Measuring Skills and Dispositions

Prepared for the Council of Chief State School Officers (CCSSO)
By the Educational Policy Improvement Center (EPIC)

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Measuring Skills and Dispositions

The Importance of Skills and Dispositions

- *Interdependency of Knowledge, Skills, and Dispositions*
- *Taxonomy of Core Knowledge, Skills, and Dispositions that are predictive of college, career, and citizenship readiness*
- *Research Synthesis in Support of the Taxonomy*

The Skills and Dispositions Most Predictive of Student Success

- *Definitions of Predictive Skills and Dispositions*
- *Relationship Between Skills & Dispositions and Student Outcomes*

Measuring Skills and Dispositions

- *Pros and Cons of Assessing Skills and Dispositions*
- *Assessment Selection Criteria*
- *Skills and Disposition Coverage*
- *Technical Quality and Feasibility Comparison*

Moving Forward: Improving and Monitoring Progress

Study Methodology

Guide to Supplementary Materials

1. *Skill and Disposition Definitions*
2. *Key Frameworks and Constructs*
3. *Bibliography and Websites*
4. *Skill and Disposition Summaries*

Appendix: Summaries of Individual Assessments

Why are Skills and Dispositions Important?

Existing academic assessments address only content knowledge.

o Content knowledge is an important factor in student success, but is **only part of the equation.**

o Measures of skills and dispositions contribute **above and beyond** traditional measures of content and can be used as part of a holistic assessment system.

o Educators and counselors know that skills and dispositions are traits students need to succeed (i.e., and tests of traits and dispositions are **tests worth teaching to**).

o Possessing 1) a sufficient breadth and depth of knowledge, 2) a mix of strategies necessary to problem solve, think strategically, learn independently, and interact with the world in a variety of contexts, and 3) the right mindset are **requisite for lifelong learning and college, career and citizenship preparedness**.

Preparedness for college, career, citizenship, and lifelong learning requires knowledge, skills, and dispositions.
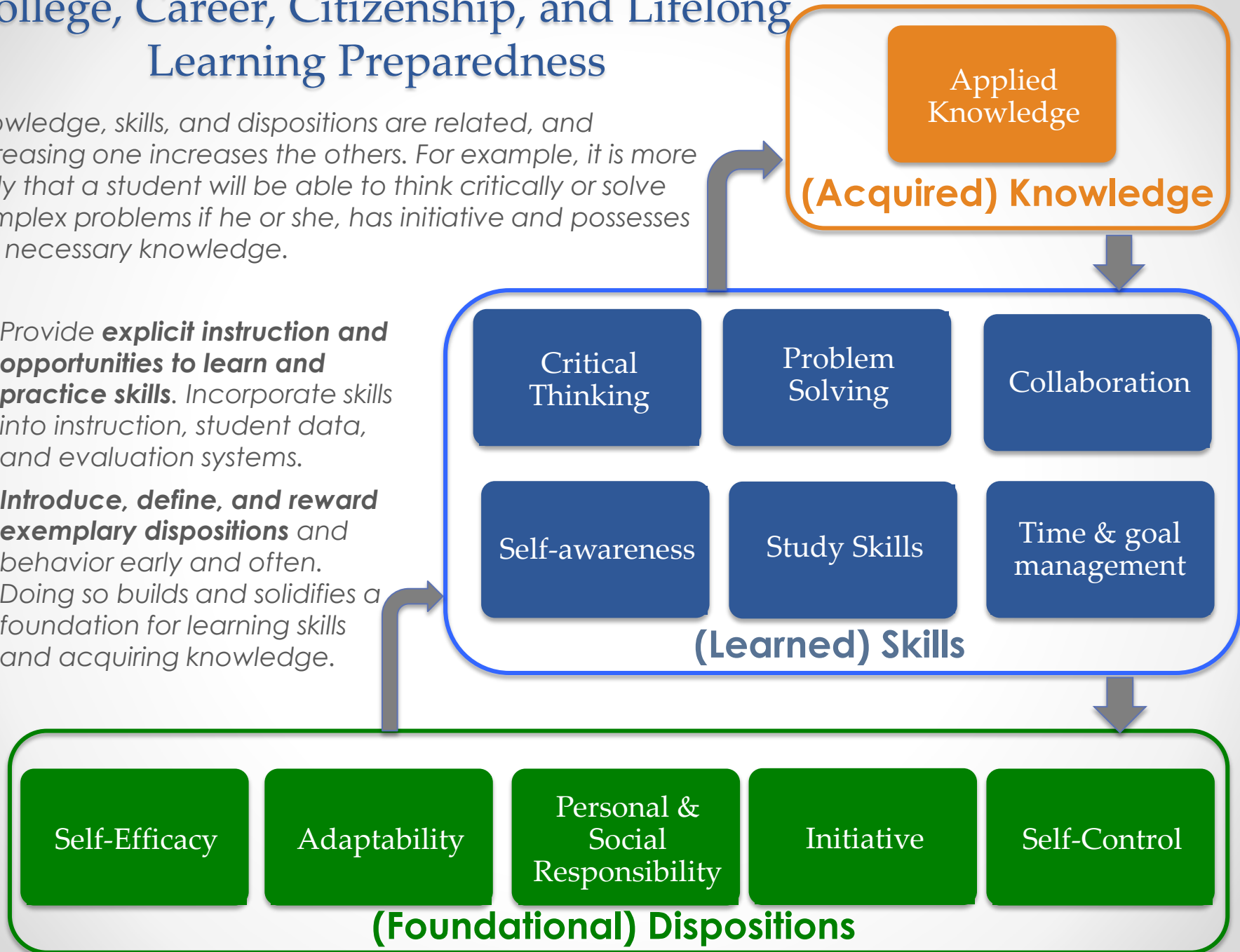
Skills

Dispositions

Knowledge
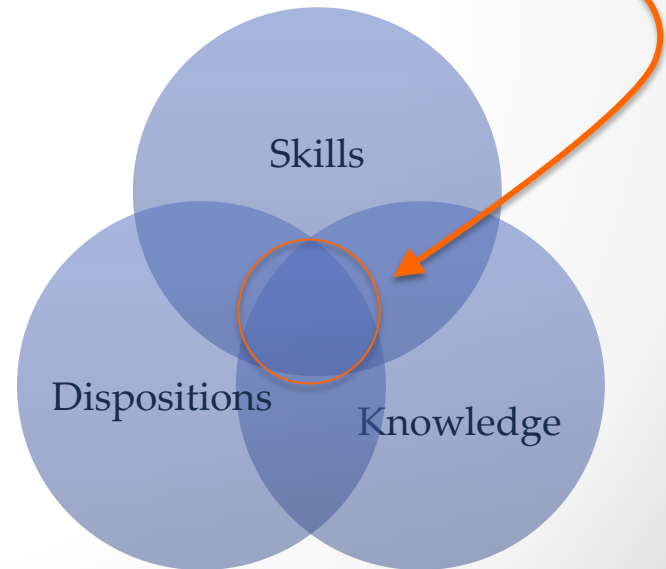
Because numerous content assessments are widely used (SAT, GRE, NWEA's MAP, AIR/Harcourt Modified Terra Nova, NAEP, Terra Nova, and soon the PARCC and SBAC consortia assessments) we do not explore them here.

College, Career, Citizenship, and Lifelong Learning Preparedness

Knowledge, skills, and dispositions are related, and increasing one increases the others. For example, it is more likely that a student will be able to think critically or solve complex problems if he or she, has initiative and possesses the necessary knowledge.

⇒ *Provide **explicit instruction and opportunities to learn and practice skills**. Incorporate skills into instruction, student data, and evaluation systems.*

⇒ ***Introduce, define, and reward exemplary dispositions** and behavior early and often. Doing so builds and solidifies a foundation for learning skills and acquiring knowledge.*

Applied Knowledge

(Acquired) Knowledge

Critical Thinking	Problem Solving	Collaboration
Self-awareness	Study Skills	Time & goal management

(Learned) Skills

Self-Efficacy	Adaptability	Personal & Social Responsibility	Initiative	Self-Control

(Foundational) Dispositions

Definitional Elements of the ILN Taxonomy: Knowledge, Skills, and Dispositions

Knowledge

Mastery of rigorous content and the facile application or transfer of what has been learned to complex and novel situations

Common Core State Standards (reading, writing, speaking, listening, language and mathematics)

Career & Technical Education

Other Content (Science, the Arts, civics, Economics, Geography, U.S. History, Health & Physical Education, World Languages, Information, Media & ICT Literacy)

Global Competence

*#Applied Knowledge

Skills

The capacities and strategies that enable students to learn and engage in higher order thinking, meaningful interaction with the world around them, and planning for the future

Critical thinking*#
Problem solving#
Working collaboratively#
Communicating effectively+
Metacognition & self-awareness#
Study skills & learning how to learn*#
Time and goal management*#
Creativity and innovation#

Dispositions

Socio-emotional skills or behaviors that associate with success in college, career and citizenship

Agency **(Self-efficacy*#)**
Initiative*#
Resilience
Adaptability#
Leadership+
Ethical behavior & civic responsibility **(Personal & Social Responsibility*)**
Social awareness & empathy **(Collaboration#+)**
*#Self-control

*Definitional elements of the ILN Taxonomy are listed above. Skills and dispositions that were derived from the research synthesis are in **bold** font. Parentheses indicate overlap, but not an exact match, between the skills and dispositions that emerged from the research synthesis and the skill or disposition defined by ILN's taxonomy. The strength of the relationship between each skill or disposition and college, career, and citizen success is indicated as:*
  * Predictor of postsecondary academic outcomes
  # Predictor of K–12 outcomes
  + Strong theoretical support for impact on success in college, career, and citizenship, but further research is needed.

ILN Skills and Dispositions Compared to Skills and Traits Derived from Research Synthesis

ILN Skill/Disposition	Derived Core skill	Degree of Overlap/Notes
Applied knowledge	Applied knowledge	High overlap
Critical thinking	Critical thinking	High overlap
Problem solving	Problem solving	High overlap
Working collaboratively	Collaboration	High overlap
Communicating effectively	Communication	High overlap
Metacognition & self-awareness	Self-awareness	High overlap
Study skills & learning how to learn	Study skills	High overlap
Time & goal management	Time & goal management	High overlap
Adaptability	Adaptability	High overlap
Leadership	Leadership	High overlap
Initiative	Initiative	High overlap
Self-control	Self-control	High overlap
Agency	Self-efficacy	High overlap; agency may have a broader scope than self-efficacy, which focused primarily on academic self-efficacy.
Ethical behavior & civic responsibility	Personal & social responsibility	High overlap; the research synthesis identified aspects of ethics and integrity, as well as some aspects of civic and community involvement and also includes components of self-care and self-regulation that may not be a part of the taxonomy.
Creativity and innovation	Problem Solving	Moderate overlap; creativity, as its own skill, did not emerge from the research synthesis, however, elements of problem solving require creative thinking to solve problems.
Resilience	Adaptability	Moderate overlap; resilience did not emerge on its own from the research synthesis, however there is moderate overlap with adaptability.
Social awareness & empathy	Collaboration	Moderate overlap; collaboration includes some emphatic components, but likely does not include all aspects of social awareness & empathy.
---------------	Integrity	Inclusion recommended as it emerged from the research synthesis as a strong predictor of K-12 success.
---------------	Intellectual Curiosity	Inclusion recommended as it emerged from the research synthesis as a strong predictor of K-12 success.

