

Does Higher Education Teach Students to Think Critically?

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Acknowledgements



International participants and authors

- Italy
- Mexico
- Finland
- Latin America
- UK
- Australia



Ministry of
Education
and Culture



About CAE

- A nonprofit whose mission is to **improve students' generic skills outcomes**.
- Part of the **RAND Corporation** until 2005.
- Experts in **performance-based assessments**.
- Over **800,000 students** at over **1,300 institutions** worldwide have been assessed through our performance-based assessments of generic skills.



Critical Thinking Skills Are Essential for Success

- **Critical thinking, problem solving, and written communication** are essential to academic and career success.
- Proficiency in these skills is **predictive of positive academic and career outcomes** (chapter 7).
- Yet, essential skills are **rarely explicitly taught or measured** by academic institutions.



There is a gap in students' proficiency...



60% of U.S. students entering colleges and universities are **not proficient** in critical thinking, problem solving, and written communication.



44% of exiting students are **STILL not proficient** in these skills.

Critical Thinking Skills Are Predictive of Positive Academic & Career Outcomes

Students who perform better on CLA+, CAE's higher education assessment are more likely to have:

- **Higher cumulative GPAs** at the end of their senior year (Zahner & Steedle, 2012).
- **Positive post-university outcomes** as measured by employment, salary, and graduate school enrollment as well as employer ratings (Chapter 7).



CRITICAL THINKING & PROBLEM SOLVING

Data
Literacy

Critical
Reading &
Evaluation

Critiquing an
Argument



WRITTEN COMMUNICATIONS

Writing
Effectiveness

Writing
Mechanics



Real-World Scenarios



Recommend a Solution



No Single "Right" Answer



Impact Study

This study was commissioned in order to assess the issues facing residents of Bayville as the town considers the possibility of closing the Blue Line subway that connects us to Carston. Resources consulted included Transit Authority data, public polling, financial projections from the Chamber of Commerce, and financial modeling from a municipal consultant.

Populations

The people who will be affected by the potential closure of the Blue Line fall into three broad groups:

	Average Number of Riders, per Week	Average One-Way Commute Time before shutdown	Average One-Way Bus Commute Time during Blue Line Closure
Weekday commuters from Bayville to Carston (6 a.m. to 6 p.m.)	86,100	29 minutes	62 minutes
Weeknight and weekend commuters from Bayville to Carston	36,400	33 minutes	60 minutes
Visitors from Carston to Bayville	15,207		



CLA+

- 60-minute Performance Task (PT)
- 30-minute Selected Response Questions (SRQs)
- Translation & Adaptation (cApStAn)
- Cognitive Labs
- Scorer Training
- Psychometrics
- Scoring & Reporting
- Mastery Levels

Translation Study (Chapter 4)

- Open-ended written response scores from CLA+ can be calibrated to recognize relative response quality, as well as absolute response quality in an international context.
- The scores on such tests can provide valid and reliable data for large-scale international studies.
- Results from performance-based assessments can be used in large-scale assessment programs globally.

Figure 1. Mean total scores for each sample

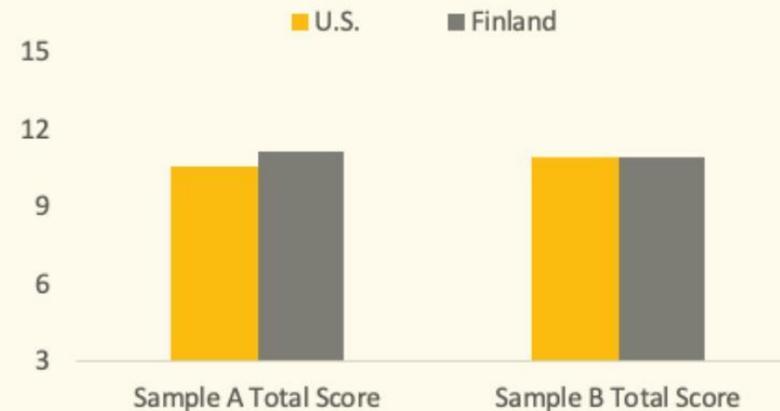


Table 1

Inter-country scorer agreement for total score, by sample

	Sample A: Finland	Sample B: Finland
Sample A: U.S.A	.95	
Sample B: U.S.A		.93

Note. Sample A = English; Sample B = Finnish to English.

