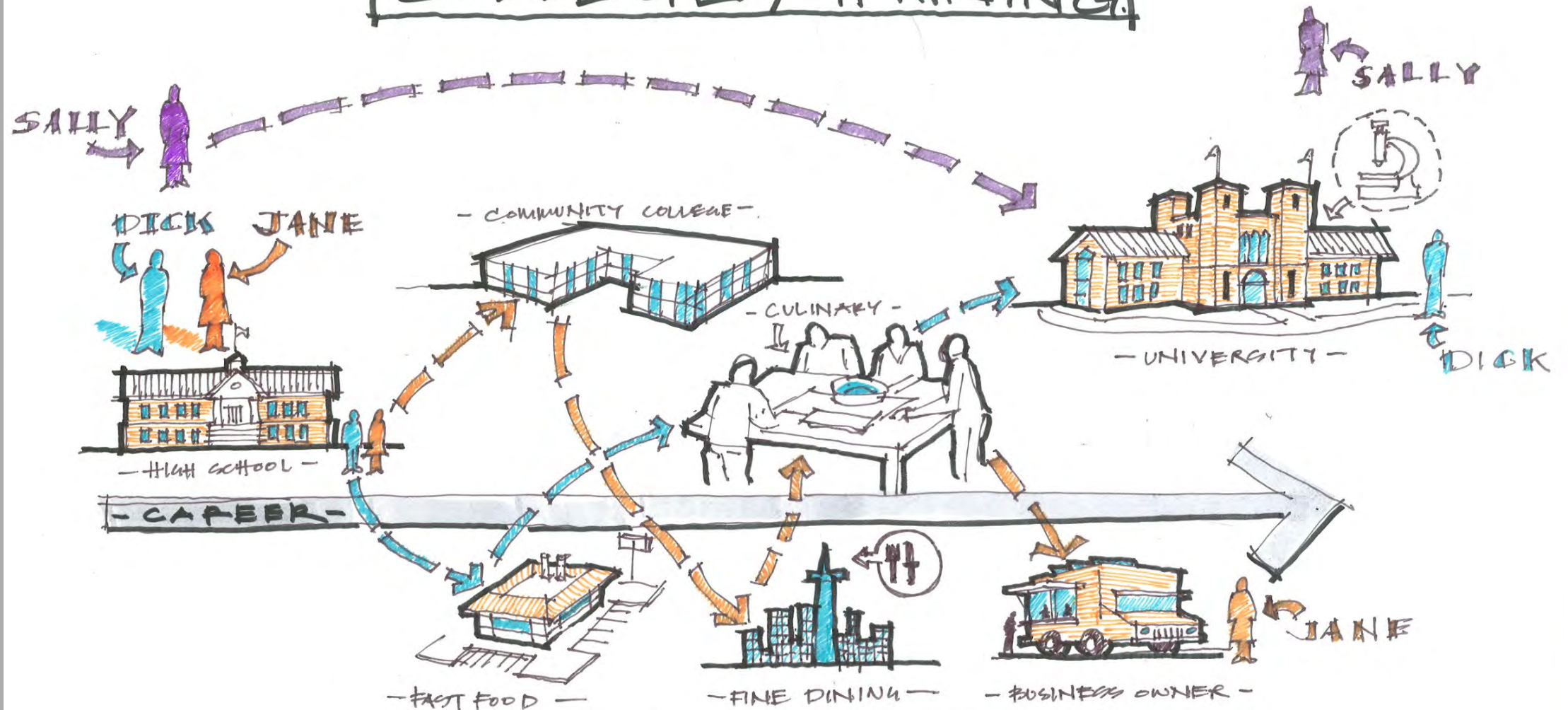
- Designed as **pull-out VoTech** facility

- School, public library, community college campus, elementary school, community use, athletic facilities

- Prompted by growth in enrollment

- Included in 2014–2024 CIP

- Catalyst for innovation

Arlington Career Center

PROPOSED SITE PLAN

Total Site Area: 564,000 sq. ft.

Total Gross SF: 280,000 sq. ft.

