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Does Higher Education Teach Students to Think Critically?

Main findings of the study

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30 August 2022

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1.

Rationale

Why assessing generic skills of higher education students?

- Qualifications are gradually losing their signalling value of skills, especially the generic skills that employers value
- Generic skills such as critical thinking are increasingly important in the workplace, because of technological changes and growing mobility
- Disconnect between what qualifications represent and skills demand of the workplace risks eroding the trust in higher education
- Metrics of quality of the teaching and learning mission of higher education are non-existent or focus only on input measures – there is no 'PISA for higher education'
- Assessing students' learning outcomes is a step towards the much needed transparency on teaching and learning quality, towards recognizing that skills are the new currency, and a quality assurance tool for institutions

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2.

CLA+ International Project

CLA+ International Project

- Collaborate effort of systems and institutions in six countries between 2016 and 2021 to pursue the assessment of generic skills in higher education, using CAE's CLA+ instrument.
  - Driven (and financed) by individual systems or institutions
  - CAE providing CLA+ instrument, adaptation, translation, training, scoring, etc.
  - OECD providing coordination, platform for meetings and conferences
- Over 120.000 students, entering or exiting first-degree programmes, tested, of which 98.000 in US.

CLA+ International Project – countries and samples

Year	Admin	Chile	Finland	Italy	Mexico	United Kingdom	United States	Total
2015	Spring			6 589			11 974	18 563
	Fall					141	12 418	12 559
2016	Spring					702	8 458	9 160
	Fall					730	12 734	13 464
2017	Spring					167	8 376	8 543
	Fall				2 793	212	11 172	14 177
2018	Spring	499			2 548	135	7 116	10 298
	Fall				3 249	154	9 808	13 211
2019	Spring	729					6 580	7 309
	Fall		1 469				5 824	7 293
2020	Spring		831				1 854	2 685
	Fall	1 727					1 926	3 653
Total		2 955	2 300	6 589	8 590	2 241	98 240	120 915

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3

Assessment results International database

CLA+ International Project – general assessment results

Level	Average percentage	Minimum	Maximum
Emerging	20.9%	13.4%	41.7%
Developing	34.1%	28.5%	37.6%
Proficient	30.0%	17.4%	34.7%
Accomplished	13.3%	4.5%	19.4%
Advanced	1.7%	0.2%	3.7%

