21st Century Skills/College And Career Readiness:
Definition, Practice And Policy

August 11, 2014

2014 SEED Summit – Jean-Claude Brizard

They are coming for my job

Andrew McAfee Ted Talk - Video

Accelerating Change Demands New Skills

Education Attainment in US – 2009 Census

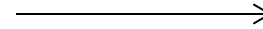**60% of HS Grads enter 4 Year colleges … (2011)**

38% complete in 4 years

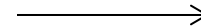… **"Some College" represents 43 Million Adults in US**

% of US Pop over 25 (n=202M)
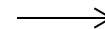
Bachelor's degree → 17.6%

Associate's degree → 7.5%
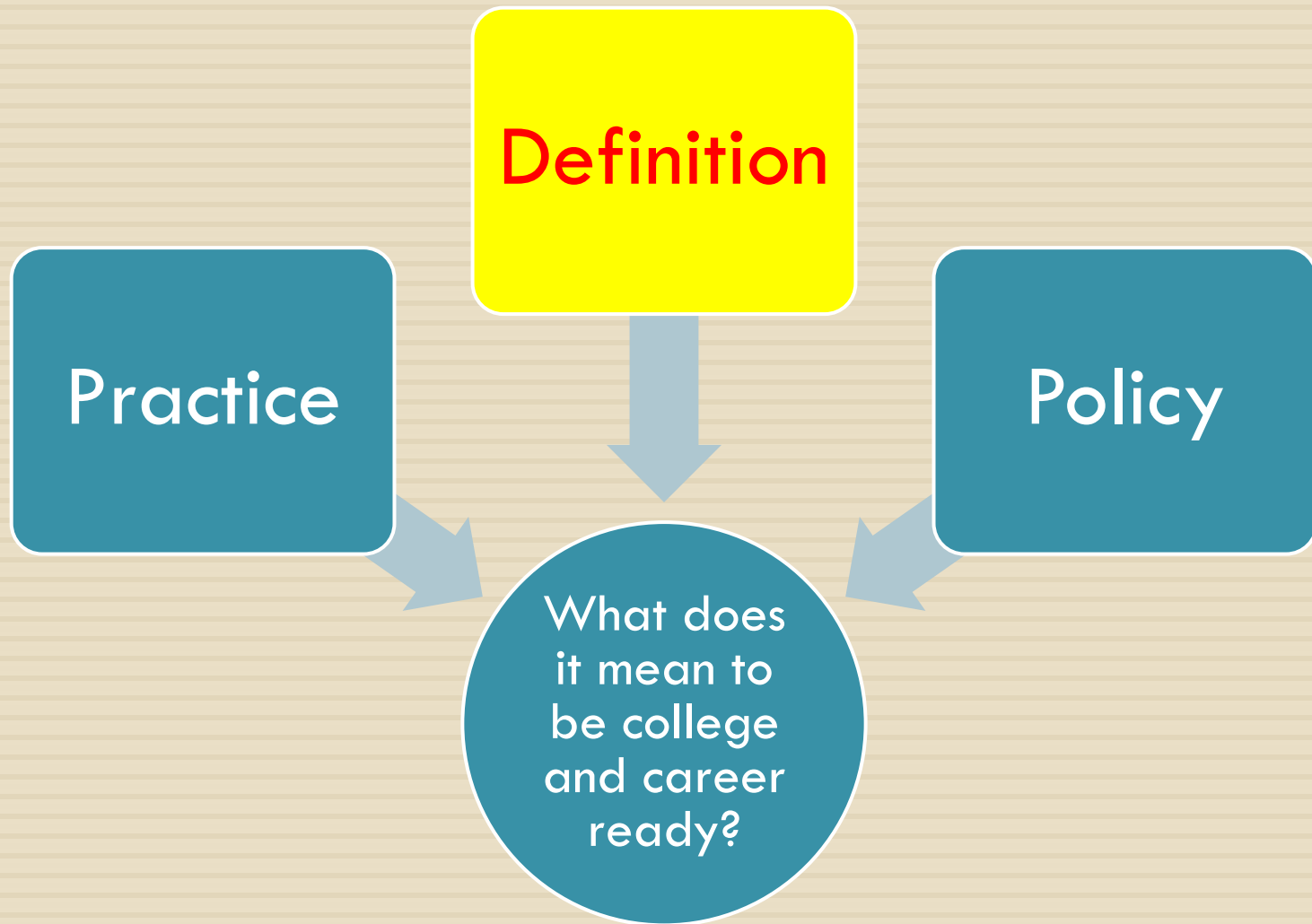
Some college, 1 or more years No degree. → 15%

Some College – Less than 1 year → 6.4%

Blacks were also more likely to have completed some college than any other group. Overall Minorities are over-represented in this group.

Today's Agenda

Definition

Practice

Policy

What does it mean to be college and career ready?

Predicting the Future

"We are currently preparing students for jobs that don't yet exist…using technologies that haven't yet been invented…in order to solve problems we don't even know are problems yet." Former Secretary Riley

□ What will the world look like in 20 years?

□ What will you need to be successful in that world?

Our students must not only be able to grow with our evolving world they also need to be architects of this evolution.

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

Three Domains of Work

- Three competencies that must be mastered for students to develop 21st century competencies (as opposed to skills). The former includes both knowledge and 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.

