

The National Academies of
SCIENCES • ENGINEERING • MEDICINE



Supporting Students' College Success:
The Role of Assessment of Intrapersonal
and Interpersonal Competencies

Invited Speaker Session at the American Education
Research on Association Annual Conference

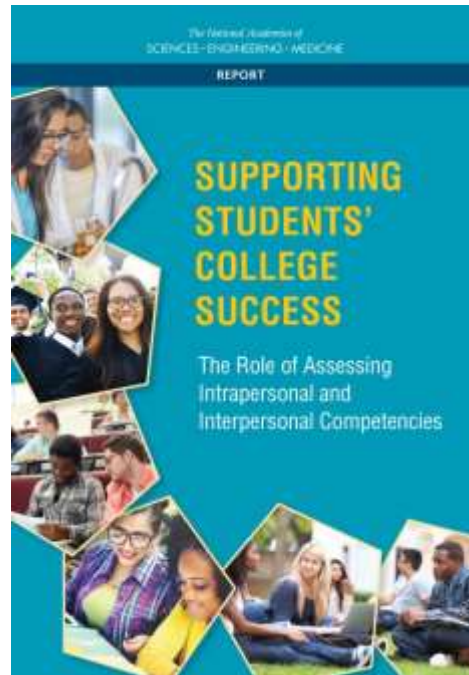
San Antonio, Texas

April 28, 2017

Session Overview

- **Session Chair:** Shirley Malcom, American Association for the Advancement of Science
- **Study Overview:** Margaret Hilton, NAS, Study Director, Committee on Assessing Intrapersonal and Interpersonal Competencies
- **Competencies for College Success:** Sylvia Hurtado, University of California-Los Angeles, Committee Member
- **The Importance of College Contexts:** Tabbye Chavous, University of Michigan, Committee Member
- **Assessments of the Identified Competencies:** Joan Herman, University of California-Los Angeles, Committee Chair
- **Response:** Estela Bensimon, University of Southern California, Commentator
- **Response:** Nicholas Bowman, University of Iowa, Commentator

Study Overview



Margaret Hilton, the National Academies

Study Overview

- Sponsored by NSF Division of Undergraduate Education
- Dissemination support from the William and Flora Hewlett Foundation



Study Rationale

- Builds on the prior NSF-funded study, *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century*.
- That study highlighted the value of educational attainment for career success, health, civic engagement.
- Recognizing the value of educational attainment, including increased graduation rates, policymakers embrace the college completion agenda.
- Policymakers are also increasingly interested in hard-to-measure cognitive, intrapersonal, and interpersonal competencies - what they are, how to assess them, their role in education, life, and work.

Study Charge

- Examine how to assess interpersonal (e.g., teamwork, communication skills) and intrapersonal (e.g., academic mindset, grit) competencies of college students.
- Identify a range of competencies that are related to persistence and success in college (especially in STEM) and that can be enhanced through intervention.
- Establish priorities for development and use of assessments of the identified competencies.

Study Committee

Joan Herman (*Chair*), CRESST, University of California, Los Angeles

David Bills, University of Iowa

Corbin Campbell, Columbia University

Tabbye Chavous, University of Michigan

Greg Duncan, University of California, Irvine

Sylvia Hurtado, University of California, Los Angeles

Patrick Kyllonen, Educational Testing Service

Dan McAdams, Northwestern University

Frederick Oswald, Rice University

Jonathan Plucker, Johns Hopkins University

K. Ann Renninger, Swarthmore College

Brian Stecher, RAND Corporation

Framing the Study



- Defined competency broadly to include attitudes, behaviors, beliefs, and dispositions
- Focused on competencies related to success *in* college, as measured by retention, GPA, graduation, but also considered competencies identified as desired outcomes *of* college
- Examined assessment methods, less attention to specific instruments
- Special attention to underrepresented student groups that have experienced lower college success than other groups: Low SES, first generation, black, Hispanic, and American Indian.

Competencies That Research Suggests Are Related to College Success

Sylvia Hurtado, University of California, Los
Angeles



Competencies for College Success



- Defined competency broadly; especially interested in malleable ones.
- Reviewed relevant research and best practices; commissioned 2 data analyses.
- Identified a set of competencies based on correlational and random assignment intervention studies.