There was significant overlap between the ILN taxonomy and the skills and dispositions that emerged from the research synthesis. This suggests that the taxonomy is supported by available evidence and contains the skills and dispositions that are most strongly associated with preparation for college, career, and citizenship.

Descriptions of Skills and Dispositions Associated with Student Success

Knowledge

Applied knowledge*#

Students activate and demonstrate knowledge including basic facts, theories, cultural knowledge, and procedural and practical intelligence such as knowing and being able to use appropriate tools and technology for each task; integrate new knowledge into existing structures; and understand how knowledge systems interact with one another.

Skills

Critical thinking*#

Students use reasoning and analytic skills to interpret information, develop strategies, and make judgments and decisions.

Problem solving#

Students develop and implement creative solutions to problems both independently and collaboratively.

Collaboration#+

Students work effectively with others; respect diversity; are empathic, cooperative, and willing to compromise; assume shared responsibility for group tasks; and communicate effectively in groups.

Metacognition and self-awareness#

Students have metacognitive knowledge and a realistic sense of their strengths and weaknesses, and they capitalize on strengths and work toward improving deficiencies.

Study skills and learning how to learn*#

Students use skills and strategies to complete schoolwork, study for tests, take notes, and achieve academic goals; maintain regular study routines; have positive attitudes toward school and studying; and self-identify as scholars

Time and goal management*#

Students effectively and independently prioritize and plan their time to achieve long- and short-term goals and outcomes

Associated with college outcomes; #Associated with K–12 outcomes

Descriptions of Skills and Dispositions Associated with Student Success

Dispositions

Agency (self-efficacy)*#

Students are confident in their ability to succeed, persist to overcome challenges, and are not defeated by failure.

Initiative*#

Students are driven and persist in sustained effort toward accomplishing short- and long-term academic and life goals and mastering new skills and knowledge.

Adaptability#

Students respond and adapt well to change, are comfortable with ambiguity, adjust priorities and thinking in response to change, manage pressure and setbacks, and maintain an optimistic outlook.

Ethical behavior & civic responsibility (Personal & social responsibility) *

Students act consistently with values and take active responsibility for themselves, their communities, and the environment by engaging in healthy behaviors, performing volunteer work and civic duties, and conserving resources

Self-control*#

Students are able to define, prioritize, and complete tasks independently, and are able to maintain emotional self-control, tolerate stress, and control impulses.

Additional Dispositions Emerging from Literature Review

Integrity*#

Students work in a systematic and organized fashion to develop precise and accurate products that comply with procedures and directions, have high standards, and maintain academic and personal integrity.

Intellectual Curiosity#

Students are intellectually curious life-long learners who go beyond basic mastery of content to explore and expand knowledge

*Associated with college outcomes; #Associated with K–12 outcomes

Association of Skills & Dispositions with Student Outcomes

Core Skill	Relationships with Outcomes						
	K–12 Success	College GPA	Performance in College Courses	College Credits Earned	College Retention	College Absenteeism	Career Success
Self-Efficacy	Strong	Moderate	Moderate	NA	Strong	NA	NA
Initiative	Strong	Strong	NA	Small	Moderate	NA	NA
Integrity	Strong	Moderate	Moderate	Small	Small	No or Negative	NA
Intellectual Curiosity	Strong	Moderate	Moderate	Small	Small	NA	NA
Adaptability	Strong	Moderate	Small	NA	NA	No or Negative	Moderate
Study Skils	Strong	Small	Moderate	Small	Small	No or Negative	NA
Time and Goal Management	Strong	Small	Small	Small	Small	NA	NA
Leadership	Moderate	Strong	Small	NA	NA	NA	NA
Collaboration	Strong	Moderate	Small	NA	NA	NA	NA
Communication	Strong	Moderate	NA	Small	No or Negative	No or Negative	NA
Problem Solving	Strong	Small	NA	NA	No or Negative	No or Negative	Small
Critical Thinking	Moderate	Strong	NA	NA	NA	NA	NA
Self–Awareness	Moderate	Small	NA	NA	NA	NA	Small
Self–Control	NA	Moderate	NA	Small	Small	No or Negative	NA
Applied Knowledge	NA	Small	NA	Small	No or Negative	No or Negative	NA
Social & Personal Responsibility	NA	Small	NA	NA	No or Negative	No or Negative	Small

Measuring Skills and Dispositions

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Existing Assessment Review

Measuring Skills & Dispositions

Pros

+ Identify **potential** beyond pure aptitude and content knowledge
+ Established associations to **positive outcomes** in college, career, and citizenship
+ Contain **fewer biases** across gender, ethnicity, and SES
+ **Multiple methods & measures are available**
+ More precise than content tests for evaluation **borderline students**

Cons

- May be more susceptible to **faking** and socially desirable responding
- **Inconsistent skills and disposition definitions** and terminology
- May **not (alone) be suitable** for high-stakes testing

Identifying Measures of Skills and Dispositions

A set of assessments measuring skills and disposition was selected for in-depth evaluation based on the following criteria.

- **Skills and dispositions**: the test assesses traits that are *distinct* from traditional aptitude and content knowledge based educational assessments

- **Conceptual representation**: the test assesses one or more of the core skills and dispositions related to educational outcomes; preference is given to tests that measured multiple core skills or dispositions, rather than individual traits

- **Evidence**: the test has available reliability and validity evidence, including studies linking the measure to college, career, or citizenship outcomes

- **Feasibility**: the practicality and ease of implementation of the test are high.

- **Promise**: the test includes unique, innovative, or promising features, such as resistance to faking or lack of subgroup bias.

Available Measures

Assessment Name	Abbreviation
16PF (Fifth Edition)	**16PF**
Beacon	**Beacon**
College Adjustment Inventory	**CAI**
EPIC's CampusReady	**CampusReady**
College and Work Readiness Assessment	**CWRA**
ACT's ENGAGE	**ENGAGE**
Grit Scale	**Grit**
Inventory of Classroom Style and Skills	**INCLASS**
Kaleidoscope Project	**Kaleidoscope**
Learning and Study Strategies Inventory	**LASSI**
Motivated Strategies for Learning Questionnaire	**MSLQ**
My Voice Survey	**My Voice**
National Survey of Student Engagement	**NSSE**
Noncognitive Questionnaire	**NCQ**
ETS Personal Potential Index	**PPI**
Personal Qualities Assessment	**PQA**
Rational Biodata Inventory	**RBI**
Situational Judgment Inventory + Biodata	**SJI + bio**
Success Highways	**Success Hwys**
Survey of Study Habits and Attitudes	**SSHA**
Tailored Adaptive Personality Assessment System	**TAPAS**
EPIC's ThinkReady	**ThinkReady**
Video-based Situational Judgment Test	**Video SJT**
Work Preferences Assessment	**WPA**

Coverage of Core Skills and Dispositions by Assessment

Assessment	Initiative	Collaboration	Communication	Critical Thinking	Self-Control	Adaptability	Applied Knowledge	Integrity	Problem Solving	Self-Efficacy	Leadership	Intellectual Curiosity	Study Skills	Self-Awareness	Social & Personal Responsibility	Time Management	Coverage of core skills
CampusReady	■	■	■	■	■		■		■	■		■	■	■	■	■	81%
MSLQ	■			■	■			■		■		■	■	■		■	56%
PPI		■	■	■	■	■	■	■	■							■	56%
SJI + bio	■	■	■			■	■	■	■		■				■		50%
ThinkReady			■	■	■		■	■	■				■	■			50%
16PF				■	■	■	■		■		■	■					44%
PQA		■	■	■	■	■	■	■									44%
TAPAS	■	■	■	■	■						■				■		44%
ENGAGE	■	■	■		■					■			■				38%
INCLASS	■	■	■			■		■	■			■					38%
NCQ	■						■			■	■			■	■		38%
RBI	■				■		■		■		■				■		38%
Kaleidoscope			■	■				■	■		■						31%
LASSI			■	■				■	■		■						31%
My Voice	■	■								■		■			■		31%
Success Hwys	■	■				■				■					■		31%
WPA		■	■	■			■							■			31%
Beacon	■	■					■			■							25%
CAI	■						■	■									19%
CWRA			■	■					■								19%
Video SJT		■	■				■										19%
SSHA					■								■				13%
Grit	■																6%
NSSE		■															6%
% of assessments measuring skill	52%	48%	48%	48%	43%	43%	43%	39%	35%	30%	30%	22%	22%	22%	22%	13%	

The assessment that covered the most core skills was CampusReady (measuring 81% of the skills), followed by the MSLQ and PPI (both measuring 56% of the core skills). The skills that were most assessed by the tests included initiative, collaboration, communication, and critical thinking.