The National Research Council report 2012

Many Skills are Reflected Throughout CCSS BUT Some Outside of Scope

It is also important to note that the CCSS do not cover every skill that a student needs to succeed in life *because they were not designed to do so.*
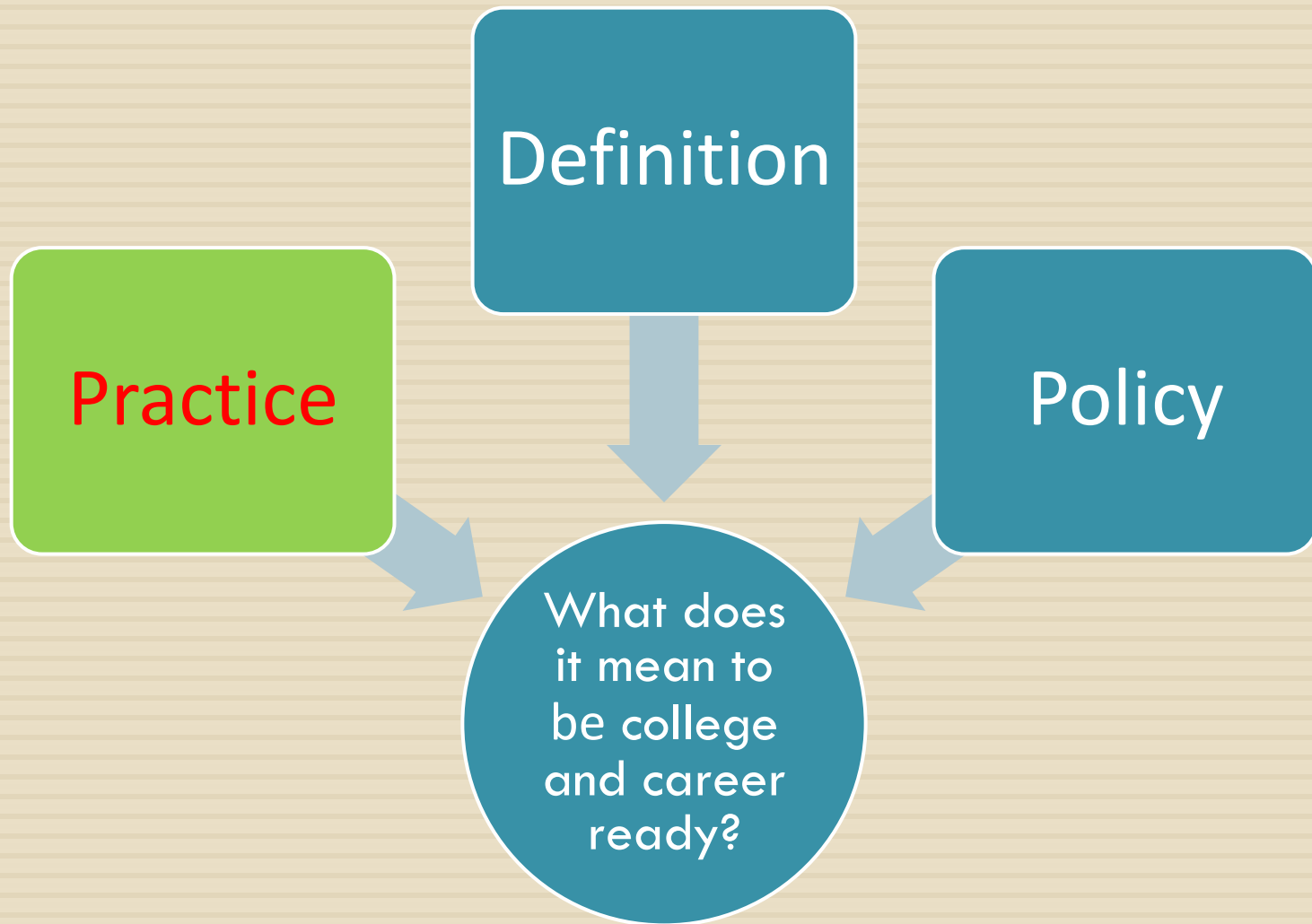
They were designed to provide the core academic knowledge and skills in mathematics and ELA/literacy that prepare students for postsecondary success.

Achieve, Inc

THE COMPLEXITY OF COLLEGE AND CAREER READINESS

☐ College and career readiness are major policy goals but *we are unclear what we mean by the terms.*

☐ The authors of college and career readiness *standards and assessments* assume these mechanisms will, in and of themselves, drive changes in curriculum and instruction that result in many more students ready for postsecondary education.

☐ College and career readiness is *more than a single score on an English and math test*.

☐ College readiness and career readiness are *similar but not the same*.

David Conley

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College Board/ACT Model

Critical Reading Score

Writing Score

Mathematical Reasoning Score

Total Score Report

College Ready = Score with a XX% probability of earning a GPA of X in freshman year

