



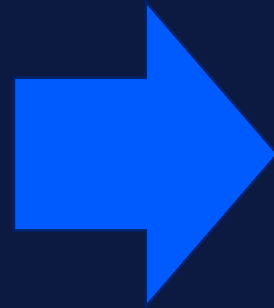
FROM **TIME** UNITS TO **SKILL** INSIGHTS

AN EDUCATIONAL MOVEMENT

In 1906, the Carnegie Foundation introduced the Carnegie Unit, an educational standard to support the industrial workforce.



The strongest **empirical evidence** across multiple disciplines makes clear that our time-based model of schooling is insufficient.



We are intent on building a new educational architecture that shifts the sector to a truly **competency-based** system and away from time-bound conceptions of what knowledge is and how it is acquired.

THE HIGHER EDUCATION CRISIS

Learners are failing to persist and graduate from post secondary programs

50%

50% of college students never graduate, leaving them with student debt and no degree

2.5M

Since 2011, higher education has lost more than 2.5 million students

40%

40% of higher education graduates are underemployed

The pioneers of the Carnegie Unit and standardized testing aim to reimagine teaching, learning, and assessment.



Catalyzing
transformational
change in education



Global leader in advancing
the impact of education
through measurement

To build a **sustainable** future, we must better prepare learners to compete in the global economy, act as responsible citizens, and lead **fulfilling** lives.



The Carnegie/ETS Initiative tackles three pressing issues



EXPAND what to measure

Measure skills that matter and are predictive of critical outcomes; Focus on an array of affective, behavioral, and cognitive skills.



REVOLUTIONIZE how to measure

Design and deploy innovative assessment technology for authentic, immersive, and interactive assessment experiences.



GENERATE powerful insights

Increase transparency of outcomes. Create personalized and real-time insights for learners and inform parents, educators, schools, employers, and policymakers.



Carnegie Foundation
for the Advancement of Teaching

The Solution:


To transform assessment and allow learners to demonstrate their tapestry of skills



RESEARCH: Skill Selection and their Predicted Outcomes

 Skills Selection
Portrait of a Graduate
Predictions of Outcomes
International Skills Frameworks
U.S. Skills Frameworks
Stakeholder Input



 Outcomes Prediction
Academic success (e.g., GPA)
Degree attainment
College readiness
Post-secondary success (e.g., degree attainment)
Workforce success (e.g., placement, salary)
Health and wellbeing
Community gains

Measuring the affective, behavioral, and cognitive **skills that matter**

Skills for the Future (SFF): A New Vision for Skills-Based Assessment



Qi Lydia Liu, Harrison J. Kell, Lei Liu, Guangming Ling, Yuan Wang, Caroline Wylie
 ETS
David Sherer and Paul LeMahieu
 Carnegie Foundation