Technical and Feasibility Comparison

	Admin. Ease	Feasibility	Cost	Technical Evidence
ENGAGE	✔	✔	✔	✔
Grit Scale	✔	✔	✔	✔
LASSI	✔	✔	✔	✔
MSLQ	✔	✔	✔	✔
INCLASS	✔	✔	✔	–
SSHA	✔	◆	✔	◆
16PF	✔	◆		✔
CAI	✔	✔		◆
PPI	✔	✔	–	◆
TAPAS	✔	✔		◆
WPA	✔	✔		◆
My Voice	✔	✔		–
CampusReady	◆	◆	◆	✔
Beacon	✔	◆		◆
NSSE	◆	–	✔	◆
NCQ	◆	✔		◆
RBI	✔	◆		◆
SJI + bio	✔	◆		◆
Success Highways	✔	◆	◆	◆
ThinkReady	◆	◆	–	✔
Video SJT	✔	◆		◆
PQA	✔	–	–	◆
CWRA	◆	◆	–	–
Kaleidoscope	–	◆		◆

✔ = *Strong*
◆ = *Good*
– = *Weak*
Blank = Unavailable

Moving Forward

Suggested Next Steps

Moving Forward: Big Picture

Educate
Demonstrate, justify, and inform stakeholders of the importance, impact, and applicability of skills and dispositions

Plan
Identify and prioritize the key skills & dispositions; research to identify effective best practices

Target
Determine target population, developmental windows of greatest malleability, & facilitator(s) that encourage development

Teach
Identify empirically derived effective best practices; develop and provide supports

Evaluate
Determine the best methods of assessing and measuring development of skills and dispositions

Moving Forward: Next Steps

Educate

Demonstrate, justify, and inform stakeholders of the importance of these traits

- Work towards making the improvement of skills and dispositions a **shared priority**
- **Integrate** shared priorities into local curricula, resources, supports, materials, and instructional practices

Plan

Prioritize and specify the key skills & dispositions

- Use research to inform which traits are the **most malleable** and the **critical periods** for developing them (Pre-K, primary, middle, or high school)
- **Prioritize** one trait, or set of traits, to focus on (*e.g.*, creativity)
- Evaluate implementation **feasibility** (time, cost, availability of existing measures and resources)

Target

Determine target population and facilitator(s)

- Determine the most effective **level** at which to implement (school, state, district, classroom, community or family)
- Research to identify **best practices**; use both empirical evidence and real-world contexts to demonstrate how these traits can be changed and how they relate to college, career, and citizenship

Teach

Conduct research to determine best practices

- Identify existing programs, curricula, or interventions best suited for **developing** these traits
- Research informs **best practices** related to timing and effective of instructional practices

Evaluate

Determine the best methods to assess and measure these abilities

- Pre and post measures determine efficacy of implemented practice(s) and inform their evolution
- Assessments document **progress and impact**
- **Minimize burden** by incorporating repeated measures of these skills and dispositions into existing assessments or classroom activities

Study Methodology

Literature Search Frame

- "21st Century"
- "Soft skills"
- "Interpersonal skills"
- "Intrapersonal skills"
- "Noncognitive skills"
- "Non-intellective"

Data Bases

- Education
- Psychology
- Social science
- Internet
- Test developer websites
- References from key papers/authors
- Meta-analyses

Skill Synthesis

16 core skills & dispositions derived from:
- 34 Frameworks
- 74 Skills
- 378 factors

Assessment Search Frame

143 potential measures

Excluded

- Nonrelevant
- Aptitude measures
- Purely content-based measures
- Resulting in 70 potential measures

Final 24 Assessments

- Feasible to implement
- Relationship with student outcomes
- Applicable to multiple skills
- Multi-dimensional
- Multiple similar options: kept only exemplary assessments
- Mapped to core skills and dispositions

Supplemental Materials

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Guide

Guide to Supplementary Materials

1. Core Skill Definitions

2. Key Frameworks and Constructs

3. Bibliography and Websites

References for all evidence of outcomes described

Works Cited

Bar-On, R. (2006). The B... *Psicothema, 18*, 13–25.

Barrick, M. R., & Mount, M... performance: A meta-ana...

Bartram, D. (2005). The C... validation. *Journal of App...*

Bean, J.P. (1985). Interac... college student dropout s...

Bean, J.P. & Metzner, B.S... undergraduate student a...

16PF:
- http://www.ipat...
- http://www.pea... us/Productdetail...

ACT Engage:
- http://www.act.o...
- http://www.act.o...
- http://www.act.o...
- http://www.act.o...

C-SYNC SSI:
- http://www.camp... strengths-invento...

Colorado State Univ. Essa...
- http://www.toda...
- http://admissions...
- http://admissions... f
- http://admissions...

Key Non-cognitive Skills

1. Self-Efficacy
Students are confident in their ability to obtain... challenges, and are not defeated by failure (Catt... 2007, 2010, 2012; Duckworth, 2005, 2007; Dwe... Farrington et al., 2012; Marsh, 1984; Marzano, ... Richardson, Abraham, & Bond, 2012; Robbins, e... Solberg, 2001; Zimmerman, Bandura, & Martine...

2. Initiative
Students are driven and persist in sustained eff... term academic and life goals and mastering new... Bartram, 2005; Campbell, Kuncel, & Oswald, 19... 2005, 2007, 2010, 2012; Csikszentmihalyi, 199... 1975; Friede et al., 2002; Goleman, 1995; Lindn... Dean, 2000; Partnership for 21st Century Skills,... Abraham, & Bond, 2012; Robbins, et al., 2004; S... Schmitt, et al., 2011; Zimmerman, Bandura, & M...

3. Integrity
Students work in a systematic and organized fa... products that comply with procedures and dire... academic and personal integrity (Bartram, 2005... 2012; Cherniss & Goleman, 2001; Credé & Kunce... 1990; Hogan & Holland, 2002; Partnership for 2... 2000; Richardson, Abraham, & Bond, 2012; Sch...

4. Intellectual Curiosity
Students are intellectually curious life-long lear... content to explore and expand knowledge (Bart... Conley, 2005, 2007, 2010, 2012; Credé & Kunce... Hogan & Holland, 2002; Partnership for 21st Ce... Bond, 2012; Schmitt, 2012; Schmitt, et al., 2011...

5. Adaptability
Students respond and adapt well to change, are... priorities and thinking in response to change, m... an optimistic outlook (Bar-On, 2006; Bartram, 2... al., 2002; Goldberg, 1990; Hogan & Holland, 200... 2009; Bar-On, 2006; Mayer, Salovey, Caruso, & ... Schmitt, 2012; Schmitt, et al., 2011).

Definitions of Constructs from Key Frameworks

16 PF
Cattell, R.B., Cattell, A.K.S., & Cattell, H.E.P. (1993)

- **Abstractedness:** Abstracted, imaginative, idea oriented
- **Dominance:** Dominant, forceful, assertive
- **Emotional Stability:** Emotionally stable, adaptive, mature
- **Openness to Change:** Open to change, experimenting
- **Perfectionism:** Perfectionistic, organized, self-disciplined
- **Reasoning:** Abstract, bright, fast-learner
- **Rule-Consciousness:** Rule conscious, dutiful
- **Self-Reliance:** Self-reliant, solitary, individualistic
- **Social Boldness:** Socially bold, venturesome, thick-skinned
- **Vigilance:** Vigilant, suspicious, skeptical, wary

21st Century Skills
Partnership for 21st Century Skills (2009)

- **Access and Evaluate Information:** Access information efficiently (time) and effectively (sources); evaluate information critically and competently.
- **Adapt to Change:** Adapt to varied roles, jobs responsibilities, schedules, and contexts; work effectively in a climate of ambiguity and changing priorities.
- **Analyze Media:** Understand both how and why media messages are constructed, and for what purposes; examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors; apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media.
- **Be Flexible:** Incorporate feedback effectively; deal positively with praise, setbacks and criticism; understand, negotiate, and balance diverse views and beliefs to reach workable solutions, particularly in multicultural environments.
- **Be Responsible to Others:** Act responsibly with the interests of the larger community in mind.
- **Be Self-Directed Learners:** Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise; reflect critically on past experiences in order to inform future progress.
- **Civic Literacy:** Participating effectively in civic life through knowing how to stay informed and understanding governmental processes; exercising the rights and

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4. Skill Summaries

Summary of relationships between constructs and student outcome measures
Blue = Strong, Green = Good, Red = Weak, Orange = Unavailable

Core skill definition

Assessments that measure this core skill

Constructs and definitions from key frameworks included in core skills

Details of relationships between constructs and student outcome measures

Initiative Students are driven and persist in sustained effort toward accomplishing short- and long-term academic and life goals and mastering new skills and knowledge

This skill was derived from the following constructs (identified in key theoretical frameworks):

• **Goal Setting** • **Postsecondary Aspirations** (Four Keys, Conley, 2012) • **Adaptive Goal Setting** (Key SEL Competencies, Payton, et al., 2000) • **Preference for Long-Term Goals to Short-Term or Immediate Needs** (Noncognitive variables, Sedlacek, 1996; 2004) • **Exhibiting Sustained, Goal-Directed Effort** (Components of Grad School Performance, Campbell, et al., 1998) • **Clear Goals** (Flow, Csikszentmihalyi, 1990) • **Grit** (Grit, Duckworth et al., 2007) • **Learning Goal Orientation** (Self-Regulated Learning, Lindner & Harris, 1992; 1998) • **Manage Goals and Time^** • **Implement Innovations^** (21st Century Skills, P21, 2009) • **Leading and Deciding^** (Great Eight, Bartram, 2005) • **Self-Actualization** (Emotional Intelligence & Emotional Intelligence Revised, Goleman, 1995; Cherniss & Goleman, 2001) • **Perseverance** (Twelve Dimensions, Friede, et al., 2002)

Key Assessments Measuring These Constructs: Beacon, CAI, CampusReady, CB MSU, ENGAGE, Grit, INCLASS, LASSI, MSLQ, NCQ, Posse, RBI, Success Hwys, TAPAS, USE		Relationships with Outcomes														
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K–12 Success		Career Success	
		Strong		Moderate		No or Negative		Moderate		No or Negative		Strong		NA	
Empirically Tested Construct	Definition	r	N	r	N	r	N	r	N	r	N	r	N	r	N
Career Orientation [1,2,3]	Having clear career aspirations; establishing, prioritizing, and following a set of career-related goals.	−0.12	2,730–2,768	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--
Goal Commitment [4]	Commitment to staying at university and obtaining a degree.	0.15	13,098	--	--	--	--	--	--	--	--	--	--	--	--
Grade Goals [4]	Self-assigned minimal goal standards (in this context, GPA).	0.35	2,670	--	--	--	--	--	--	--	--	--	--	--	--
Perseverance [1,2,3]	Committing oneself to goals and priorities set, regardless of the difficulties that stand in the way.	0.16	611–636	--	--	--	--	n.s.	--	-0.14	2,730–2,768	--	--	--	--
Positive Self-Concept or Confidence [5,6]	Strong self-feeling, strength of character. Determination, independence.	-0.05	7,703	--	--	0.07	493	0.14	2,861	--	--	--	--	--	--
Preference for Long-Term Goals to Short-Term or Immediate Needs [5,6]	Ability to respond to deferred gratification.	0.06	7,523	--	--	0.06	493	0.03	2,735	--	--	--	--	--	--
Study Motivation [7]	Combination of both intrinsic and extrinsic motivation to engage in studying rather than other nonacademic activities.	0.23	6,157	0.17	2,158	--	--	--	--	--	--	--	--	--	--

[1]Friede et al. (2002), [2]Oswald et al. (2004), [3]Schmitt et al. (2011), [4]Richardson et al. (2012), [5]Sedlacek (2004), [6]Thomas et al. (2007), [7]Credé & Kuncel (2008)

References for all evidence described

Skill Summaries

Core skill definition

Summary of relationships between constructs and student outcome measures
Blue = Strong, Green = Moderate, Red = Small –or– No or Negative, Orange = Unavailable

Assessments that measure this core skill

Details of relationships between constructs and student outcome measures

Constructs and definitions from key frameworks included in core skills

Initiative Students are driven and persist in sustained effort toward accomplishing short- and long-term academic and life goals and mastering new skills and knowledge