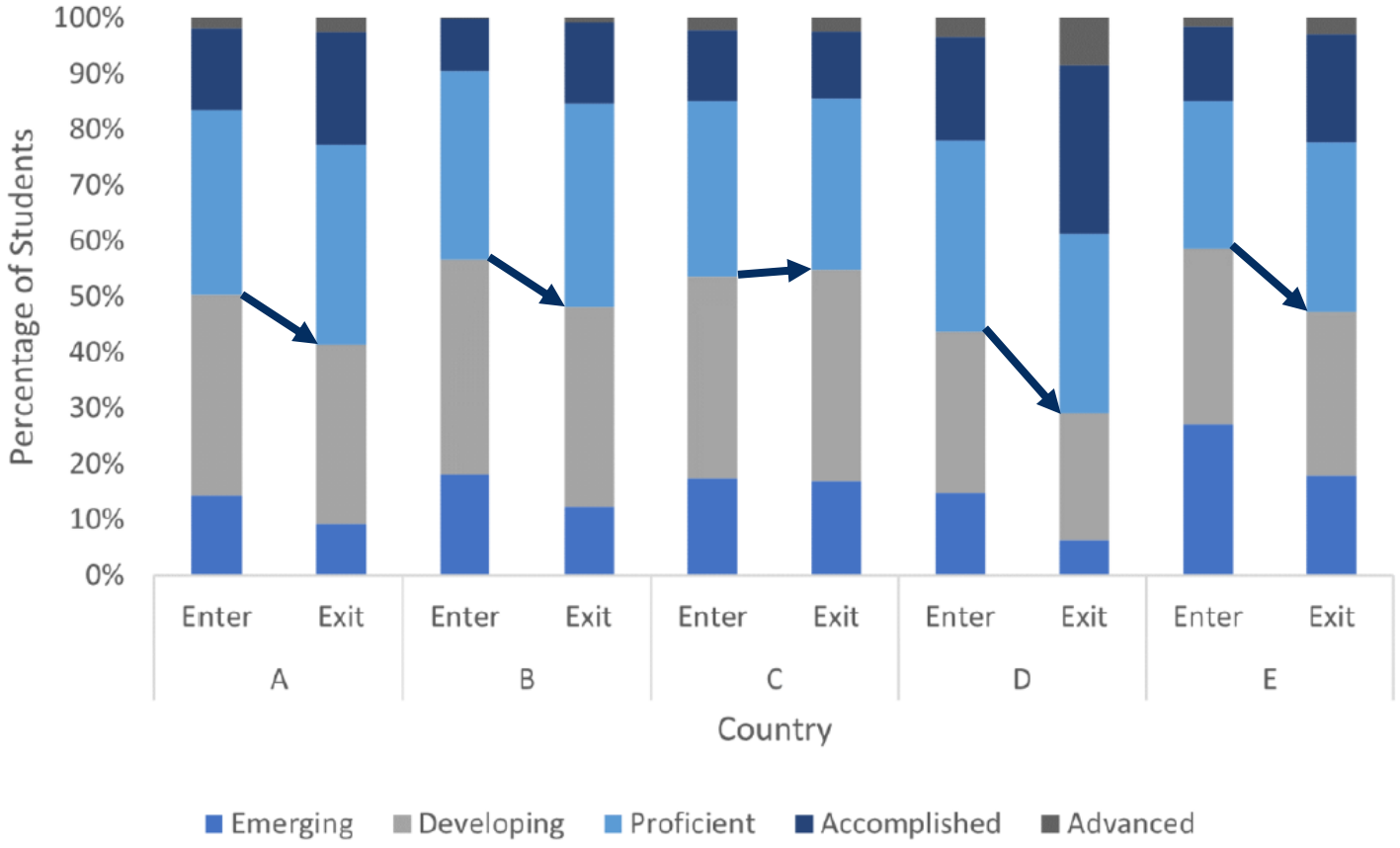
- On average over country means, 45% of tested students are proficient in critical thinking
  - Huge variability between minima and maxima at each proficiency level in country samples
- Very low percentages at highest mastery level
- One in five students (min 13,4%, max 41,7%) at lowest mastery level