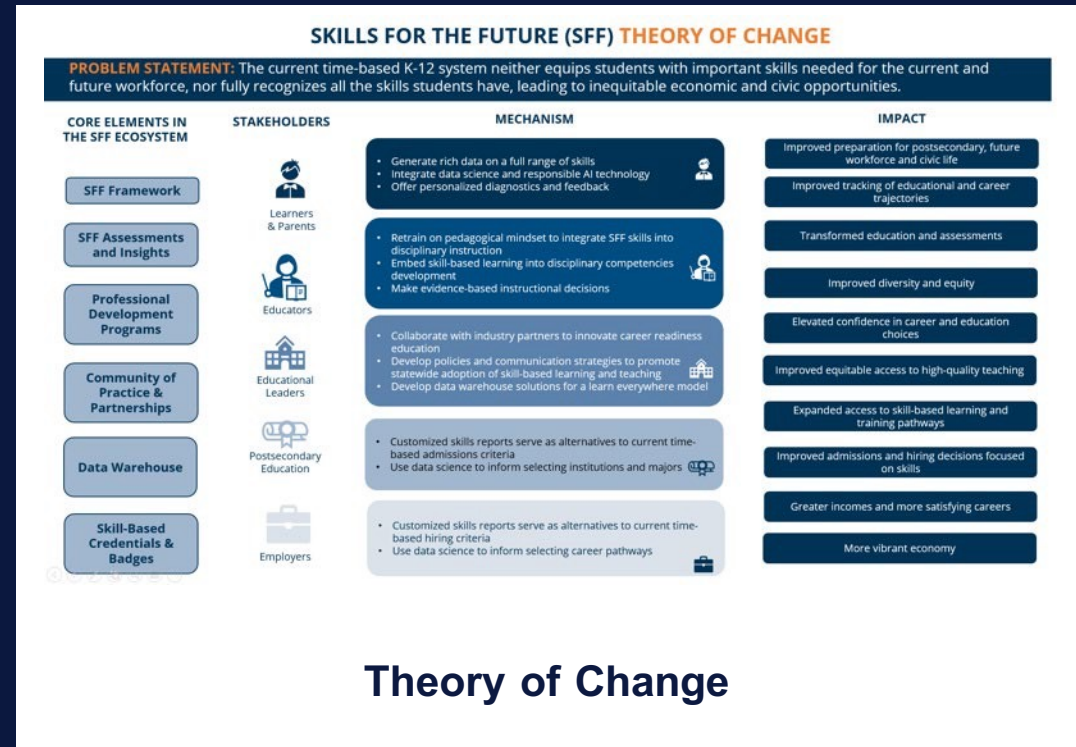



Research Framework

Top Skills

Skill	Definition	Predictive Validity	Existing ETS Capabilities
Persistence	Overcoming obstacles and challenges by persisting focus in the face of negative emotions, pursuing alternative routes to goal achievement, and persisting until the task is completed.	Educational attainment (Carnegie et al., 2019; health (Bogg & Roberts 2013); income/wealth (Ng et al., 2003); K-12 GPA (Ponemon, 2009) job performance (Sackett et al., 2023); longevity (Karr & Friedman, 2008); postsecondary GPA (Ponemon et al., 2012).	PSQ
Creativity	Production or development of novel and useful outputs (e.g., understanding perspectives, ideas, theories, products)	Civic participation (Weischenberg et al., 2019); educational attainment (Harrison et al., 2007); health (Shohouiser et al., 2017); income/wealth (Ng et al., 2003); job performance (Chen & Baroni, 2010); K-12 GPA (Ponemon, 2009); postsecondary GPA (Robertson et al., 2012).	ESRC self-report scale, RSA Creative Thinking PSQ
Collaboration	Working with others cooperatively and coordinating effort(s) to achieve collective goals	Civic participation (Ackerman, 2019); educational attainment (Harrison et al., 2007); health (Shohouiser et al., 2017); job performance (Sackett et al., 2023); K-12 GPA (Ponemon, 2009); postsecondary GPA (Robertson et al., 2012).	Aporize Collaborative Problem-Solving PSQ
Communication	Use of context-relevant strategies, domain-specific codes and tools when interacting with others, including active listening, asking questions, synthesizing messages, speaking, writing and public speaking.	Academic success (Sorensen, 2017); Leadership (Mizrali, Lemoria, & Lee, 2022); Career success (Deward et al., 2017)	Aporize Oral Communication assessment; conversation-based assessment (Foreign Language) Teamsters program
Critical Thinking	Understanding, managing, and analyzing information and arguments by making sound inferences, recognizing and evaluating assumptions, seeing logical connections, identifying patterns, constructing knowledge, and drawing evidence-based conclusions.	Career placement and satisfaction success (Aum & Biscoe, 2016; Zenger & James, 2018); College success (Liu, et al., 2016; Williams, et al., 2006); job performance (Gardella, et al., 2005; Egeci, et al., 2016; Elton, et al., 2018); leadership (Judith & Hoffman, 2002; Schneider, et al., 2000)	Aporize eLighten Critical Thinking CASA Critical Thinking ReadyEdge Critical Thinking
Digital Literacy	Creating, consuming, analyzing, and adapting in productive and responsible ways to digital technology and communication tools in social, academic, and professional settings.	Confidence in online learning (Ponemon et al., 2018); academic achievements in science, technology, and society area (Pata & Barhoug, 2021); Career planning (Sakranjano et al (2022)	IRAC framework and reporting scale around problem-solving in technology-rich environments. Measure of digital information literacy
Civic Engagement	Playing an active role in the global and local community and the application of civic values.	Graduation rates in K-12, community colleges, and four-year institutions (Astin & Vogeleger, 2006; Francis & Robinson, 2019); Emotional intelligence and interpersonal effectiveness (Baron & Sager, 2008); Academic engagement (Hurtado & DeBruin, 2012)	NAEP, U.S. and civics assessments; Science related civic competencies; citizenship and social-level civic learning opportunities; College promise work on civic learning and democratic engagement
Leadership	Processes involved in driving others' efforts toward achieving individual, group, and/or organizational goals	Community gains (Gent & Koch, 2016)	ESRC Q12 self-report measure; ETS Teamsters Youth Leadership program
Growth Mindset	The belief that talents can be developed through persistent work, learning from risk-taking and mistakes, and input from others	GPA/high school success (Yeager et al., 2019); career success (Dweck, 2006); students well-being (PSA, 2018)	CASA self-report; PISA analysis on growth mindset survey and academic achievement

Top Skills





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