Predictive Validity (Chapter 7)

Table 2

Predictive Validity of CLA+ and Other Variables on Post-college Outcomes

		Salary	Employment	Full-time employment	Graduate school
	CLA+ only	•	•	•	•
CLA+ and	EAA	•		•	
	Barron's			•	
	Field of study	•		•	
	Gender	•			
	Parent education				
	Race	•	•	•	•

n = 993

- Generic skills such as critical thinking and written communication are important in predicting post-university outcomes
- CLA+ can serve as an effective instrument for identifying high-achieving students and making their critical thinking and written communication skills more visible to prospective employers and graduate school admissions officers.

CLA+ in the USA (Chapter 10)

Figure 3. Average total CLA+ scores and section scores, by class

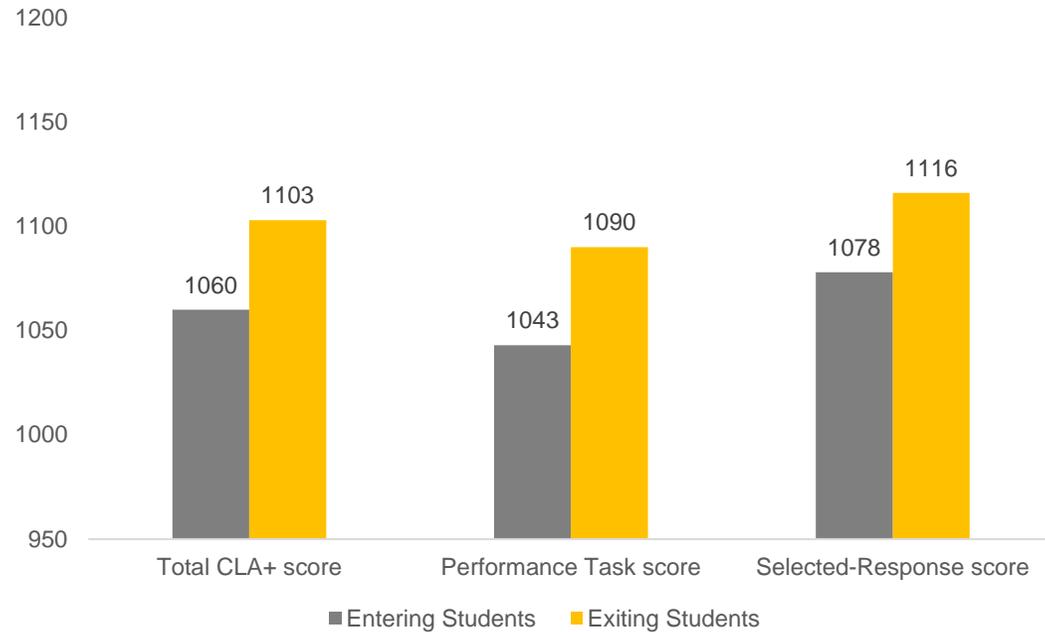
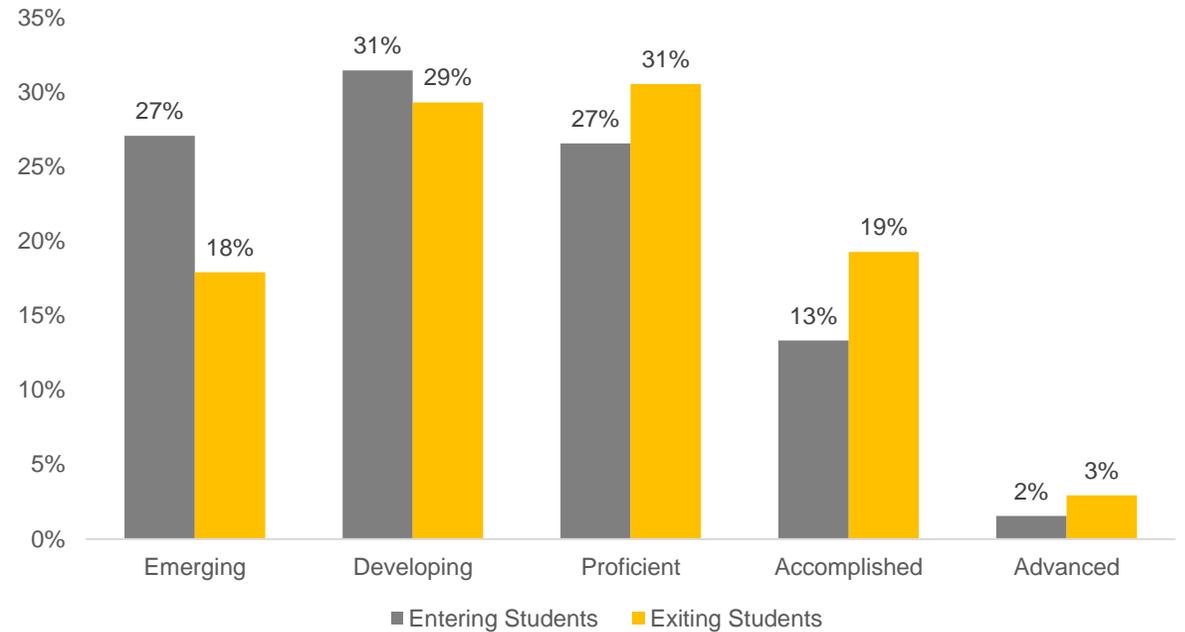