CLA+ International Project – general assessment results

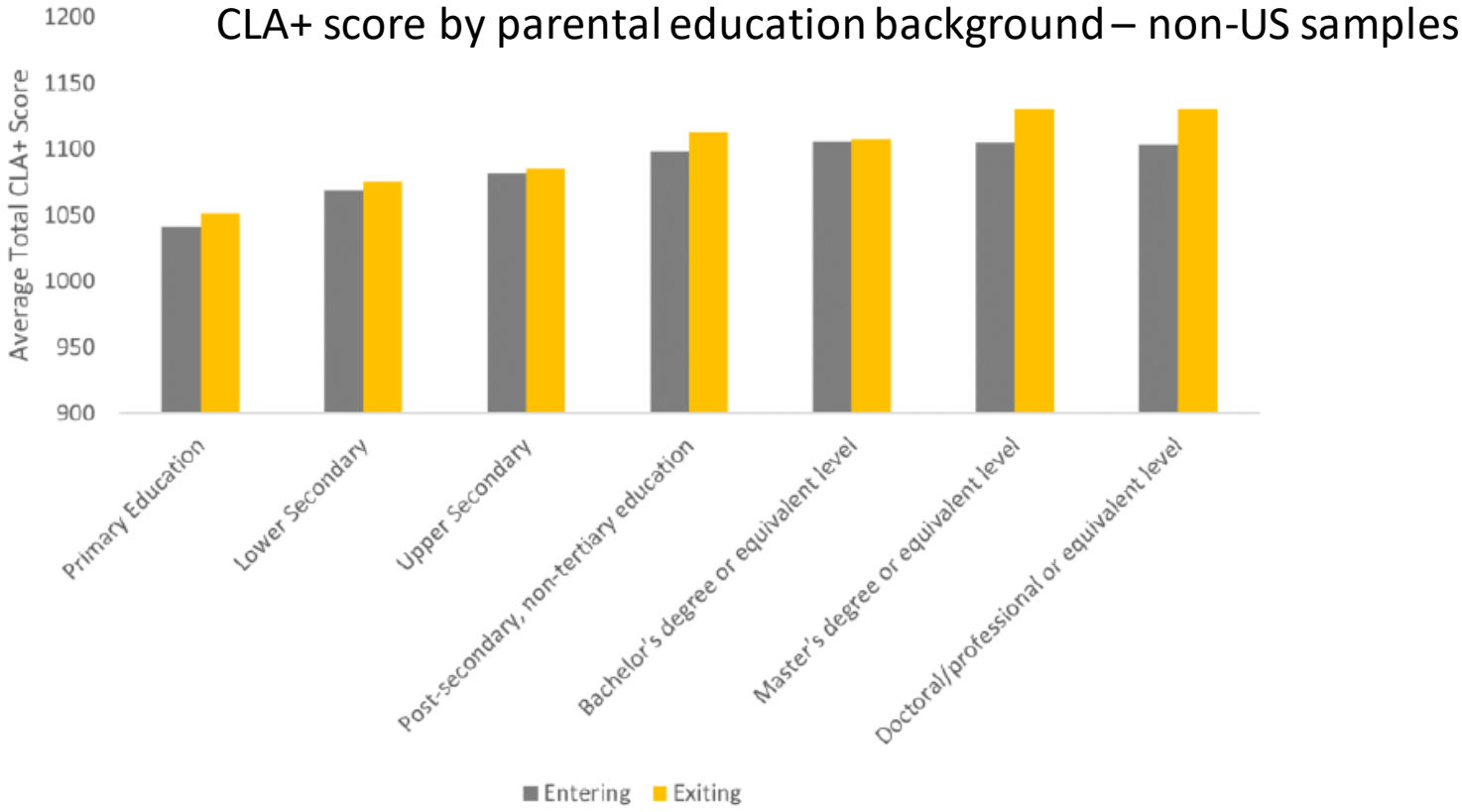
	Entering students			Exiting students		
Level	Average	Minimum	Maximum	Average	Minimum	Maximum
Emerging	18.4%	14.4%	27.1%	17.5%	6.5%	41.7%
Developing	34.2%	29.0%	38.6%	32.3%	22.6%	37.7%
Proficient	31.9%	26.6%	34.3%	30.6%	17.4%	36.3%
Accomplished	13.8%	9.5%	18.6%	16.8%	4.5%	30.3%
Advanced	1.8%	0.1%	3.4%	2.8%	0.2%	8.4%

- On average over country means, there is only a 2,7 percentage point increase in the share of proficient students between entering and exiting students
- Suggesting that learning gain in critical thinking during the first degree programme is rather minimal, on average
- Again, huge differences between country samples