This skill was derived from the following constructs (identified in key theoretical frameworks):

• **Goal Setting** • **Postsecondary Aspirations** (Four Keys, Conley, 2012) • **Adaptive Goal Setting** (Key SEL Competencies, Payton, et al., 2000) • **Preference for Long-Term Goals to Short-Term or Immediate Needs** (Noncognitive variables, Sedlacek, 1996; 2004) • **Exhibiting Sustained, Goal-Directed Effort** (Components of Grad School Performance, Campbell, et al., 1998) • **Clear Goals** (Flow, Csikszentmihalyi, 1990) • **Grit** (Grit, Duckworth et al., 2007) • **Learning Goal Orientation** (Self-Regulated Learning, Lindner & Harris, 1992; 1998) • **Manage Goals and Time^** • **Implement Innovations^** (21st Century Skills, P21, 2009) • **Leading and Deciding^** (Great Eight, Bartram, 2005) • **Self-Actualization** (Emotional Intelligence & Emotional Intelligence Revised, Goleman, 1995; Cherniss & Goleman, 2001) • **Perseverance** (Twelve Dimensions, Friede, et al., 2002)

Key Assessments Measuring These Constructs: Beacon, CAI, CampusReady, CB MSU, ENGAGE, Grit, INCLASS, LASSI, MSLQ, NCQ, Posse, RBI, Success Hwys, TAPAS, USE		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K–12 Success		Career Success	
		Strong		**Moderate**		**No or Negative**		**Moderate**		**No or Negative**		**Strong**		**NA**	
Empirically Tested Construct	**Definition**	*r*	*N*	*r*	*N*	*r*	*N*	*r*	*N*	*r*	*N*	*r*	*N*	*r*	*N*
Career Orientation [1,2,3]	Having clear career aspirations; establishing, prioritizing, and following a set of career-related goals.	–0.12	2,730–2,768	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--
Goal Commitment [4]	Commitment to staying at university and obtaining a degree.	0.15	13,098	--	--	--	--	--	--	--	--	--	--	--	--
Grade Goals [4]	Self-assigned minimal goal standards (in this context, GPA).	0.35	2,670	--	--	--	--	--	--	--	--	--	--	--	--
Perseverance [1,2,3]	Committing oneself to goals and priorities set, regardless of the difficulties that stand in the way.	0.16	611–636	--	--	--	--	n.s.	--	-0.14	2,730–2,768	--	--	--	--
Positive Self-Concept or Confidence [5,6]	Strong self-feeling, strength of character. Determination, independence.	-0.05	7,703	--	--	0.07	493	0.14	2,861	--	--	--	--	--	--
Preference for Long-Term Goals to Short-Term or Immediate Needs [5,6]	Ability to respond to deferred gratification.	0.06	7,523	--	--	0.06	493	0.03	2,735	--	--	--	--	--	--
Study Motivation [7]	Combination of both intrinsic and extrinsic motivation to engage in studying rather than other nonacademic activities.	0.23	6,157	0.17	2,158	--	--	--	--	--	--	--	--	--	--

[1]Friede et al. (2002), [2]Oswald et al. (2004), [3]Schmitt et al. (2011), [4]Richardson et al. (2012), [5]Sedlacek (2004), [6]Thomas et al. (2007), [7]Credé & Kuncel (2008)

References for all evidence described

Summaries of Skill & Disposition Assessments

Appendix

Guide to the Assessment Summaries

- Test description and theoretical framework

- Population (e.g., grades 9–12, >16 years)
- Status and current users
- Test characteristics (delivery mode, item types)
- Scoring details

- Administration ease
- Implementation
- Feasibility
- Cost
- Technical sufficiency (evidence of reliability and validity)

- Skills measured by test
- Core skills measured by test

- Additional details, exemplary characteristics, features of note, etc.

Blue = Strong, Green = Good, Red = Weak, Orange = Unavailable

Sixteen Personality Factors (16PF)
IPAT (Psychological Assessments for Informed People Decisions)

| Administration Ease | Feasibility | Cost Unknown | Technical Evidence |

The 16PF is a Likert-scale, self-report questionnaire instrument that measures the 16 normal adult personality dimensions (that fall under the five global factors of Extraversion, Anxiety, Tough-Mindedness, Independence, and Self-Control) as described by Raymond Cattell. A wide-scale study is currently under way to investigate the 16PF's ability to predict college success.

Population	Status	Characteristics	Scoring
• Can be used with anyone 16 years old and up	• Operational • Many current users	• There are both paper & pencil and web versions • There are more than 120 items on the test, which takes about 40 minutes to complete	• Can be scored either automatically or manually

The 16PF measures: Warmth, Reasoning, Emotional Stability, Dominance, Liveliness, Rule-Consciousness, Social Boldness, Sensitivity, Vigilance, Abstractedness, Privateness, Apprehensiveness, Openness to Change, Self-Reliance, Perfectionism, Tension

The 16PF covers 44% of the core skills: Intellectual Curiosity, Integrity, Self-Control, Leadership, Problem Solving, Critical Thinking, Adaptability

The 16PF has many uses, including counseling, career, clinical settings, and research into predicting outcomes of human behavior. It can help determine occupations for which the individual is best suited and identify students with potential academic, emotional, and social problems. Because the relationship between the test items and the traits measured by the 16PF instrument is not obvious, it is difficult for the test-taker to deliberately fake responses to achieve a desired outcome.

*Evaluation criteria modified from those suggested by Commission on New Possibilities, 1990; Willingham, 1985; Ford et al, 2000.

Sixteen Personality Factors (16PF)

IPAT (Psychological Assessments for Informed People Decisions)

- Administration Ease
- Feasibility
- Cost Unknown
- Technical Evidence

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Beacon

CampusLabs

Administration Ease · Feasibility · Cost Unknown · Technical Evidence
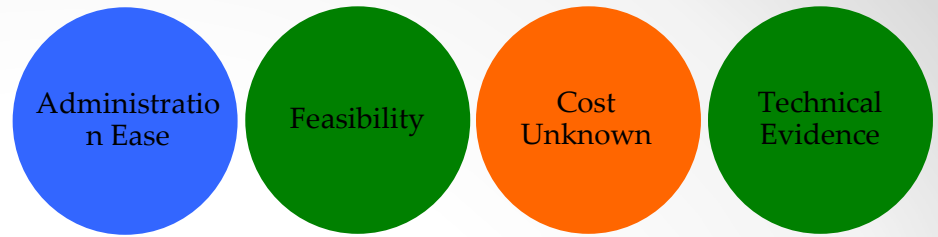
Beacon is a web-based tool that measures six factors empirically shown to relate to college student retention and persistence. It is a self-report questionnaire that asks students about their academic attitudes and behaviors and social skills.

Population	*Status*	*Characteristics*	*Scoring*
• College students • In particular, targets incoming students	• Operational use, low stakes • CampusLabs products currently used at over 650 colleges and universities	• Delivered online • Contains less than 50 items • Cost information can be requested from the publisher	• Scoring is done automatically and uses polytomous responses

Beacon measures: Academic Engagement, Educational Commitment, Campus Engagement, Social Comfort, Academic Self-Efficacy, Resiliency

Beacon covers 25% of the core skills: Initiative, Collaboration, Self-Efficacy, Adaptability

Publisher states high reliability scores, but little external evidence of its technical strength is known. Current results show promising relationships with academic outcome variables, although the available evidence, particularly from external sources, is scarce. Integrates with other CampusLab products to collect student data across a range of sources in order to provide an early alert system for identifying at-risk students.

College Adjustment Inventory (CAI)

Osher, Ward, Tross, & Flanagan (1995)

Administration Ease

Feasibility

Cost Unknown

Technical Evidence
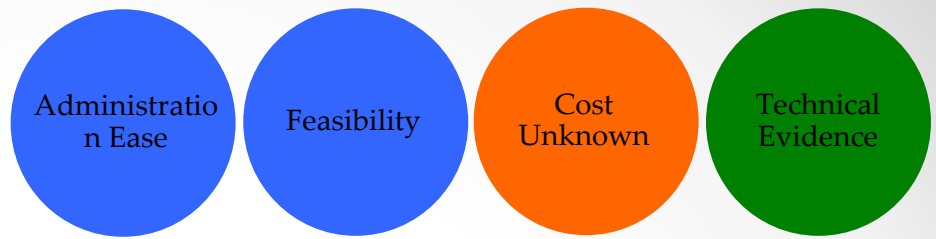
The College Adjustment Inventory is a self-report instrument consisting of 6-point Likert scale items. It is based on the Big Five personality characteristics in addition to theories of achievement, conscientiousness, and resiliency. It has been used for research purposes to examine relations with higher education performance outcomes (e.g., retention rates).

Population	Status	Characteristics	Scoring
• High school and undergraduate students • Targeted for use during new student induction	• Nonoperational; research only	• Self-report, Likert scale items • It is delivered in a paper and pencil format • Details on the number of items and time to complete were not found	• Automatically scored

The CAI measures: Achievement, Academic Commitment (Conscientiousness), Resilience

The CAI covers 19% of the core skills: Initiative, Integrity, Adaptability

Very little detail on the reliability and construct validity of the assessment was available; however, there is evidence linking the constructs measured by the CAI to retention and academic success. For example, the conscientiousness scale was shown to have incremental validity of 7% beyond SAT score and high school GPA for predicting college GPA (Tross, 2000). Also, a recent meta-analysis showed achievement motivation to be among the strongest constructs tested for predicting college GPA ($r = 0.30$; Robbins et al., 2004).

CampusReady
EPIC
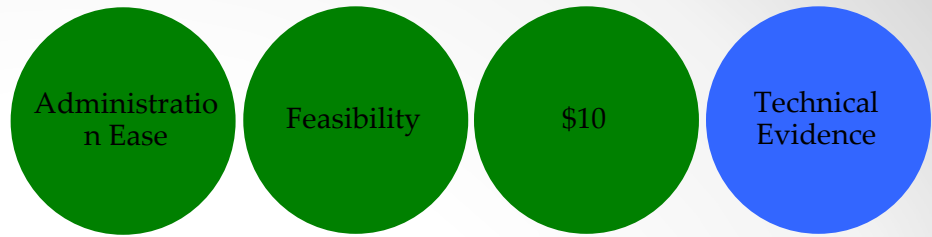
CampusReady generates a comprehensive profile of a school in relation to the Four Keys to College and Career Readiness. The diagnostic gathers feedback from students, teachers, counselors, and administrators to provide a 360-degree overview of a school's college and career readiness. Detailed reports are provided, in addition to a custom list of resources available to schools aimed at improving college and career readiness.