The Problem of Limited Research

Recommendation 1: Federal agencies and foundations should invest in research examining how various competencies may be related to college success. These investments should address gaps in the research base, examining:

- how interpersonal competencies may be related to student success in 4-year colleges;
- how intra- and interpersonal competencies may be related to student success in community colleges; and
- how intra- and interpersonal competencies may be related to student success in 2- and 4-year STEM programs and majors.

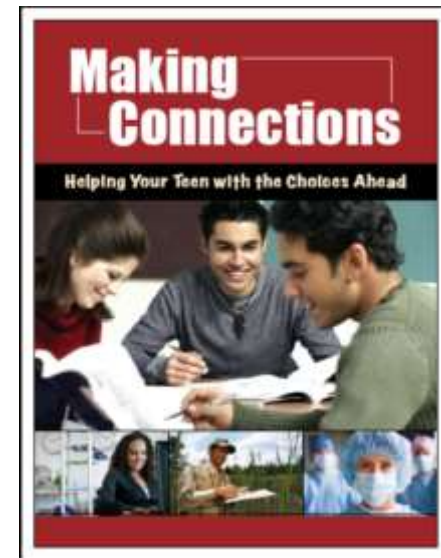
Conscientiousness



- Correlational research suggests that **dispositional conscientiousness** is a robust predictor of college success.
- However, the broad trait of conscientiousness is deeply ingrained and difficult to change (not malleable).
- Nevertheless, a few interventions targeting **specific behaviors associated with** conscientiousness have shown significant but small effects on developing these behaviors.

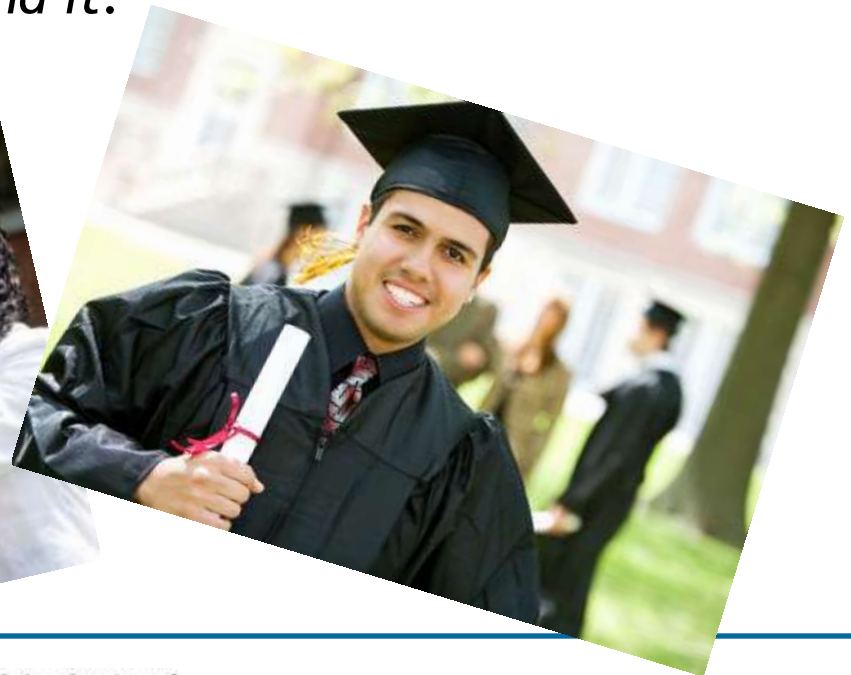
Three Promising Competencies

*Conclusion: The limited intervention studies conducted to date have generated promising evidence that the competencies of **sense of belonging, growth mindset, and utility goals and values** are related to college success and are malleable in response to interventions.*



Research Needs-URM Students

- *Conclusion: Low-cost interventions aimed at developing sense of belonging, growth mindset, and utility goals and values have sometimes generated the largest benefits for underrepresented student groups at risk for academic failure. This evidence is limited and recent, and further research is needed to replicate and extend it.*



Eight Identified Competencies

- *Sense of belonging*
- *Growth mindset*
- *Utility goals and values*
- *Behaviors related to conscientiousness*
- *Intrinsic goals and interest*
- *Academic self-efficacy*
- *Prosocial goals and values*
- *Positive future self*

Research Recommended

Recommendation 2: Invest in random-assignment interventions and research employing other methods to understand better how the competencies identified above are related to college success. Prioritize research on supporting the success of underrepresented student groups.