David Conley
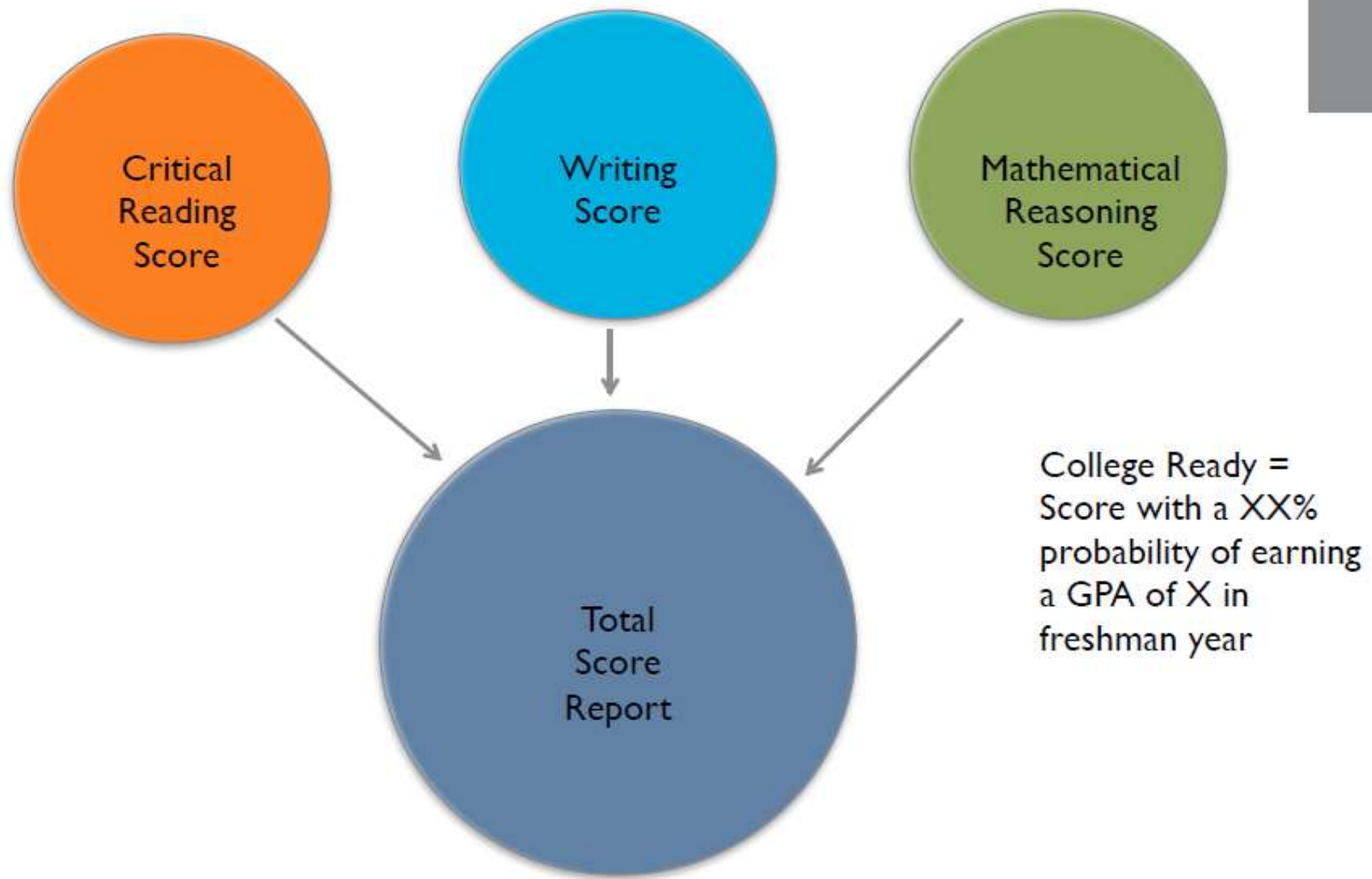
+ Current College Admissions Model