Population	Status	Characteristics	Scoring
• Can be used with middle school through college-aged students	• Operational, low-stakes	• Uses web-based, Likert scale ratings • Requires a school coordinator • Takes 30–90 minutes to complete (depending on user type)	• Reports include a school profile with resources and recommendations for a school • Reports also allow for comparisons between schools

CampusReady measures: Problem Formulation, Research, Interpretation, Communication, Precision/Accuracy, Structure of Knowledge, Student Characteristics, Goal Setting, Persistence, Self-Awareness, Motivation, Help Seeking, Progress Monitoring, Self-Efficacy, Technology Proficiency, Memorization and Recall, Collaborative Learning, Time Management, Test Taking, Note Taking, Strategic Reading, Role Identity, Role Conflict, Role Models, Resource Acquisition, Institutional Advocacy, Postsecondary Aspirations, Postsecondary Norms and Culture, Tuition & Financial Aid Awareness

CampusReady covers 81% of the core skills: Initiative, Intellectual Curiosity, Study Skills, Time Management, Collaboration, Self-Efficacy, Applied Knowledge, Integrity, Communication, Problem Solving, Critical Thinking, Self-Awareness, Self-Control

CampusReady measures a wide and encompassing range of constructs that relate strongly to college and career readiness. The use of a 360-degree methodology gives a comprehensive cross section of school population to determine school functioning and also reduces concerns of socially desirable responding. Validation work is in the pilot stage, but promising results have been seen thus far linking scores on CampusReady to college outcomes. The custom resource list provided allows schools to take immediate action in order to improve student performance.

College & Work Readiness Assessment (CWRA)
Council for Aid to Education (CAE)

Administration Ease

Feasibility

$40–45

Technical Evidence
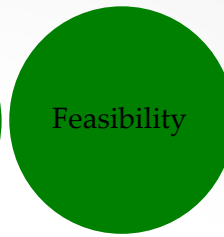
The CWRA is a performance measure that tests students on their "21st century skills." It can be used to measure a school's contribution to college and work readiness, track progress of a freshman class, and compare performance across schools. The questions require students to analyze a variety of different documents in order to complete the task.

Population	Status	Characteristics	Scoring
• High school students • In particular, freshman and seniors	• Operational use, low stakes • Currently used by ~45 high schools	• Completed online, in a proctor format and uses realistic problems • It can be administered in groups, or individually • Students have 105 minutes to complete a task	• Computer software is used to evaluate the structure and meaning of text in order to produce a score for the task • Unusual/difficult answers are scored by teachers

The CWRA measures: Critical Thinking, Analytical Reasoning, Problem-Solving, Writing

The CWRA covers 19% of the core skills: Problem Solving, Critical Thinking, Communication

The measure appears to be in the early stages of development as little to no evidence exists on the psychometric properties of the measure. A related measure that formed the basis for the development of the CWRA showed moderate to high relationships with SAT and ACT scores. Overall, it is a promising method (and one of only two performance-based assessments evaluated), but little evidence is currently available regarding its efficacy.

ENGAGE
ACT

| Administration Ease | Feasibility | $2–$5 | Technical Evidence |
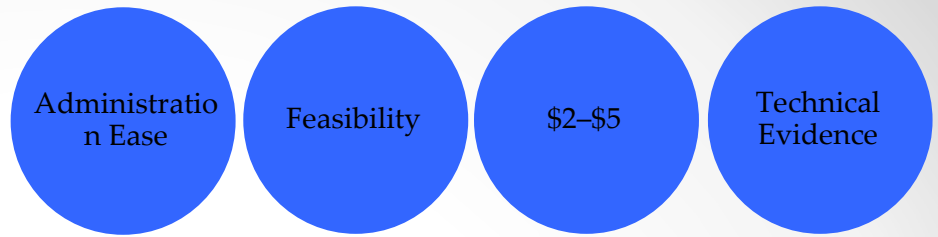
ACT's ENGAGE is a self-report questionnaire used to identify at-risk (e.g., dropout risk, low GPA) students. It measures behaviors and attributes that have been shown to relate to academic success and persistence in three domains: motivation, social engagement, and self-regulation.

Population	*Status*	*Characteristics*	*Scoring*

• Versions available for:
  – middle school
  – high school
  – college students
	• Operational, low-stakes
	• College version is currently used by over 25 colleges and universities
		• Around 100 items on the measure, which takes ~30 minutes to complete
		• Can be administered either online or by paper and pencil, in groups or individually
			• Scoring is handled automatically and responses are polytomous

ENGAGE measures: Academic Discipline, Commitment to College, Communication Skills, General Determination, Goal Striving, Study Skills, Social Activity, Social Connection, Academic Self-Confidence, Steadiness

ENGAGE covers 38% of the core skills: Initiative, Study Skills, Communication, Collaboration, Self-Efficacy, Self-Control

ENGAGE demonstrates strong reliability and validity evidence, including evidence of a moderately strong relationship with academic outcomes, including 1st-year college GPA, subject grades, and retention. The college version includes score reports that provide indices of the probability that a student will obtain a GPA greater than 2.0 and return for the second year.

Grit Scale

Duckworth et al. (2007)

Administration Ease · **Feasibility** · **Free** · **Technical Evidence**
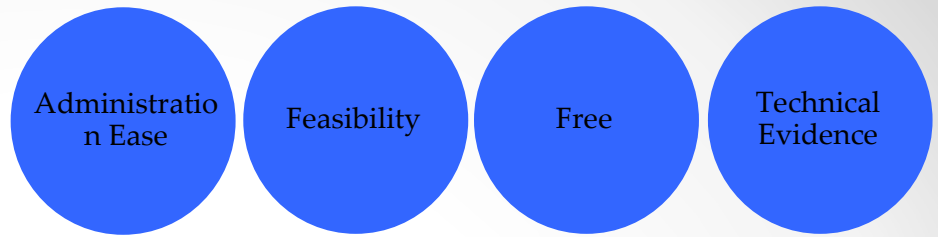
The Grit Scale is a self-report questionnaire measuring perseverance and grit, defined as a passion and motivation to achieve long-term goals. Considered by the authors to be a stable, consistent trait that can be maintained in the face of adversity and without positive reinforcement. It has thus far been used primarily in research into various outcomes of interest related to predicting "greatness;" grit is theorized to be a characteristic that sets apart exceptional individuals.

Population	Status	Characteristics	Scoring
• Can be used with adolescents and adults	• Some operational use, but mostly research • Recommended for low-stakes use	• Very easy to administer via paper and pencil and contains less than 20 Likert scale items • Can be downloaded for free, including the scoring guide	• Results are easy to hand score and can be done by either the examinee or the administrator of the test

The Grit Scale measures: Consistency of Interest, Perseverance of Effort

The Grit scale covers 6% of the core skills: Initiative

The Grit Scale demonstrates strong psychometric qualities. There is a considerable amount of evidence linking scores to outcome factors in a wide variety of fields and uses. For example, moderate to strong correlations have been found between Grit scores and high school GPA, completion of a summer training program by West Point cadets, success on the Scripps Spelling Bee, and inversely related to TV watching (in adolescents) and career changes.

Inventory of Classroom Style and Skills (INCLASS)

H&H Publishing

| Administration Ease | Feasibility | $2–$5 | Technical Evidence |
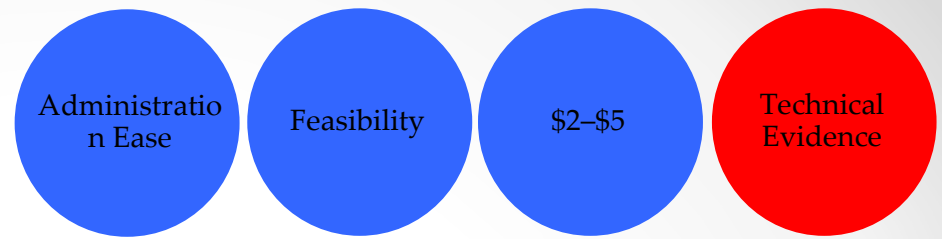
INCLASS is a self-report instrument designed to assess attitudes and behaviors related to academic learning in students. It is used to assess academic areas needed for education intervention; individual plans are created for bolstering weaknesses and building on strengths.

Population	*Status*	*Characteristics*	*Scoring*
• College students (can be used throughout college)	• Operational, low-stakes	• Easy to administer in web-based or paper and pencil formats • Contains 40 Likert-scale items	• Computer-scored • Results presented as percentile ranks

INCLASS measures: Life-Long Learning, Sense of Quality, Taking Responsibility, Persisting, Working in Teams, Problem Solving, Adapting to Change

INCLASS covers 38% of the core skills: Intellectual Curiosity, Integrity, Initiative, Collaboration, Problem Solving, Adaptability

There is little evidence available regarding the technical evidence of INCLASS, although the publisher claims it is a reliable and valid assessment. No known predictive validity evidence. Example reports are clear and easy to read and are delivered online immediately after taking the assessment; reports can also provide institutional mean and standard deviations of scale scores, based on all test takers in an institution.

Kaleidoscope Project

Sternberg (2009)
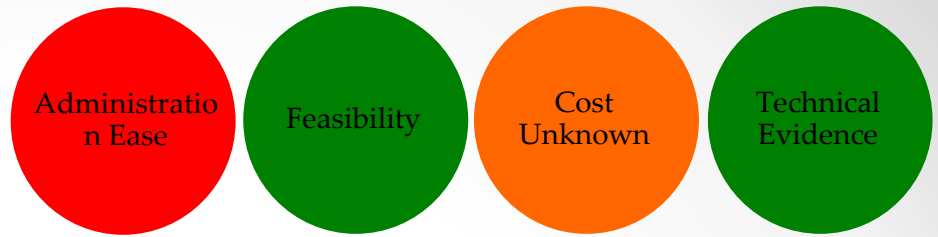
Kaleidoscope is an undergraduate admissions procedure designed to assess college applicants on a broad range of qualities, particularly those associated with the capacity for positive leadership and associated with Sternberg's WICS model of intelligence (comprises: creativity, analytical, practical, and wisdom-based skills). It is used to augment traditional aptitude measures for college admissions.

Population	Status	Characteristics	Scoring
• College applicants	• Operational use, high stakes • Tufts University	• Applicants choose to answer one (or more) short answer questions • Applications are submitted online	• Trained reviewers score the entire application based on the applicant's WICS traits, not just the essays • This includes: traditional aptitude measures, biodata, portfolios, etc.

Kaleidoscope measures: Creative Intelligence, Practical Intelligence, Wisdom, Analytical Skills (i.e., the WICS model of intelligence)

Kaleidoscope covers 31% of the core skills: Problem Solving, Critical Thinking, Leadership, Communication, Applied Knowledge

The administrative burden of the assessment is relatively high, given the resources needed to train and hire readers for the evaluation process. There is some indication that the assessment is effective, given an observed increase in underrepresented applicants and acceptance rates. Additionally, applicants who answered an essay demonstrated higher first-year GPA than those who did not. However, these results are difficult to interpret due to a concurrent increase in programs and support for underrepresented students as well as potential selection bias issues (i.e., more motivated students are more likely to answer an optional essay in the first place).