Total Building Footprint:

FAR (total site):

Open space:

- New Elem School Parent Dropoff
- 7TH STREET
- Temporary Parking
- Patrick Henry Elementary School
- Vehicular Entrance
- Elem School Buses
- Garage Entrance
- Below Grade Parking, 2 Levels
- Fenwick Center
- S. WALTER REED DRIVE
- 2-Story Connection to Fenwick
- Library
- 2-story Addition at Highland Street
- S. HIGHLAND STREET
- Arlington Career Center
- 3-story Addition at 9th Street
- Service Entrance
- SINGLE FAMILY
- MULTI-FAMILY
- 9TH STREET
- High School Bus Dropoff
- NORTH

- Transformation of current program

- Rebranding

- Equitable admissions

- Leverage change in other high schools

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Arlington Career Center

Arlington Career Center

Skills for College and Career Readiness

Tony Wagner, *Rigor Redefined*
http://www.tonywagner.com/resources/rigor-redefined

- Critical thinking and problem solving
- Collaboration and leadership
- Agility and adaptability
- Initiative and entrepreneurialism
- Effective oral and written communication
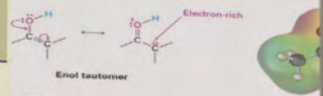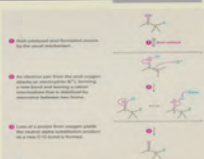- Accessing and analyzing information
- Curiosity and imagination

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Skills for college and career readiness that can inform how we think about design:

- Critical thinking and problem solving
- Collaboration and leadership
- **Agility and adaptability**
- Initiative and entrepreneurialism
- Effective oral and written communication
- **Accessing and analyzing information**
- **Curiosity and imagination**

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Agile Spaces

Furniture on wheels that can be reconfigured again and again through the day

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Adaptable Facilities

Limited only by the imagination of the users of the space

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Inviting Curiosity and Encouraging Imagination:

- Transparency
- Exposed Building Systems
- Architectonic

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How do you know a great school when you walk into it?

There's a buzz, an energy.

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A great school is a **place**:
a second home where students develop a sense of belonging.

Courtesy VMDO Architects

A great school is **healthy** and **wholesome** to nourish the social, physical and mental needs of the student.

Every space in a great school provides opportunities to promote effective **teaching** and **learning**.

A great school embodies our **civic** values and reflects the aspirations we hold for our children.

Courtesy VMDO Architects

What's the source of all the buzz, all the energy?

- Students empowered to take charge of their own learning

- Students and teachers who can't wait to get to school in the morning, and don't want to leave at the end of the day

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How can design help create all that buzz, all that energy?

- The school becomes an incubator for learning; it provides a toolkit for creative pedagogy that is always changing

- The school is a work in progress just as the students themselves are works in progress

- The school evolves constantly, just as the students do

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If we want students to come to school and not want to leave, the school must connect students to the natural environment by:
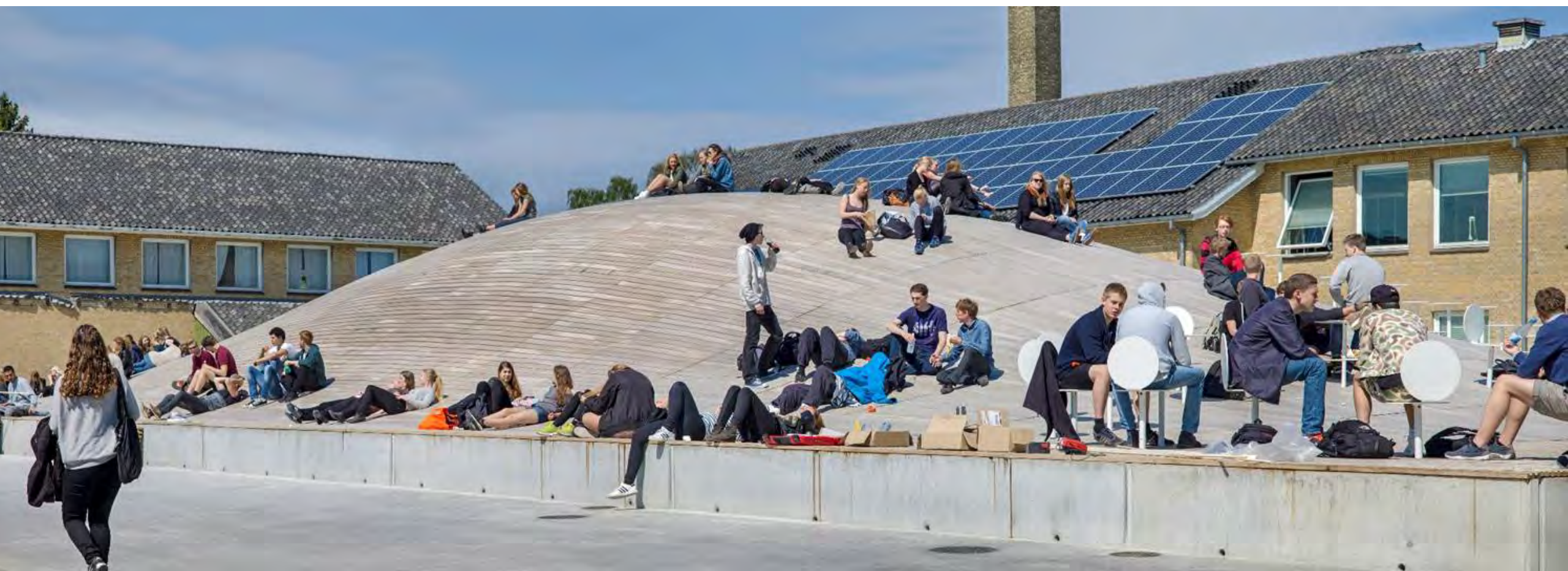
- Blending buildings and landscapes
- Creating indoor/outdoor learning spaces
- Incorporating, green, growing, living things
- Celebrating the gift of changing natural light
- Providing fresh air and operable windows
- Embracing renewable energy
- Designing with climate and weather