Some liberal arts

Other Measures

Cumulative GPA

Elites

Most universities

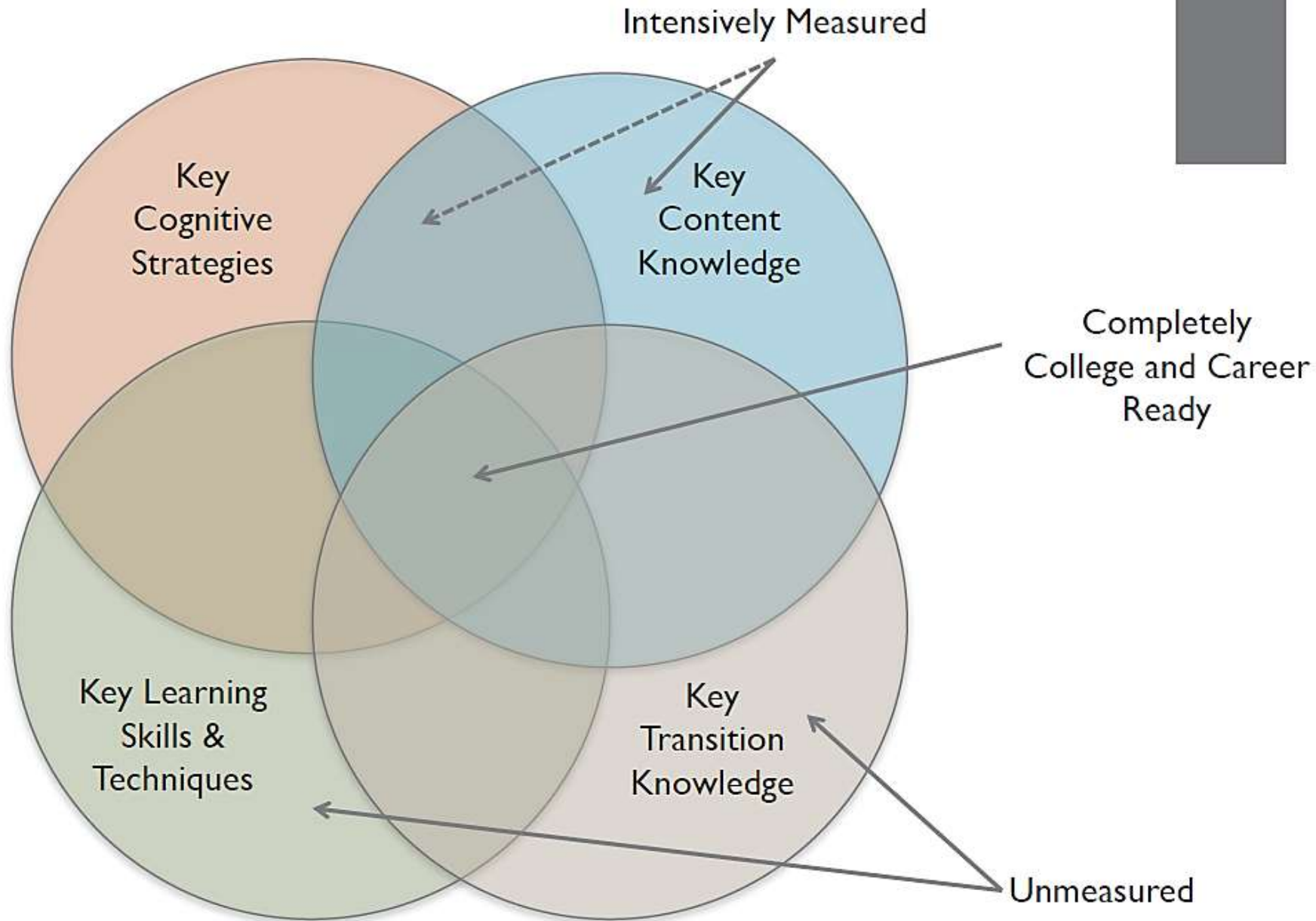SAT/ACT Score Report

Some community colleges for some students
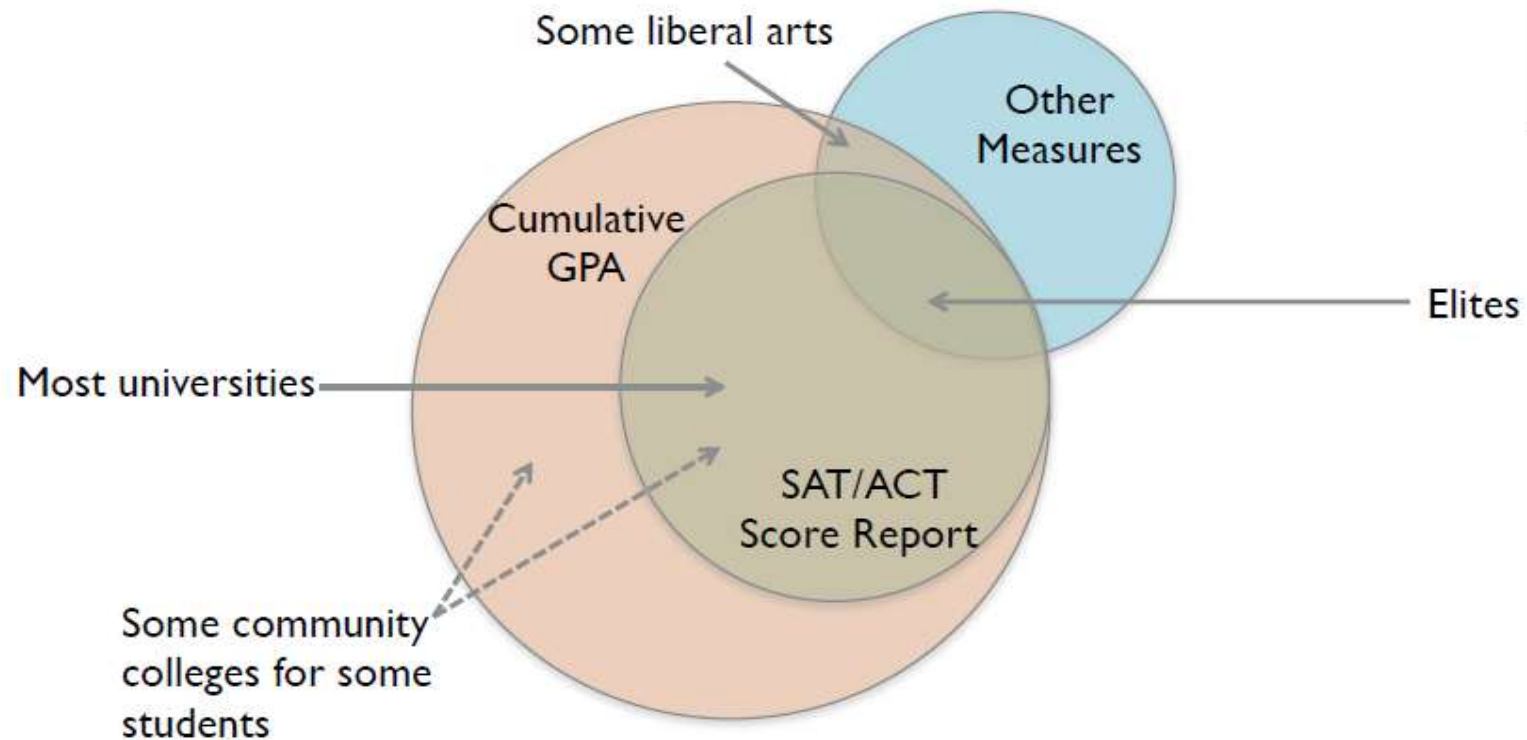
- Measures combined differently by different types of institutions
- Tends to measure G-factor
- Not a proficiency or applied model
- Not tied well to student readiness

Four Keys Model

David Conley

Courses that Meet the Needs of All Postsecondary-bound Students Should:

- Identify and place special emphasis on foundational knowledge important to the career pathway
  - E.g., explore concepts more deeply, achieve automaticity, create real-world applications of content

- Identify and develop cognitive strategies common to both career and college postsecondary pathways
  - E.g., in real-world settings, formulate problems, collect and analyze data, communicate, use precision & accuracy

- Develop learning skills and techniques for all students in course
  - E.g., time management, goal setting, persistence, help seeking, test taking, study skills

- Provide all students in course more information on transition issues
  - E.g., using college help and support options, financial aid possibilities

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Critical Questions

- **What do we teach?**
  - Preparing students to participate in and lead tomorrow's world requires innovation inside our classrooms.

- **How do we close the education to employment gap?**
  - Are students, educators and business living in parallel universes?

- **How do we create deeply integrated programs with rigor, offering students distinctive and powerful transitions to post-secondary training and career opportunities?**

STEPS TO TAKE TO BUILD COLLEGE AND CAREER READINESS

Monitor student aspirations more closely

> Who's aspiring to what future?