Learning and Study Strategies Inventory (LASSI)

H&H publishing

Administration Ease

Feasibility

$2–$5

Technical Evidence

The LASSI is a popular 10-scale, 80-item self-report diagnostic assessment of students' awareness about and use of learning and study strategies related to skill, will, and self-regulation components of strategic learning. It is easy to administer via computer or paper and pencil formats.

Population	*Status*	*Characteristics*	*Scoring*
• Versions available for both high school and college students •College version targets incoming students	• Operational, low-stakes • Used by over 2,000 colleges and universities	• There are both paper & pencil and web versions • It is a low-cost and short assessment	• Can be scored either automatically or manually • Scoring reports can include a profile of a student's strengths and weakness, on each of the 10 scales

The LASSI measures: Information Processing, Selecting Main Ideas, Test Strategies, Attitude, Motivation, Anxiety, Time Management, Study Aids, Self-Testing, Concentration

The LASSI covers 31% of the core skills: Problem Solving, Critical Thinking, Leadership, Communication, Applied Knowledge

The LASSI has strong technical qualities, including evidence from two meta-analyses indicating a strong relationship with college performance, particularly for the constructs related to motivation and self-regulation. Item development included removing items with a high tendency of socially desirable responding.

Motivated Strategies for Learning Questionnaire (MSLQ)
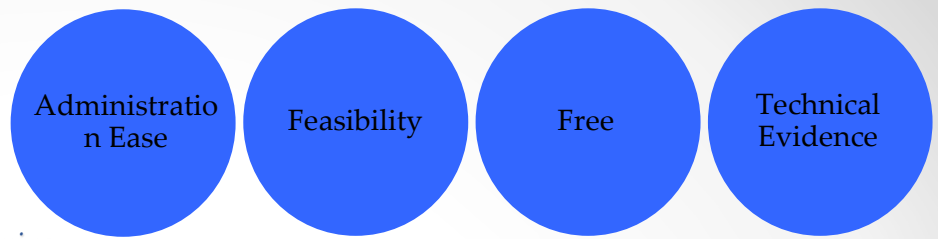
National Center for Research to Improve Postsecondary Teaching and Learning

Administration Ease **Feasibility** **Free** **Technical Evidence**

The MSLQ is a self-report questionnaire used for college advising and diagnostics. It is used to help students identify their strengths and weaknesses as a learner and measures the types of learning strategies a student uses. It is based on a strong and long-standing model of college student motivation and self-regulated learning (Pintrich & DeGroot, 1990).

Population	*Status*	*Characteristics*	*Scoring*
• College students • Originally designed for college students enrolled in a particular class	• Operational, low-stakes • Currently used primarily in research	• There are both paper & pencil and web versions. • It is a short assessment, which takes about 30 minutes	• Can be scored either automatically or manually • Responses made on a 7-point Likert scale.

The MSLQ measures: Intrinsic and Extrinsic Goal Orientation, Task Value, Control of Learning Beliefs, Self-Efficacy, Test Anxiety, Rehearsal, Elaboration, Organization, Critical Thinking, Planning, Monitoring, Regulating Strategies, Managing Time and Environment, Effort Management, Peer Learning, Help-Seeking

The MSLQ covers 56% of the core skills: Initiative Self-Efficacy, Study Skills, Intellectual Curiosity, Critical Thinking, Time Management, Self-Awareness, Self-Control, Integrity

The MSLQ has a strong foundation, including solid psychometric characteristics. Early research on the MSLQ revealed that the self-regulation, self-efficacy, and test anxiety scales emerged as good predictors of academic performance; additionally, self-efficacy and time management were shown to contribute incremental validity beyond ACT. A recent meta-analysis highlighted self-efficacy, goal setting, and self-regulation (with the MSLQ providing good coverage of these constructs) as the best predictors of college performance.

My Voice Survey(s)

The Quaglia Institute for Student Aspirations (QISA)

Administration Ease · **Feasibility** · **Cost Unknown** · **Technical Evidence**
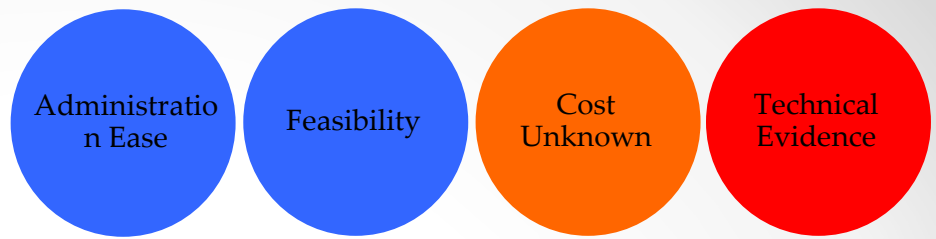
My Voice is a self-report (5 pt Likert scale) opinion survey that measures student aspirations, as measured by the three "guiding principles" of Self-Worth, Active Engagement, and Purpose. Versions of the survey can also be taken by parents and staff, allowing educators to gain various perspectives on student aspirations in their school(s). Customizable reports are given to schools that include an overview of aspirations in schools and guidance on how to interpret the results.

Population	Status	Characteristics	Scoring
• Students in grades 3-12 (separate versions for grades 3-5 and 6-12). • Versions also available for staff and parents	• Operational, low-stakes • Currently being used in a number of schools	• Online self-report questionnaire • Focus is on students' cognitive, behavioral and emotional experiences related to school	• Reports categorize answers in tables by the 8 constructs measured •Scores displayed as percentages of students in agreement (sum of 'strongly' and 'agree' responses)

My Voice measures: Belonging, Heroes (role models), Sense of Accomplishment, Fun and Excitement, Curiosity and Creativity, Spirit of Adventure, Leadership and Responsibility, Confidence to take action

My Voice covers 31% of the core skills: Self-efficacy, Initiative, Intellectual Curiosity, Leadership, Social & Personal Responsibility.

Resources for improving each of the 8 "conditions" of aspirations are also provided to users; additionally, QISA can provide professional development opportunities to foster student aspirations. Evidence supports the factor structure of My Voice into the three "guiding principles" and reliability of these three scales has been confirmed. However, no evidence of a relationship between scores on the survey with college, career, or citizenship was found.

National Survey of Student Engagement (NSSE)

| Administration Ease | Feasibility | $2–$5 | Technical Evidence |

Indiana University Center for Postsecondary Research
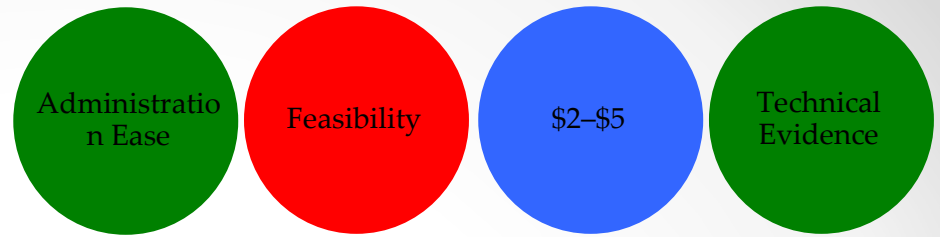
The NSSE is a survey that collects information at hundreds of colleges and universities about student participation in programs and activities. This information is used by higher education institutions to improve their support for student experience.

Population	*Status*	*Characteristics*	*Scoring*
• Undergraduate students	• Operational, low-stakes • Used by over 1,500 colleges and universities	• Participating schools use a web-based interface. • It consists of ~100 items	• Is scored automatically • Scores presented on a 0–100 scale for each benchmark • Scores are weighted to reflect the composition of the school

The NSSE measures: Level of Academic Challenge, Active and Collaborative Learning, Student–Faculty Interaction, Enriching Educational Experiences, Supportive Campus Environment

The NSSE covers 6% of the core skills: Collaboration

The NSSE requires a high level of institutional commitment and a large monetary and time investment (12 months to implement), though the publishers do offer assistance with administration. The NSSE does have strong reliability and validity evidence. The evidence on NSSE and performance outcomes is a bit mixed, as it is dependent on the scale and outcome measure examined.

The Noncognitive Questionnaire (NCQ)

Sedlacek (1996; 2004)

Administration Ease · **Feasibility** · **Cost Unknown** · **Technical Evidence**
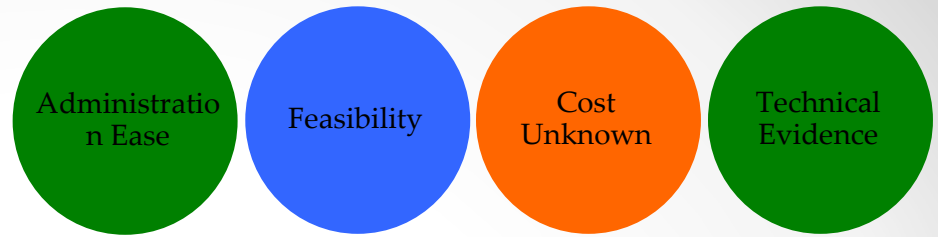
The NCQ is a brief, self-report questionnaire measuring eight noncognitive variables theorized to be critical to college success. The NCQ was designed to predict success beyond traditional aptitude measures, especially for nontraditional students, including students of color. The NCQ can also be employed in counseling, teaching, advising, and student service functions.

Population	*Status*	*Characteristics*	*Scoring*
• College students • Particularly incoming and/or nontraditional students	• Operational, low, and high stakes • Versions used by DePaul U., Oregon State, Louisiana State Medical School, North Carolina State, Muhlenberg College, U. of Maryland, Gates Millennium Scholars	• It is a paper & pencil measure • Employs 18 Likert scale questions, 2 multiple-choice, and 3 open-ended short answer items	• The items and scoring guide are available for free online

The NCQ measures: Positive Self-Concept, Realistic Self-Approach, Understands and Deals with Racism, Prefers Long-Range to Short-Term Goals, Availability of a Strong Support Person, Successful Leadership Experience, Community Involvement, Knowledge

The NCQ covers 38% of the core skills: Self-Efficacy, Self-Awareness, Initiative, Leadership, Applied Knowledge, Social and Personal Responsibility

The NCQ is a widely used assessment and is based on one of the most widely-cited models of noncognitive skills. It also forms the basis of a number of assessments of noncognitive ability used in a variety of contexts, including counseling, college admission, and scholarship selection. However, the technical evidence supporting the NCQ is mixed. Several individual studies (by Sedlacek and colleagues) indicate relationships with college performance. However, a recent meta-analysis indicates that NCQ scores are largely unrelated to college performance as measured by GPA, college persistence, and credits earned.