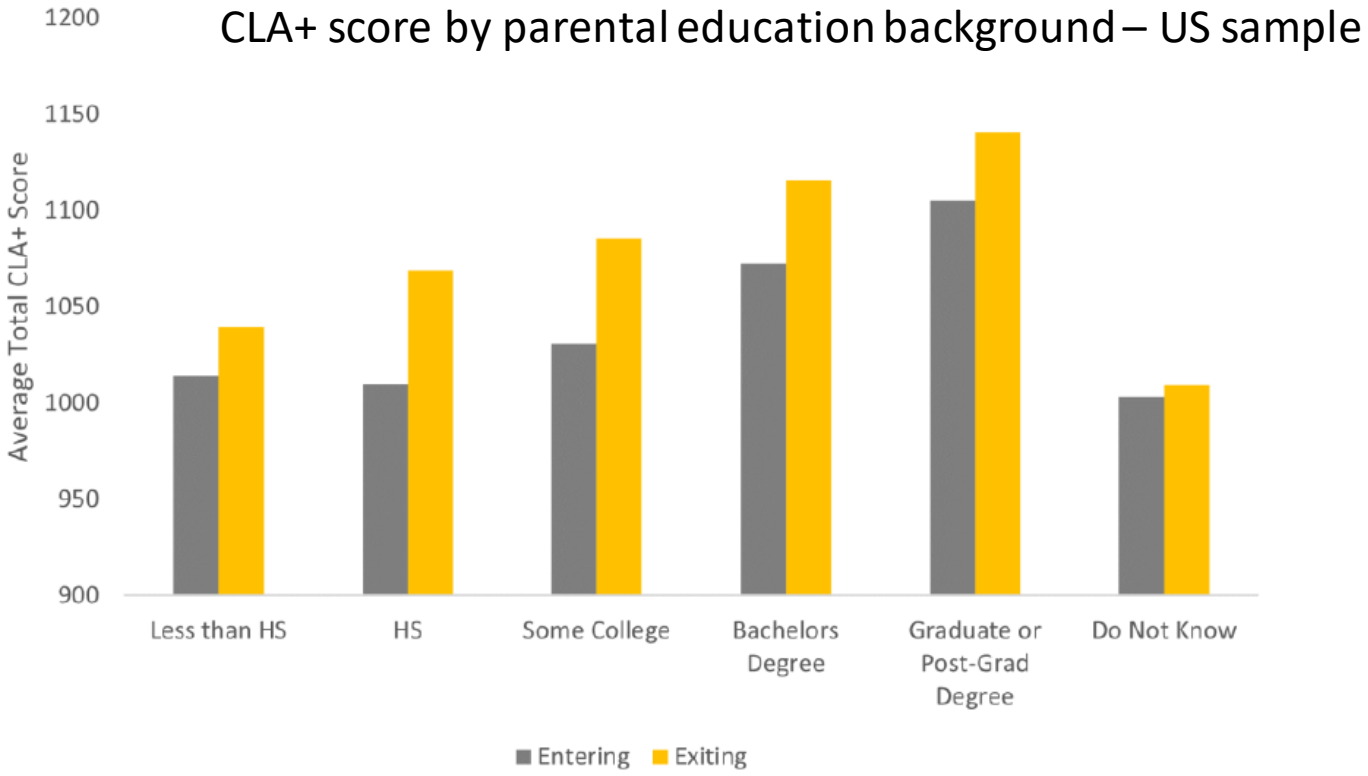
CLA+ International Project – general assessment results