Infuse curriculum with full range of Common Core Standards

> Reading informational texts, reading strategically
>
> Speaking and listening
>
> All Standards for Mathematical Practice

Assess with methods that are college and career-like

> Performances, demonstrations, simulations, projects, presentations, team exercises, critiques

Help students develop profiles of their readiness

> Where do they stand in relation to their goals?

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SOME IMPORTANT, LESS ASSESSED AREAS FOR COLLEGE AND CAREER SUCCESS

- *Subjects Other Than English and Mathematics*

  - Science is the logical place to assess *a wider range of math skills*, including the Standards for Mathematical Practice

  - Social Studies is a logical place to assess *data-gathering and analyzing skills*

  - Second Languages and the Arts are logical places to assess *speaking and listening*

  - Technology is logically assessed throughout subject areas and *not as a separate skill*

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International Baccalaureate Programme - Chicago Public Schools – March 2012 (U Chicago – CCSR)
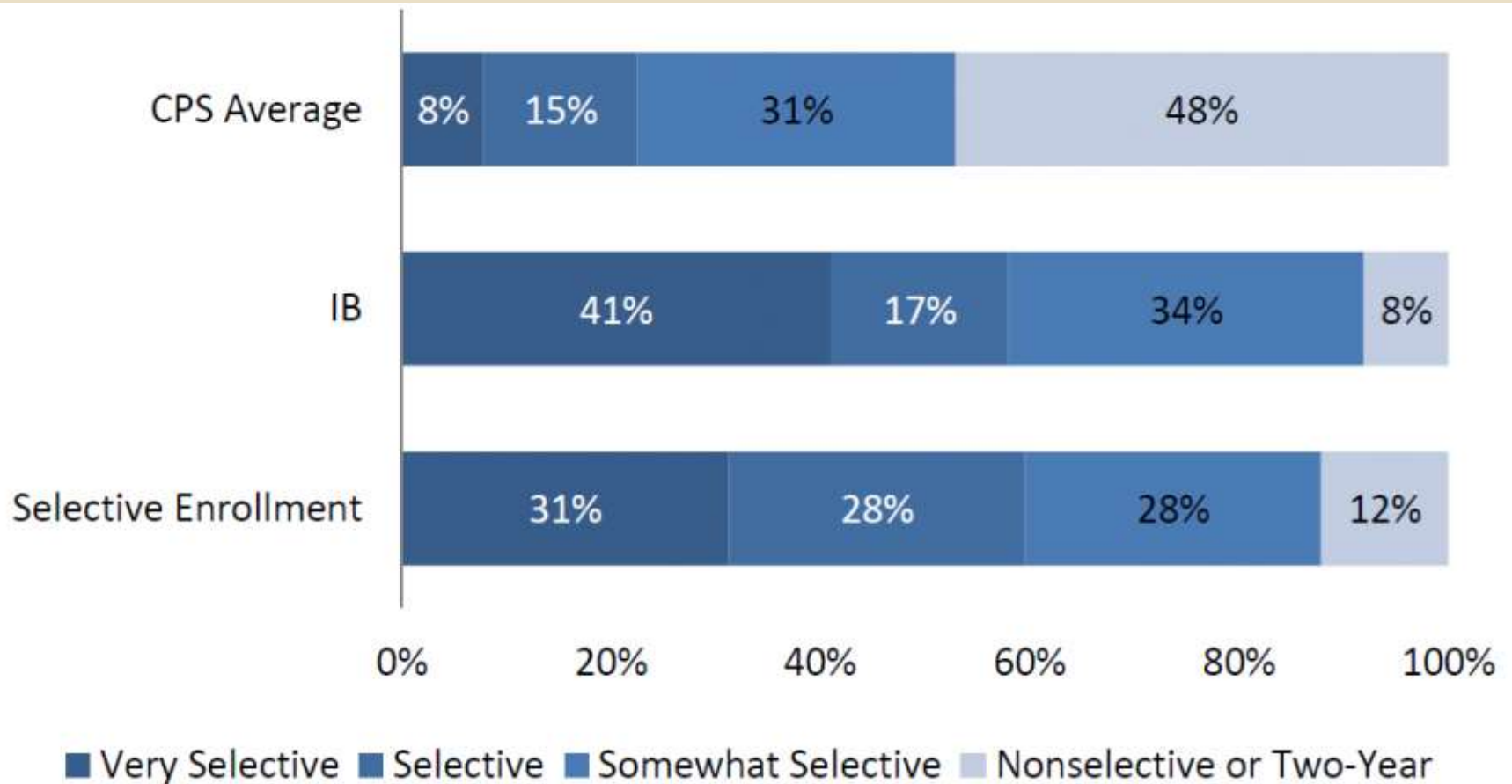
Note: This figure is reproduced from the 2009 report *From High School to the Future: Making Hard Work Pay Off.* These numbers are from graduating classes of 2003-2006 and do not include students who were in special

AP Capstone Pilot Program

AP Capstone Pilot

Year 2
(Typically Grade 12)

Research Project

Extended Report (20-pages)

High School

3 or More AP Exams

AP

AP
(Anchor)

AP

Year 1
(Typically Grade 11)

Seminar Course

Team Project

Individual Presentation

Written Exam

AP Capstone Credential

To qualify for the **Credential,** students would need to:

• *Take 3 (or more) AP exams and earn a score of 3 or higher on each.*

• *Earn a cumulative qualifying score on the four (4) program assessments.*

** Required Professional Development for Capstone Teachers*

COLLEGE AND CAREER READINESS FRAMEWORK

Knowledge

- Core subject area content
- *21st century knowledge:*
  global, civic, environmental, financial, health, and media literacy
- *Career-related and technical knowledge:*
  knowledge about a broad industry sector and associated technical content and college majors