Personal Potential Index (PPI)

ETS

| Administration Ease | Feasibility | $160 (included with GRE) | Technical Evidence |
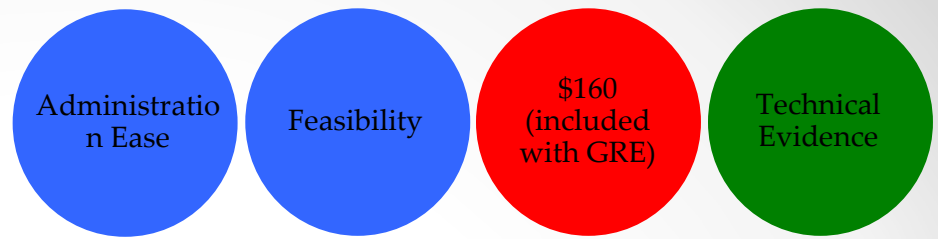
The PPI is a web-based tool that provides a standardized recommendation system for evaluators to supply ratings and information on applicants to graduate school. Ratings are on six key dimensions that were deemed critical to graduate school success by graduate school administrators and faculty. Evaluators log in to the system and respond to a series of statements (24 questions) to rate the student on the six personal attributes and to provide an overall rating of the student on standardized scales.

Population	*Status*	*Characteristics*	*Scoring*
• Selection of applicants for graduate school admissions	• Operational use, high stakes	• Evaluators rate the students using a 5-point Likert scale and provide an overall rating • Evaluations are then sent directly to schools chosen by the student	• Done automatically by ETS • Ratings are converted to numerical equivalents and means are computed for each evaluator and for each dimension

The PPI measures: Knowledge and Creativity, Communication Skills, Teamwork, Resilience, Planning and Organization, Ethics and Integrity

The PPI covers 56% of the core skills: Problem Solving, Critical Thinking, Applied Knowledge, Communication, Collaboration, Adaptability, Time Management , Self-Control, Integrity

Little information is available regarding the interrater reliability or validity of the assessment. Research examining the predictive efficacy of the measure is currently ongoing. The standardized external rating system used is a unique assessment type (of those evaluated) and greatly reduces potential faking or socially desirable responding. Product is newly developed, and more research is needed to determine its efficacy.

Personal Qualities Assessment (PQA)

Lowe, Kerridge, Bore, Munro, & Powis (2001)

Administration Ease

Feasibility

$75 (included with stnd. admissions test)

Technical Evidence
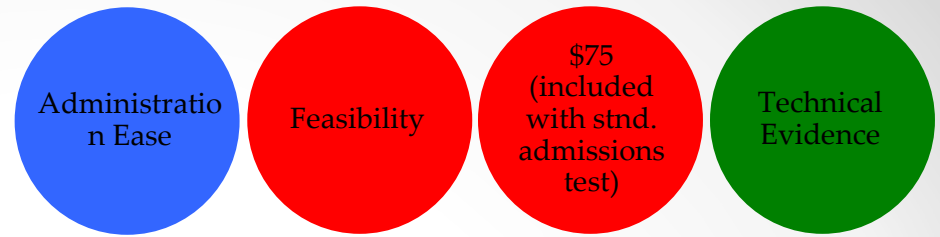
The PQA is an instrument designed to assess a range of personal qualities considered important for the study and practice of medicine and other health professions. It includes both a traditional aptitude-based component, and self-report measures (including a situational judgment task) of personality and attitudinal traits.

Population	*Status*	*Characteristics*	*Scoring*
• Medical and professional school applicants	• Operational, high-stakes • Used for admissions to medical and health professional school in the UK, Australia, and other countries	• Combination of SJT questions, cognitive tests, and self-report questions • It requires a proctor, takes around 3 hours to complete, and is high-cost	• Can be scored automatically • Authors contend it is best at identifying extreme personalities – i.e., those *not* well suited for the medical professions

The PQA measures: Fluid Reasoning, Responses to Moral Dilemmas, Narcissism, Aloofness, Confidence, Empathy, Self-Control, Resilience

The PQA covers 44% of the core skills: Critical Thinking, Integrity, Applied Knowledge, Collaboration, Communication, Self-Control, Adaptability

The PQA has solid evidence supporting the reliability and construct validity of the measure. The predictive evidence has been mixed thus far; it has not been shown to be very predictive of medical school grades, but has been shown to be related to other attributes, such as performance on communication skills tasks and job satisfaction. The PQA could not be implemented as-is for K–16 use (the lengthy, cognitive component would need to be dropped, items would need to be modified for educational use), but certain components could be adapted.

Rational Biodata Inventory (RBI)

U.S. Army/HumRRO

Administration Ease | **Feasibility** | **Cost Unknown** | **Technical Evidence**
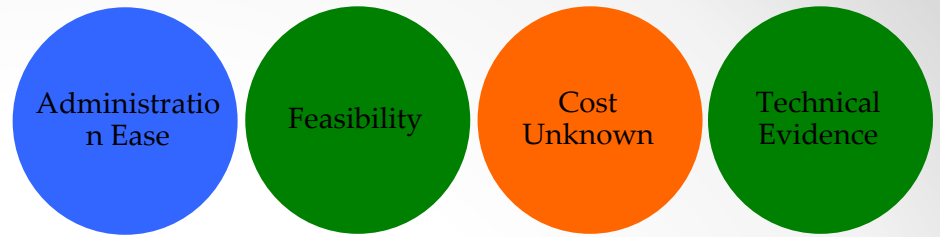
The RBI is used by the U.S. Army to measure temperament and motivation traits; in particular, it targets motivational aspects of soldier performance and turnover. It measures these characteristics by asking about past behaviors and reactions to previous life events (i.e., using a biographical data (biodata) inventory).

Population	Status	Characteristics	Scoring
• Enlisted applicants to the U.S. Army	• Operational, high-stakes	• Contains around 100 items and takes about 30 minutes to complete • It is computer-administered	• It is rationally-keyed: scored based on the relationship of the response to the intended psychological construct (rather than to external criteria)

The RBI measures: Peer Leadership, Cognitive Flexibility, Achievement Orientation, Fitness Motivation, Interpersonal Skills, Diplomacy, Stress Tolerance, Hostility to Authority, Self-Esteem, Narcissism, Cultural Tolerance, Internal Locus of Control

The RBI covers 38% of the core skills: Leadership Adaptability, Self-Control, Initiative, Self-Efficacy, Social and Personal Responsibility

The RBI has moderately strong technical evidence supporting it. Evidence suggests it is predictive of first-term soldier performance, attitudes, and retention, and provides incremental validity over the standard U.S. Army aptitude measure for predicting soldier performance. It would require additional work to adapt and validate for nonmilitary uses, but holds promise.

Situational Judgment Inventory + Biodata (SJI + bio)

Oswald, Schmitt, Kim, Ramsay, and Gillespie (2004)

| Administration Ease | Feasibility | Cost Unknown | Technical Evidence |
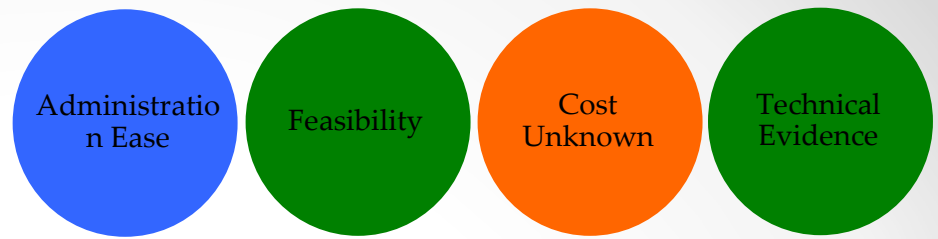
This is a multimethod approach to measuring student characteristics beyond traditional aptitude abilities. The biographical data (biodata) inventory asks multiple-choice questions about one's previous experiences. The situational judgment inventory presents hypothetical situations related to student success; students choose their answers from a set of alternative courses of action.

Population	Status	Characteristics	Scoring
• College applicants	• Pilot and validation studies, high-stakes	• Easy to administer and implement; takes about an hour to complete • Paper & pencil format • Biodata inventory consists of 126 items • SJI consists of 150 items	• Scored on 4- or 5-point Likert scales • Machine score by the administrator of the test

SJI + bio measures: Knowledge, Learning, Artistic, Multicultural, Leadership, Interpersonal, Citizenship, Health, Career, Adaptability, Perseverance, Ethics

SJI + bio covers 50% of the core skills: Applied Knowledge, Collaboration, Leadership, Communication, Adaptability, Initiative, Integrity, Social and Personal Responsibility

Development of the 12 key dimensions was done by searching the mission statements of 35 colleges and universities for skills deemed critical to student success. The measures have been found to be small to moderate predictors of college performance in several pilot studies and have demonstrated some success at reducing gaps between minority and majority groups.

Success Highways

ScholarCentric
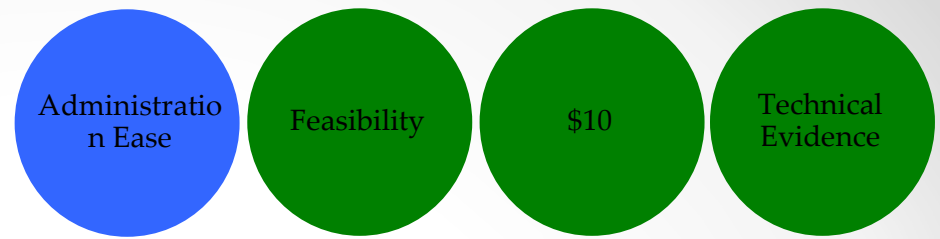
Success Highways is an early-warning self-report diagnostic that measures students' academic resiliency aptitude in six areas that have been linked to academic success. It is based on constructs empirically shown to relate to student performance

Population	Status	Characteristics	Scoring
• Middle and high school students • Particularly targets the transition from middle to high school	• Operational, low-stakes • Milwaukee Public Schools, Sunnyside Unified School District (AZ), Denver Public School, among others	• Is easy to administer in either paper and pencil or computerized formats • It is relatively short (25 minutes, around 100 items) • It is moderately priced	• District, school, classroom, and individual results reveal scores and areas of improvement, academic risk index profiles, and demographic subgroup performance

Success Highways measures: Importance of Education, Confidence, Social Connections, Stress, Well-Being, Intrinsic Motivation

Success Highways covers 31% of the core skills: Initiative, Intellectual Curiosity, Self-Efficacy, Adaptability, Social and Personal Responsibility

The Success Highways assessment has strong reliability evidence, as well as equality of scores across gender and race. The assessment can be packaged with a set of curricula aimed at improving the resiliency traits. There is some promising evidence linking scores with academic outcomes, although validation by external sources is a bit lacking.