Recommendation 3: Colleges and universities should support the research proposed in Recommendation 2 by facilitating random-assignment interventions, thereby gaining valuable information about their students and building the knowledge base on effective interventions.

The Importance of College Contexts in the Development of the Identified Competencies among First Generation and Under-Represented Minority Students

Tabbye Chavous, University of Michigan



- Diversity and inclusion were central themes in the report
 - growing diversity of the undergraduate student population, and
 - charge to focus on persistence and success especially in STEM.
- Special attention given to student groups who have historically experienced lower persistence and success in postsecondary education generally, and STEM more specifically.

- **Competencies**
 - Some evidence of a relationship to persistence and success
 - Malleability
- **Developmental process**
 - ongoing interactions with the environment (e.g. other people, classroom tasks, disciplinary-based extracurricular activities)
 - May enable or constrain

- In the context of college environment, all students are working to understand:
 - Who am I?
 - Whom do I want to become?
- Their developing identity is linked to their experience in college.



Sensitivity to Context and Subgroup Effects

Conclusion: Certain competencies develop and function differently for different groups and within different cultural and educational contexts. For example, although a strong sense of belonging in college is related to success among underrepresented student groups, members of these groups may find it difficult to develop this competency if they experience campus environments that are discriminatory or unwelcoming.

Examples of data on sense of belonging:

- Student experience of college context norms can influence engagement and persistence; sense of belonging and connectedness was positively related to motivation (Byrd & Chavous, 2009, 2011)
- Sense of belonging may be predictive of persistence and achievement for underrepresented minority students in STEM (Darling, et al., 2008)

- Students' perceptions of STEM contexts can influence their abilities to identify and make use of institutional supports to continue pursuing STEM (Chang et al., 2014; Hurtado & Carter, 1997).

Context similarly contributes to students'

- *Behaviors related to conscientiousness*
- *Academic self-efficacy*
- *Growth mindset*
- *Utility goals and values*
- *Intrinsic goals and interest*
- *Prosocial goals and values*
- *Positive future self*

- **Research indicates:**
 - Self, peer, or instructor ratings of competencies can vary based on local norms
 - Contextual variables may mediate or moderate the relationships between competences and educational outcomes

Attention to College Environments

Recommendation 4: To help reduce disparities in college success among student groups, institutions of higher education should evaluate and improve their social and learning environments to support the development of the eight identified competencies, especially among underrepresented student groups.