Skills

- Academic skills in core disciplines
- 21st century skills
  - Metacognition and knowing how to learn
  - Creativity and innovation
  - Critical thinking and problem solving
  - Systems thinking
  - Communication: listening, speaking, writing, and nonverbal communication
  - Collaboration and working with diversity
  - Information management and digital media applications
- Technical skills in at least one career area of interest
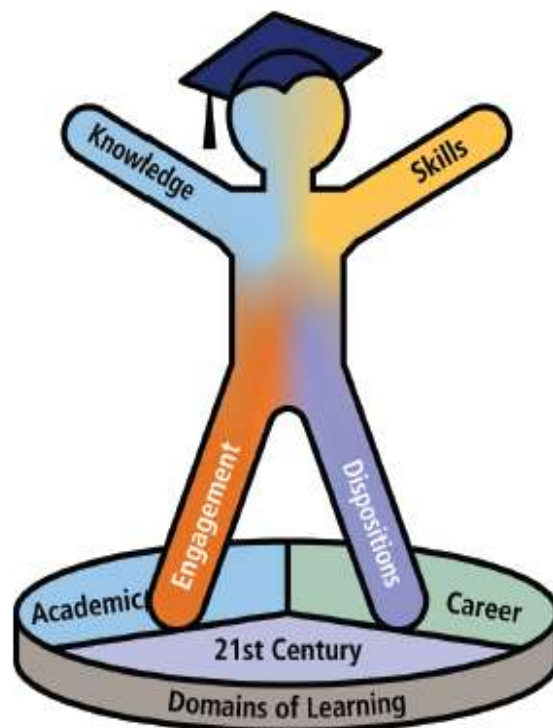
Productive Dispositions and Behaviors

- *Productive self-concept:*
  self-knowledge, self-esteem, self-efficacy
- *Self-management:*
  goal setting, time management, study skills, precision and accuracy, persistence, initiative/self-direction, resourcefulness, and task completion
- *Effective organizational and social behavior:*
  leadership, flexibility/ adaptability, responsibility, and ethics

Engagement Strategies

- Engaging in and navigating the world of higher education
- Engaging in and navigating the world of work
- Engaging in and navigating civic life

ConnectEd

"These characteristics – readiness to study and learn, willingness to take on a challenging task, perseverance through adversity – all happen to correlate with achievement."

Martha King, Flying Magazine April 2014

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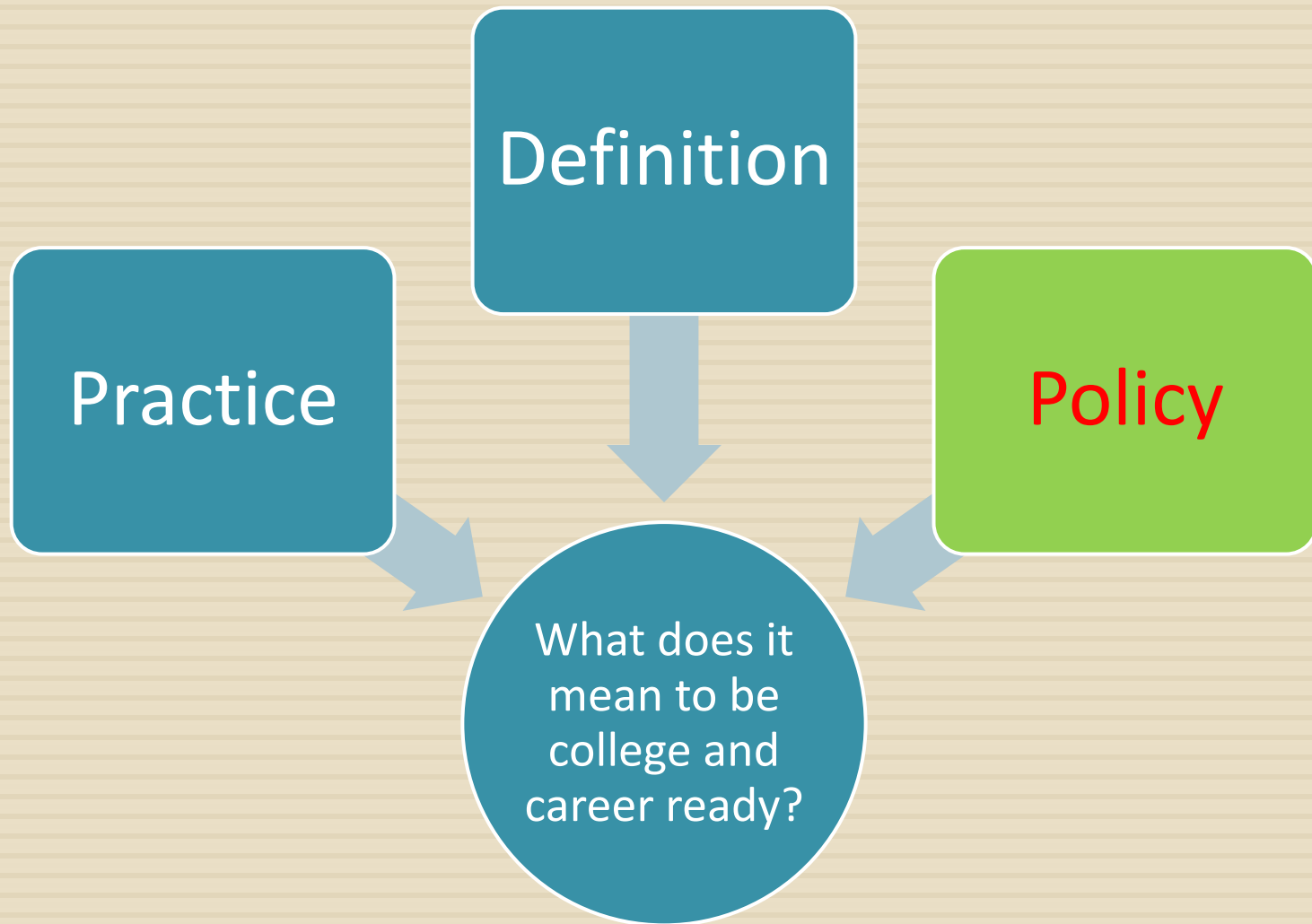
Education Policy Environment:
Realistic Readiness Requirements

"Preparation for college and career"

College and Career Preparation is the universally accepted mission for the majority of elementary, middle and secondary educational institutions.