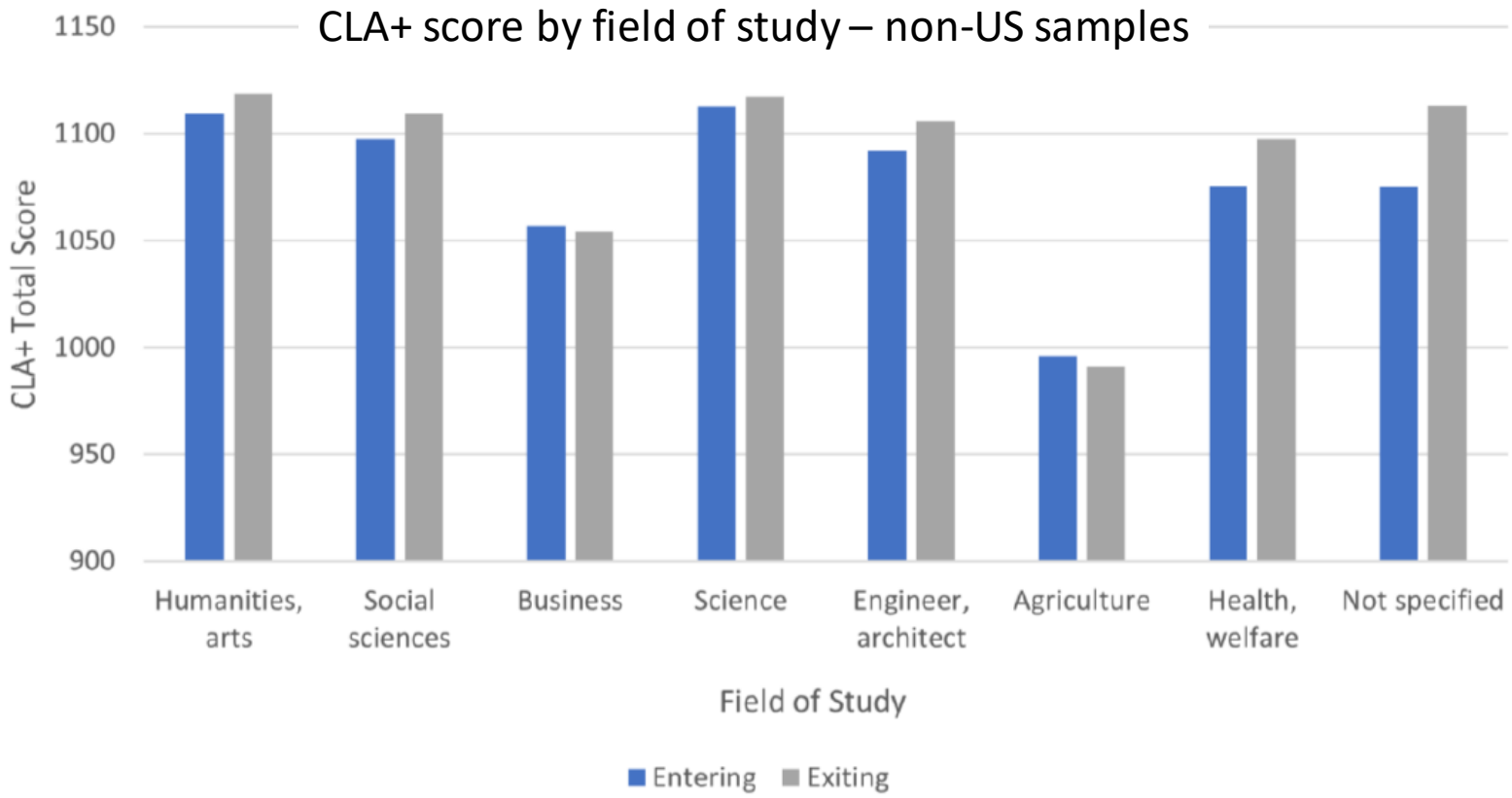
CLA+ International Project – general assessment results