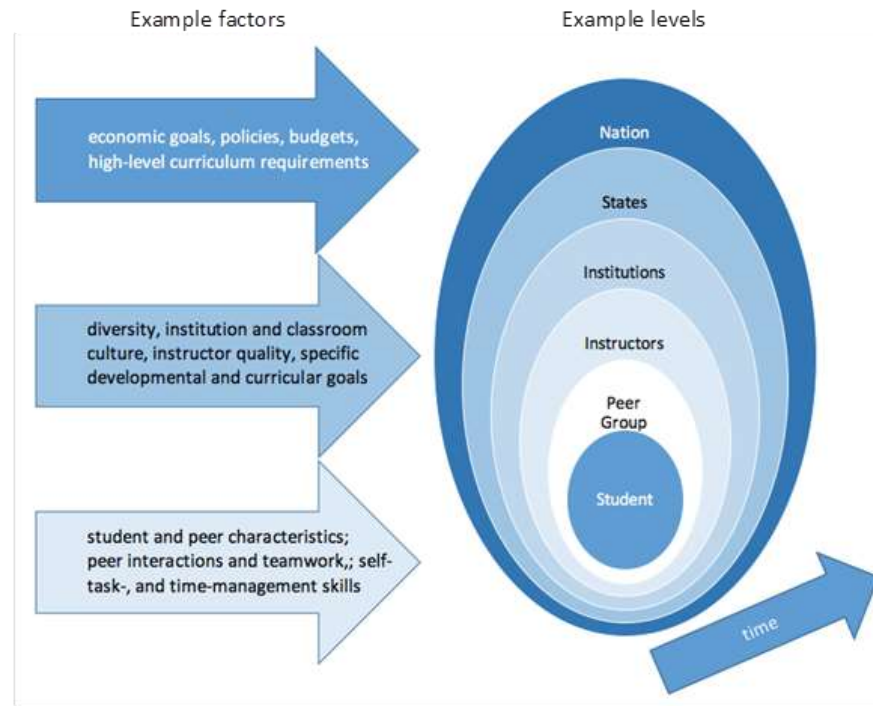


For example, Dowd (2015):

- Engaged teams of STEM faculty in analyzing:
 - Quantitative data on equity gaps in student progress toward degrees
 - Qualitative (observations, interviews, etc.) on teaching practices and departmental and institutional practices
- Catalyzed changes in practices and policy

Contextual Considerations Important

Conclusion: Appropriate interpretation of data from assessments requires consideration of contextual factors such as student background, college climate, and department or discipline.



Incorporate Context Data

Recommendation 10: Higher education researchers and assessment experts should incorporate data on context (e.g., culture, climate, discipline) into their analyses and interpretations of the results of intra- and interpersonal competency assessments.



Assessment Uses and Quality

Joan Herman, University of California, Los Angeles



Assessment Use and Methods

- Reviewed literature on potential uses and users of data on identified competencies and factors that influence use
- Reviewed available methods for assessing intra- and interpersonal competencies
- Considered professional standards and best practices for assessment development, validation, and use
- Close analysis of existing assessments of the identified competencies

Issues in Assessment

Purposes and Use

- Potential user groups: Students and families; higher education practitioners, researchers, policymakers; and regulators;
- Potential uses: selection/placement; formative improvement of educational programs/practice; research & evaluation; accountability
- But a number of factors involved in promoting use for improvement