- *But without a clear mandate, Districts interpreted college and career readiness as an academic achievement level that prepares for college and career*

- *Rather than the research-based definition of readiness that includes academic, technical, employability and planning skills that prepare for multiple pathways*

Current Policy
1 Metric
Academic
College Enrollment

Desired Policy		
4 Metrics		
Academic	Technical	Employability
Plan of Action		
College Enrollment		Employment

THE CHALLENGE OF ASSESSING COLLEGE AND CAREER READINESS

Given the complexity of college and career readiness, we should think in terms of **systems of assessment,** rather than one test or score that determines readiness.

✓Grades, student self-reports, complex curriculum-embedded performance tasks, behavioral assessments, non-content-based measures

The result would be **profiles** of **readiness in relation to goals** and **recommendations on how to improve readiness** in relation to goals.

"**Badge**" **systems** are potentially a step in this direction.

Defining a Masterpiece:
Focusing on Deeper Learning

We must measure the full range of higher-order thinking skills and important education outcomes, including critical thinking, communication, collaboration, social-emotional competence, moral responsibility, and citizenship.
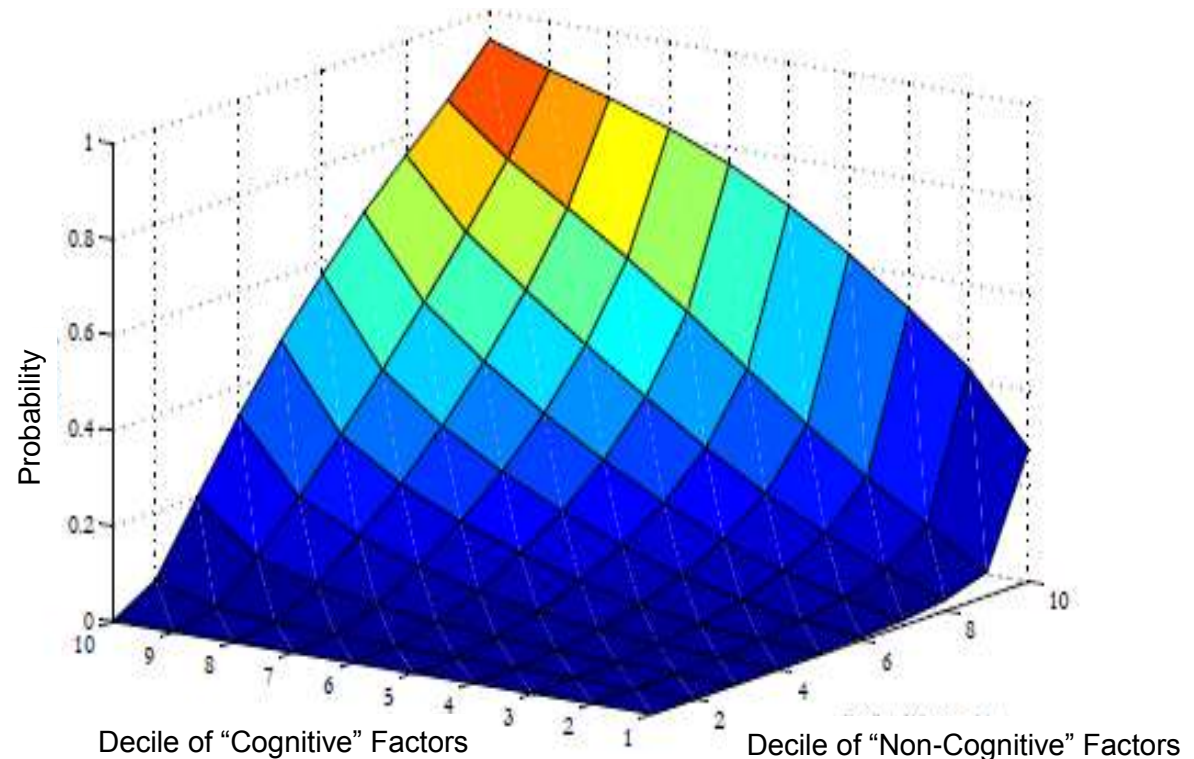
Linda Darling-Hammond

Nobel prize-winner James Heckman demonstrated that, in addition to cognitive abilities, students' self-esteem and locus of control are important predictors of educational attainment, employment, wages, and avoidance of risky behavior

Heckman at al. (2006) demonstrated that both cognitive ability and "non-cognitive" mindsets were important predictors of academic success
(e.g. graduating from a 4-year college by age 30), as well as future employment, wages, and avoidance of risky behaviors.

In Heckman's study, "cognitive factors" include arithmetic reasoning, word knowledge, paragraph comprehension, mathematical knowledge, and coding speed. "Non-cognitive" factors include self-esteem and the degree to which individuals feel they are in control of their own life.