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If we want students to come to school and not want to leave, the school must appeal to their senses, the school must be:

Inviting / Appealing

Exciting / Vibrant

Comfortable / Social

Unihibited / Safe

Respectful / Respected

What spaces do students find inviting/appealing, exciting/vibrant?

Where do they feel social/ comfortable, uninhibited/safe?

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Home / Family Room

Courtesy Bjarke Ingels Group

Outdoors / Sports / Exercise

Social Settings / Gaming

Technically Connected

Provide technology and infrastructure so learning and teaching can take place *anywhere, anytime, inside, outside and beyond* the school building.

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Interest + Imagination

What Now?
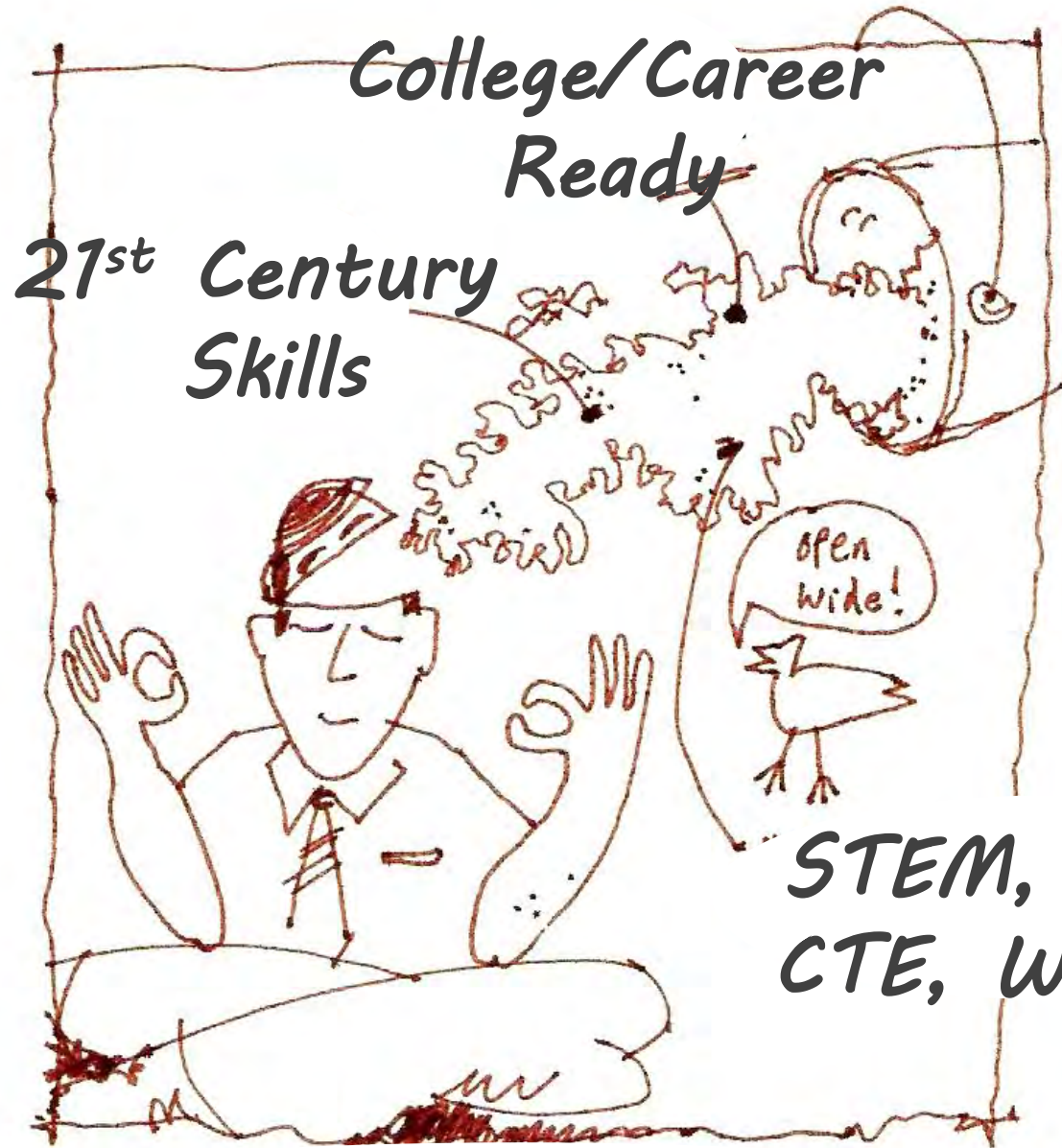
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College and Career Readiness