Figure 4. CLA+ mastery level distribution, by class



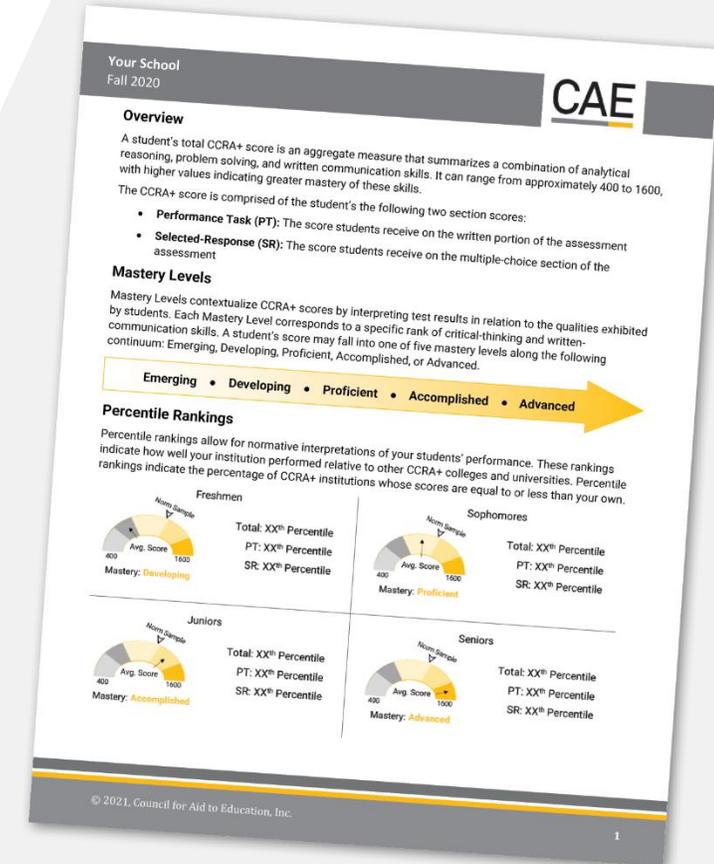
Actionable Insights to Support Student Growth

MINISTRY & UNIVERSITY LEADERS



Educational and administrative leaders can use CLA+ to:

- **Identify** country or institution-wide mastery of generic skills and student learning gains
- **Evaluate** how students compare to peers within/across countries, institutions, field of study, and other demographics using the CLA+ data set
- **Measure the quality** or effectiveness of the institution, specific curricula, interventions, and programs
- **Inform** professional learning needs



Actionable Insights to Support Student Growth

FACULTY



Faculty can use CLA+ to provide:

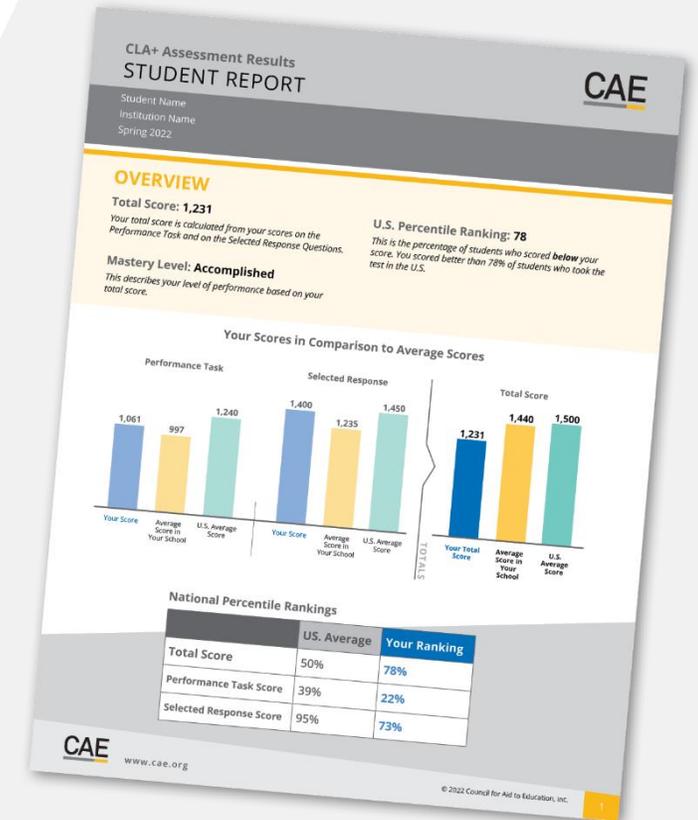
- **Instruction** to build critical thinking, problem-solving, and written communication skills
- **Targeted** intervention and support
- **Guidance** on attaining career goals

STUDENTS



Students can use CLA+ to:

- **Identify** mastery of generic skills and how they're developing in all three areas as well as six subskills
- **Evaluate** how they compare to peers in their institution and across the CLA+ data set
- **Develop** a plan to improve upon these generic skills



Conclusions

- Critical Thinking skills
 - are essential for academic and career success
 - can be reliably and validly measured in a cross-cultural context
 - are associated with better academic and post-academic outcomes
- Assessment of generic skills is an essential component of best practice in higher education



Case Study:



TEXAS A&M UNIVERSITY

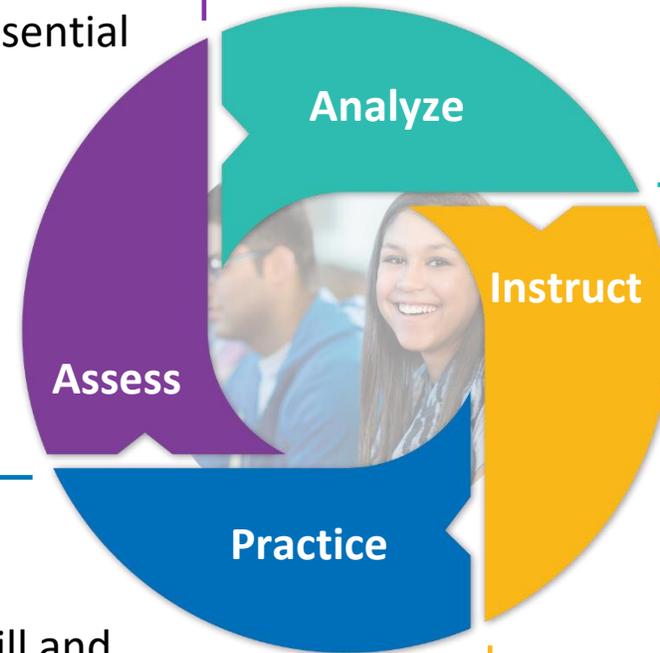
Mays Business School

Goal: Improve the ability of students to think critically and problem solve, increasing academic success and preparing students to contribute on day one in the workforce.

1. Assess 1,100 entering students to create a baseline and introduce students to the essential skills.

5. Re-assess students and provide **micro-credentials** based on their mastery level.

4. Apply each skill and subskill in a practice performance task over several weeks, aligned with the instruction and curriculum.



2. Review assessment data to determine specific areas to focus on class-wide and to identify students who may need additional support.

3. Provide support **materials** to students and deliver critical thinking **instruction**, integrated with the curriculum.



Questions and Comments?

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