Probability of Being a 4-Year College Graduate by Age 30 by Decile of Cognitive and Non-cognitive Factors (males)

Decile of "Cognitive" Factors

Decile of "Non-Cognitive" Factors

Social-Emotional and Culture-Climate Research

Despite a terminology "Tower of Babel," there is nascent consensus on a unified categorization for the mindsets, skills and habits that can help students succeed
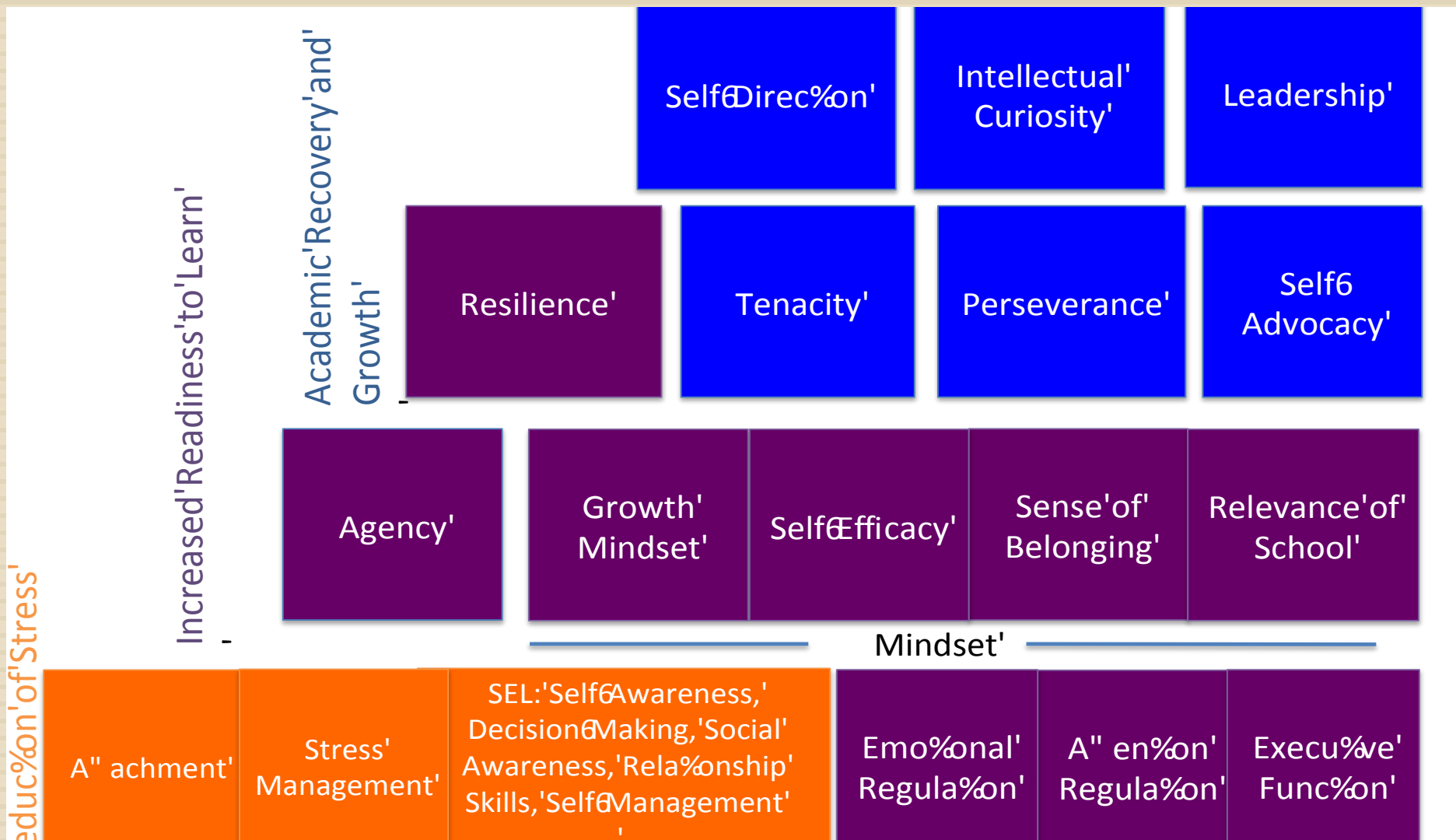
National Academy of Sciences (21st Century Skills)	**Cognitive Domain:** Intellectual ability, knowledge, cognitive strategies, creativity	**Intrapersonal Domain:** Work ethic, conscientiousness, self-evaluation, mindset, perseverance, metacognition, intellectual openness, curiosity	**Interpersonal Domain:** Teamwork, collaboration, leadership, communication, conflict resolution, empathy
KIPP	**Intellectual Character:** curiosity, *honesty, zest, optimism**	**Achievement Character:** grit, *self-control, purpose, optimism*	**Interpersonal Character:** empathy, gratitude, *self-control, purpose, honesty, zest*
Character Education Partnership	**Performance Character:** Self-discipline, perseverance, planning, creativity, curiosity, open-mindedness, meta-cognition		**Moral Character:** Empathy, fairness, integrity, compassion
Social-Emotional Learning	**Self-Awareness:** recognizing one's emotions, values, strengths, and challenges		
	Self-Management: managing emotions and behaviors to achieve one's goals		**Social Awareness:** understanding of and empathy for others
	Responsible Decision Making: constructive, ethical choices about personal and social behavior		**Relationship Skills:** teamwork, conflict resolution, positive relationships
Personality Psychology	**Openness:** Curiosity, creativity, insightfulness	**Conscientiousness:** Self-control, grit, organization, planning / **Emotional Stability:** Nervousness, anxiety, tension	**Agreeableness:** Kindness, empathy, social intelligence / **Extraversion:** Assertiveness, enthusiasm, energy
Social Psychology	**Engagement and motivation,** which are influenced by perceptions of competence, autonomy		**Sense of belonging** in one's community, which contributes to one's willingness to adopt established norms
Cognitive Psychology	**Executive Function:** Self-regulatory processes governing attention, planning, decision-making, inhibition, mental flexibility, problem-solving, reasoning, memory, etc.		

Source: CA Office to Reform E

Best School Design

TurnAround for Children
K. Brooke Stafford-Brizard, PhD

Every Child is a Work of Art.
Create a Masterpiece.