"Right now, the moment is here, and the opportunity is clear:

…to finally break down the silos between their disciplines and collectively find ways to ensure that the new standards rigorously engage all students in both academic and CTE courses."
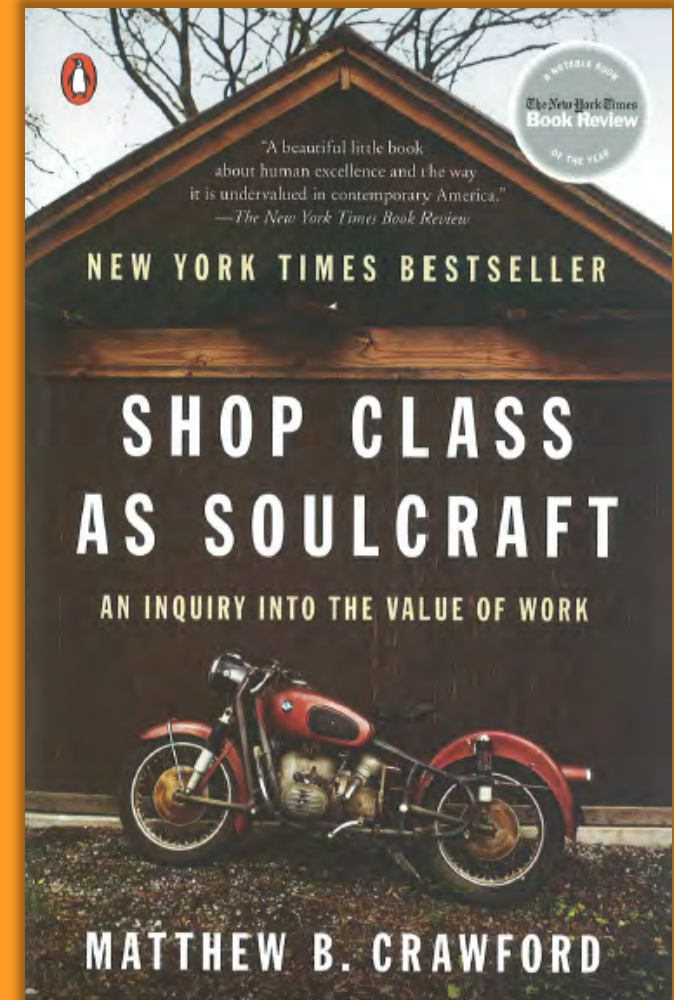
(Achieve, Inc 2012)

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What We Learn from Shop Class:

- Learning is Messy

- Learning is Noisy

- Learning is Autonomous

- Mistakes Happen

- Craftsmanship Matters

Source: Joanne Kelleher, Asst. Principal, NY

Thank you

Jean-Claude Brizard

President, UpSpring Education Group

John Chadwick, AIA

Assistant Supt, Arlington Public Schools, VA

Derk Jeffrey, AIA

Senior Principal, Stantec Architecture

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