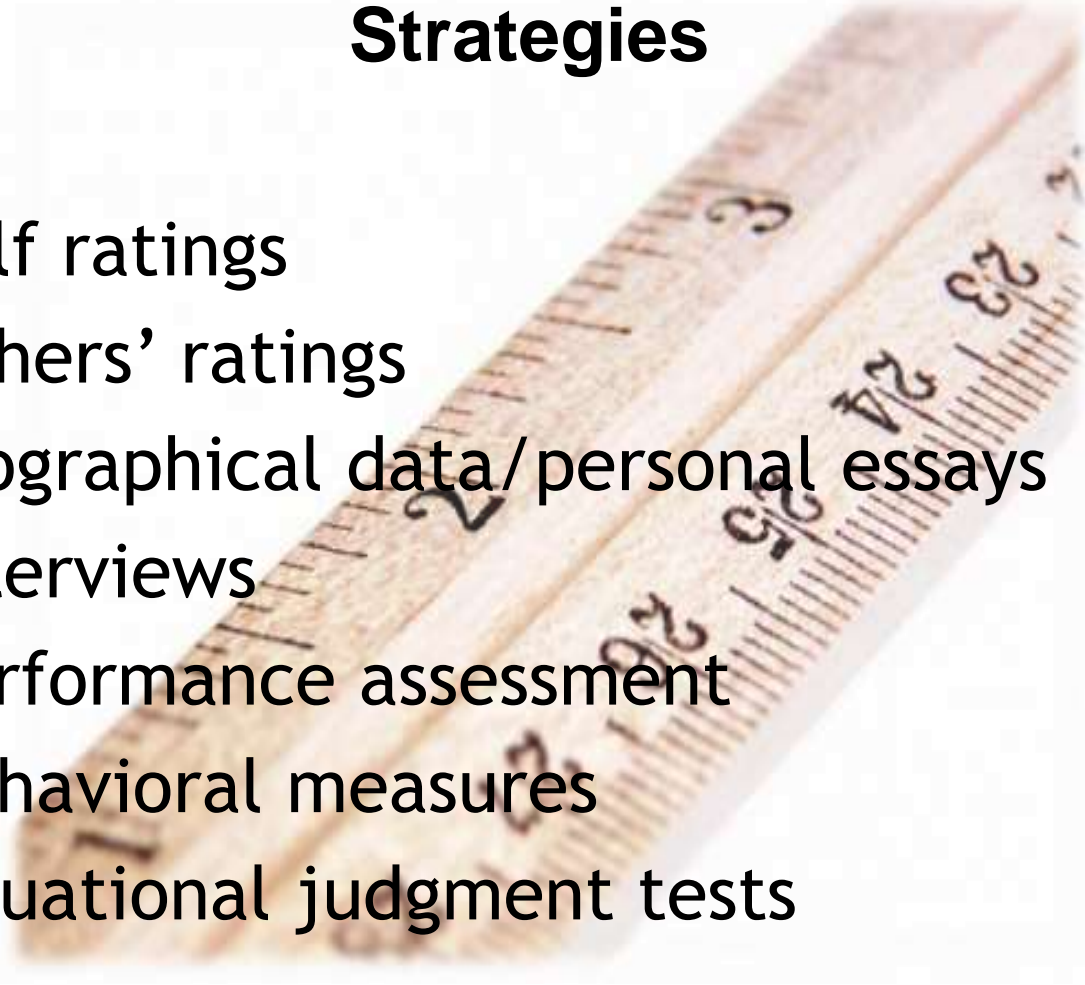
Findings: Assessment Purposes and Use

- Assessment use more likely to improve student success when:
 - Stakeholders are motivated by internal institutional improvement purposes then when they are motivated by accountability
 - Assessment use involves stakeholders at multiple levels as opposed to individual stakeholders acting alone
- Stakeholders will need support and training
- More research is needed on the use of these assessments for improvement purposes



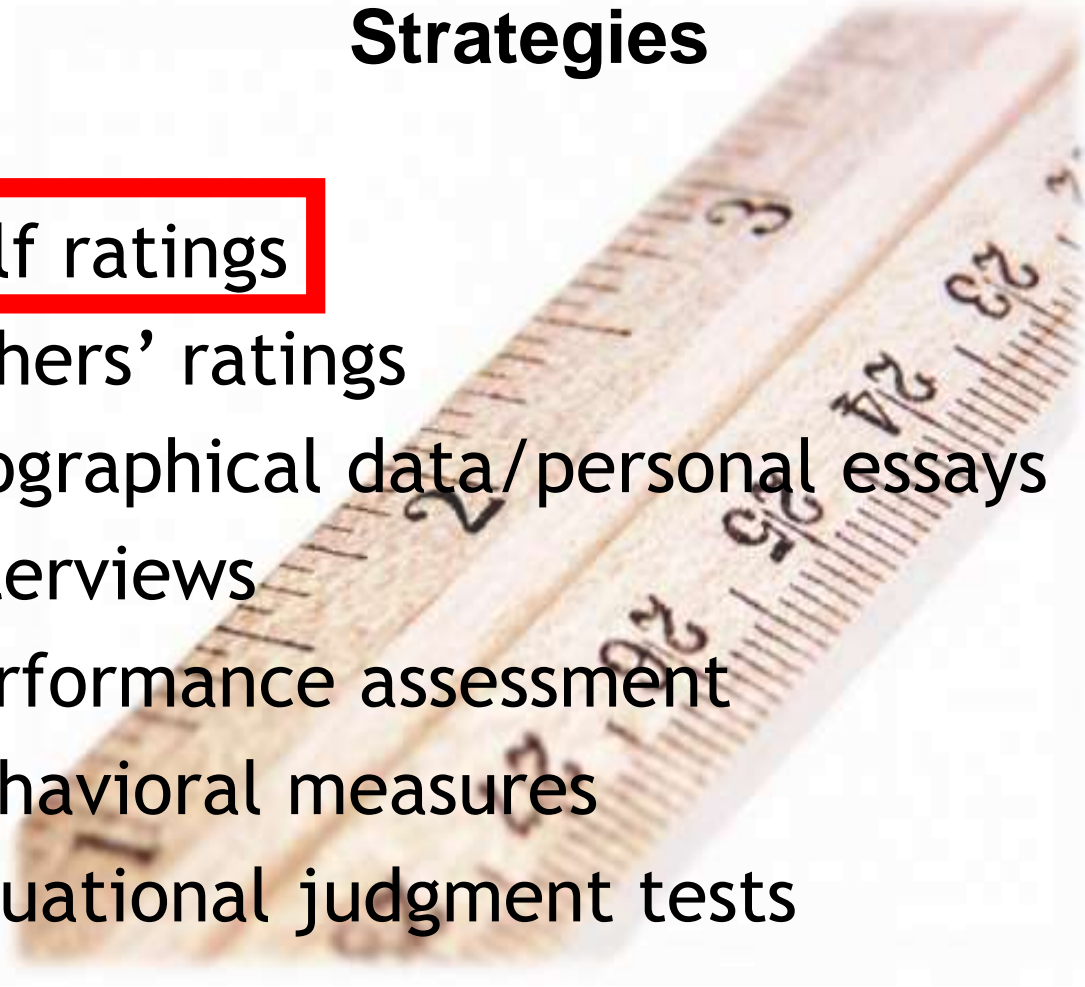
A Variety of Potential Measurement Strategies