Survey of Study Habits and Attitudes (SSHA)

Psychological Corporation/ Holtzman, Brown, & Farquhar (1954)

Administration Ease

Feasibility

Free

Technical Evidence
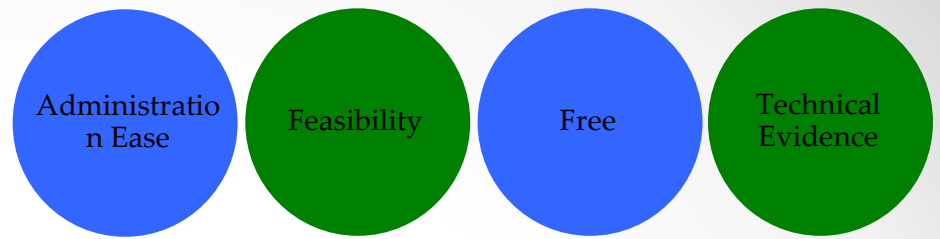
The purpose of the SSHA is to serve as a diagnostic and formative assessment of study habits and attitudes that support academic success. It is a self-report questionnaire that contains about 100 items. The SSHA is an older assessment (developed in the 1950s) that is not currently used frequently, but recent meta-data analyses have revived interest in the assessment for measuring student study skills.

| *Population*	*Status*	*Characteristics*	*Scoring*
• College students • Particularly incoming and academically at-risk students	• Operational, low-stakes • Previously used at numerous universities; currently used primarily in research into academic outcomes	• Administered in paper and pencil format • It takes about 30 minutes to complete	• Hand or machine scored • Scores include an overlay that highlights key items for diagnostic and counseling purposes

The SSHA measures: Delay Avoidance, Work Methods, Educational Acceptance, Teacher Approval

The SSHA covers 13% of the core skills: Study Skills, Self-Control

The SSHA has extensive data supporting normative, validity, and reliability evidence. Older studies show moderately strong relationships between SSHA scores and college grades and performance; a recent meta-analysis demonstrated the constructs measured by the SSHA to be among the best predictors of college outcomes evaluated. As it is an older measure, updating to modern language would likely be required for current use as well as to address potential gender and ethnic biases.

Tailored Adaptive Personality Assessment System (TAPAS)

Drasgow Consulting/U.S. Army

Administration Ease · **Feasibility** · **Cost Unknown** · **Technical Evidence**
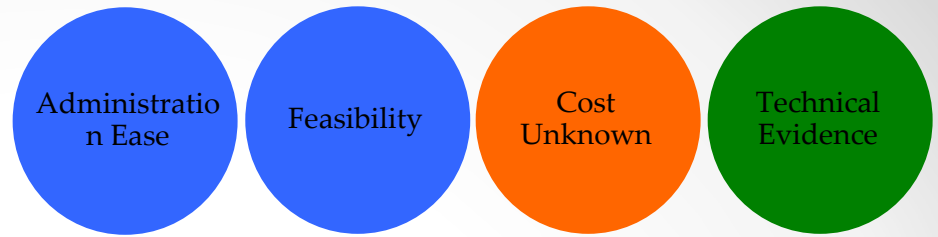
TAPAS is a highly flexible system for measuring personality trait facets that uses a unique, adaptive format to predict job performance. Based on item response theory (IRT), its computerized adaptive platform is capable of measuring up to 22 personality facets. The unique format is also highly resistant to faking (socially desirable responding).

| Population	Status	Characteristics	Scoring
• Enlisted applicants to the U.S. Army • Designed to capture a broader range of applicants than the traditional entrance aptitude measure	• Operational, high-stakes • Extensive validation efforts ongoing	• Uses a computerized adaptive format that presents a unique sequence of items for each respondent • Forced-choice responding • Takes about 30 minutes	• Hand or machine scored • Scores include an overlay that highlights key items for diagnostic and counseling purposes

TAPAS measures: Achievement, Adjustment, Attention Seeking, Cooperation, Dominance, Even Tempered, Generosity, Intellectual Efficiency, Non-Delinquency, Optimism, Order, Physical Conditioning, Self-Control, Sociability, Tolerance

TAPAS covers 44% of the core skills: Initiative, Adaptability, Collaboration, Critical Thinking, Self-Control, Leadership, Social and Personal Responsibility

TAPAS presents two items on each trial that have been matched for social desirability—thus, faking is difficult because both options are equally attractive. This, combined with a large item pool, the adaptive nature of the measure, and its flexibility (desired traits of interest can be hand selected) make the TAPAS both a unique and highly promising assessment. Additionally, initial evidence suggests it is a relatively fair test and predictive of solider performance. Further adaptation and testing likely needed for adaption for K–16 purposes.

ThinkReady
EPIC

| Administration Ease | Feasibility | $40–$45 | Technical Evidence |
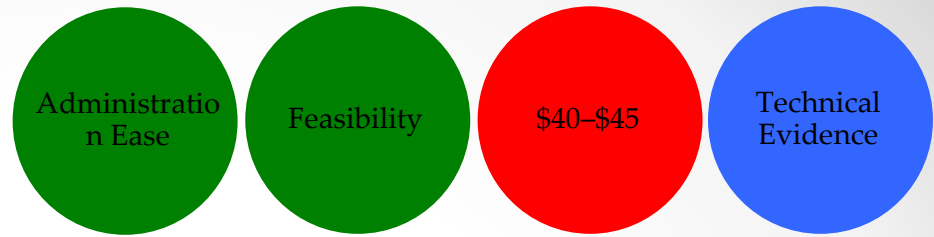
ThinkReady is a formative assessment system designed to gauge student development of Key Cognitive Strategies (part of the Four Keys Model) from 6th- through 12th-grade. ThinkReady is designed to have all students complete carefully designed performance tasks, which are scored by teachers using common scoring guides. This allows a school to get information on how well students are progressing toward college readiness.

| *Population*	*Status*	*Characteristics*	*Scoring*
• Can be used with middle school through college-aged students	• Operational, low-stakes	• Consists of performance tasks that are completed online. • Teachers select from a bank of available tasks that are aligned to the Common Core State Standards	• Done by teachers using provided criteria •A performance profile is created for each student •Scores are listed using cut-points to report levels of proficiency

ThinkReady measures: Problem Formulation, Research Interpretation, Communication, Precision/Accuracy

ThinkReady covers 50% of the core skills: Problem Solving, Critical Thinking, Applied Knowledge, Study Skills, Communication, Integrity, Self-Awareness, Self-Control

Given ThinkReady consists of performance tasks, it is relatively difficult for students to fake responses. Teachers often report that the assessment has informed their teaching and teaches necessary and valuable skills; additionally, it can be incorporated into the general curriculum of a school. Initial validation work has shown the instrument to be a highly precise and internally consistent measurement of the Key Cognitive Strategies. Additionally, students in over 90 schools in multiple states have completed over 20,000 tasks thus far.

Video-based SJT

Lievens & Sackett (2012)

Administration Ease | **Feasibility** | **Cost Unknown** | **Technical Evidence**
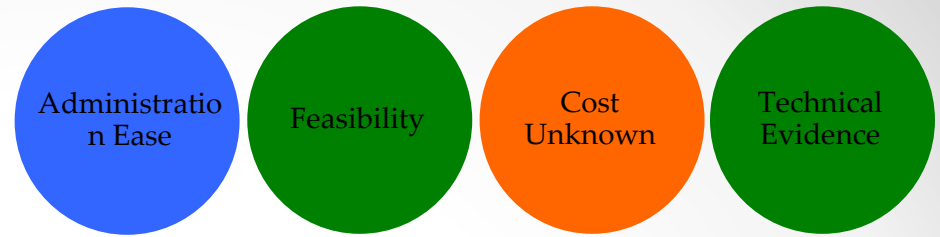
This assessment is a video-based situational judgment task used to assess interpersonal skills as part of the application process to medical school in Belgium. The applicant is presented with a series of short videos of real-world, clinical scenarios presenting a problem or issue to resolve. They are then asked to choose from a list of possible responses.

| *Population*	*Status*	*Characteristics*	*Scoring*
• Medical school applicants in Belgium.	• Operational, high-stakes	• 30 short video scenarios presented • Time to complete is about 45 minutes • It is taken in addition to a standard, aptitude-based test required for admission.	• Scoring is based on a key developed by experts (physicians) in the field based on how they would respond, on average, to each scenario.

The video SJT measures: Building and Maintaining Relationships, Communication/Exchanging Information

The video SJT covers 19% of the core skills: Collaboration, Communication, Applied Knowledge

The use of realistic video scenarios provides context and real-world validity, which normal interviews lack; it is the only assessment of its kind evaluated in this study. Evidence from longitudinal research indicates the video SJT is not as predictive of medical school grades as a standardized aptitude test (up to 7 years after taking the test); *however*, the video SJT was a better predictor of internship and job performance (7–9 years later). If adopted for K–16 use, modifications would need to be made to the scenarios to reflect situations relevant to educational settings.

Work Preferences Assessment (WPA)

U.S. Army/HumRRO

Administration Ease

Feasibility

Cost Unknown

Technical Evidence
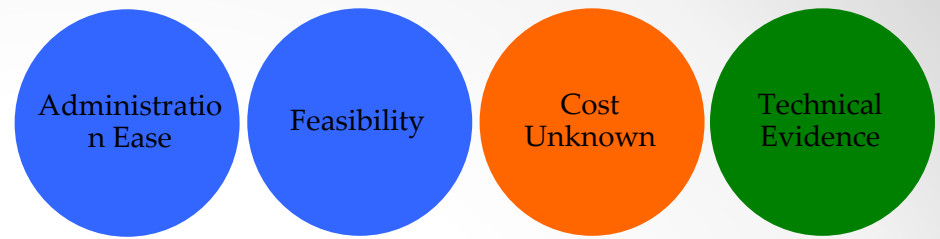
The WPA measures respondents' preferences for different kinds of work activities and settings offered by different jobs. Items ask respondents to rate how important a series of characteristics are to their ideal job. The 72 items comprised in the WPA were written to measure each of the six dimensions of Holland's (1997) theory of vocational personality and work environment.

Population	*Status*	*Characteristics*	*Scoring*
• Applicants to the U.S. Army • Used to assess the congruence between preferred and actual work, i.e., to improve the fit of the person to the environment	• Operational, low-stakes • Currently being piloted and validated for and by the U.S. Army	• Computerized self-report questionnaire • Asks about work activities, work environments or settings, and learning opportunities.	• Scoring is automatic • Scores derived for each of the 6 dimensions, as well as 14 facets

The WPA measures job type preferences for: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional characteristics of jobs.

The WPA covers 31% of the core skills: Collaboration, Applied Knowledge, Communication, Self-Awareness, Critical Thinking

In pilot work, the WPA has been shown to be a significant predictor of retention rates, slightly above standard Army aptitude tests, and it evidenced potential to enhance classification of new recruits to entry-level jobs. A potential adaptation of the general methodology used by the WPA is in use as a counseling tool for aiding young adults choosing career paths and/or college majors.