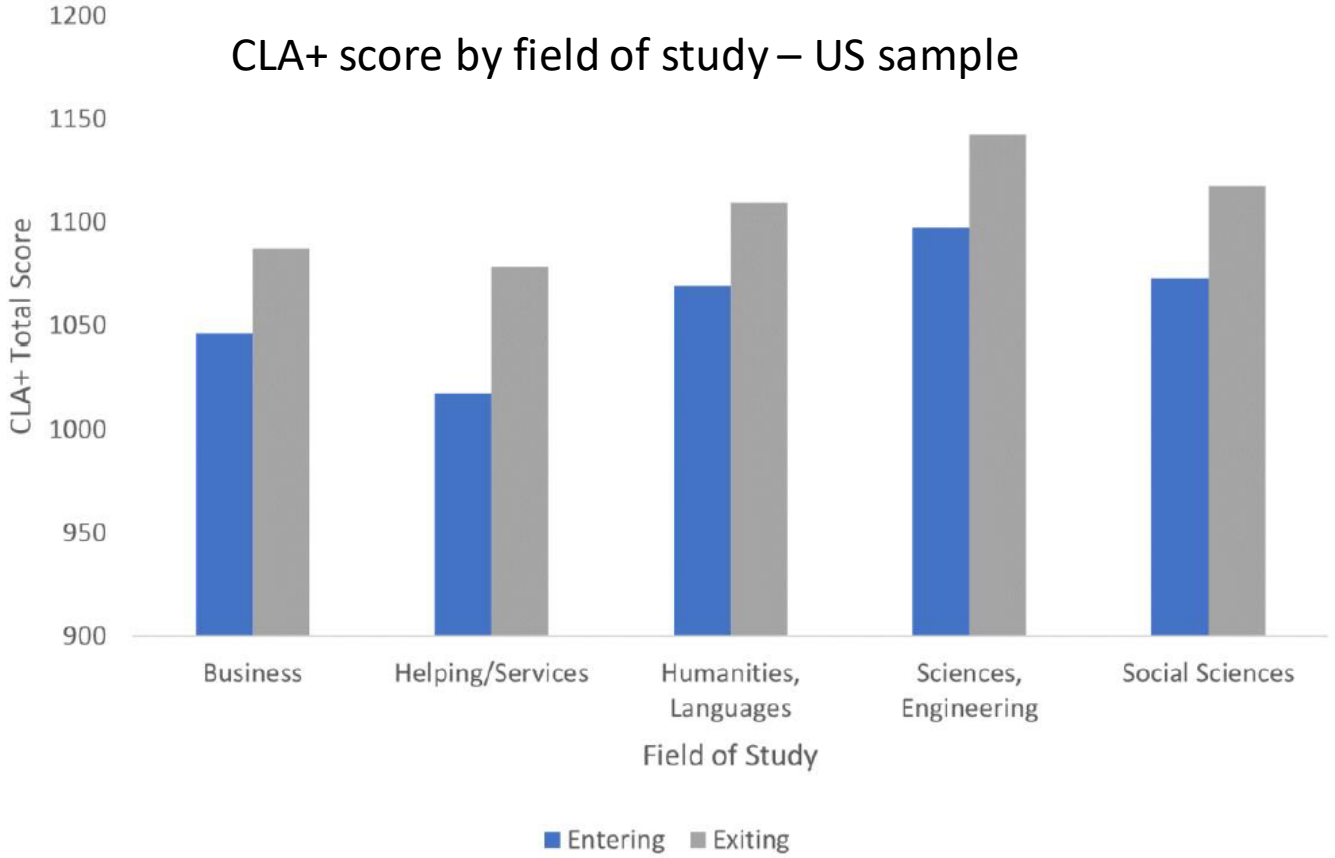
CLA+ International Project – general assessment results



CLA+ International Project – general assessment results



CLA+ International Project – general assessment results



CLA+ International Project – general assessment results

Key takeaways:

- On average over all country means, only 45% of students are sufficiently proficient in critical thinking skills
- Learning gain between entering and exiting programmes is small on average, but large differences between country samples
- Performance levels of entering students (selection effect) are not related to learning gain (education effect)

CLA+ International Project – general assessment results

Key takeaways:

- Impact of parental educational attainment level on score of entering students is significant; selection effect is stronger in US sample than samples of other countries
- Also impact of parental educational attainment on learning gain; learning gain is higher and less determined by parental background in US, suggesting a more equitable education effect
- Significant differences between fields of study, both in entering students (selection) as in learning gain (education) in critical thinking, again with more pronounced differences in US sample