- Self ratings
- Others' ratings
- Biographical data/personal essays
- Interviews
- Performance assessment
- Behavioral measures
- Situational judgment tests



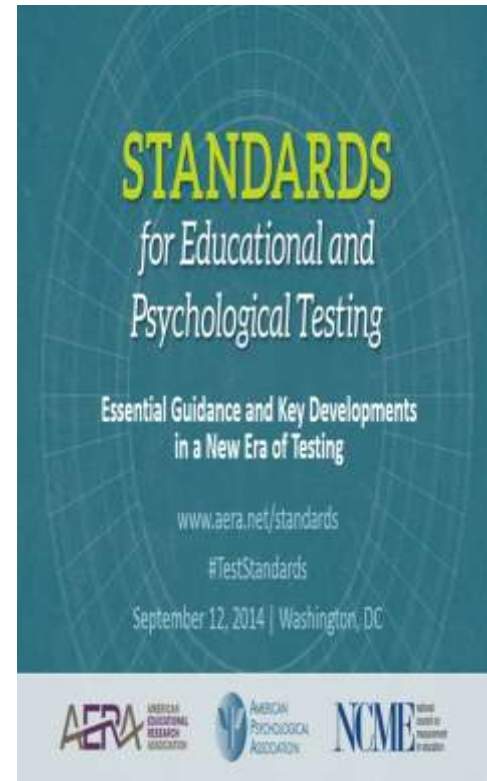
A Variety of Potential Measurement Strategies

- Self ratings
- Others' ratings
- Biographical data/personal essays
- Interviews
- Performance assessment
- Behavioral measures
- Situational judgment tests



Quality of Assessments of Identified Competencies

Conclusion: Most current assessments of the identified competencies are uneven in quality, with limited evidence to date of meeting professional standards of reliability, validity, and fairness.



Inadequate Attention to Fairness

Conclusion: Attention to fairness for diverse populations is often inadequate in the development, validation, and use of current assessments of the identified competencies.

Recommendation 9: Researchers and practitioners in higher education should consider evidence on fairness during the development, selection, and validation of intra- and interpersonal competency assessments.

High and Low Stakes Assessment Cautions

- Higher education stakeholders should comply with professional standards, legal guidelines, and best practices when developing and validating competency assessments to be used for high-stakes purposes.
- Colleges and universities should not make high-stakes decisions based solely on current assessments of the 8 identified competencies.
- Low stakes also requires attention to quality. Those who develop, select, or use competency assessments should pay heed to evidence of validity, reliability, and fairness as appropriate for the intended high-stakes or low-stakes uses.

Innovation Needed

Federal agencies and foundations should support additional research, development, and validation of new intra- and interpersonal competency assessments that address the shortcomings of existing measures.