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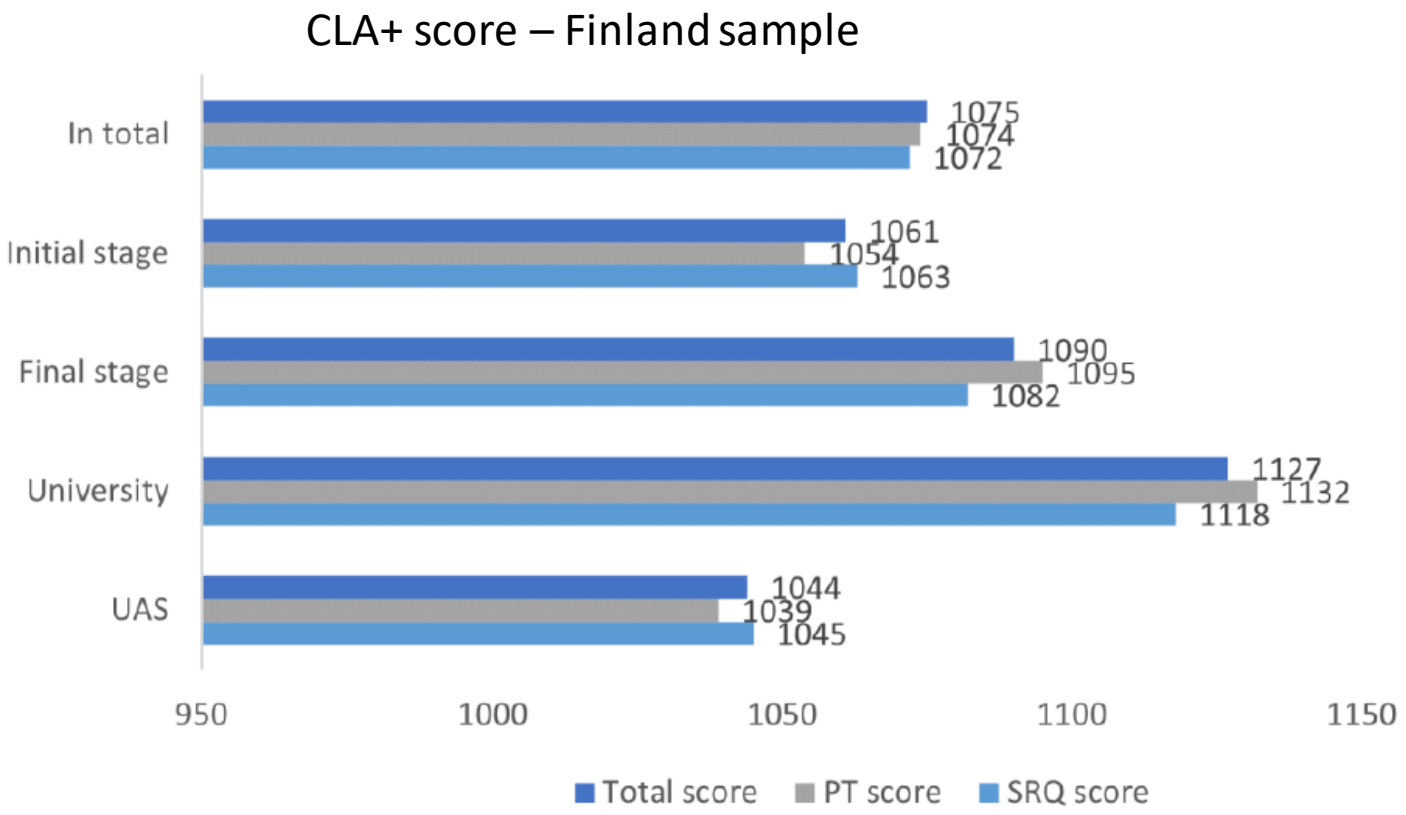
Assessment results
A few country-specific data and experiences

CLA+ International Project – country-specific results



CLA+ International Project – country-specific results

- Finland:
  - Important gender differences, in favour of female students, especially for performance test
  - Important gap in critical thinking skills between university students and students at universities of applied sciences
  - Significant impact of students' prior educational trajectory and family background

CLA+ International Project – country-specific results

- England:
  - Experiment in a couple of universities to measure learning gain in context of Teaching Excellence Framework
  - CLA+ as diagnostic tool for institutional improvement
- Mexico:
  - Implementation in large university network with multiple campuses
  - Striking impact of poverty and geographical disadvantage

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Conclusions

Limitations of the study

- No representative samples; selection bias
- Samples too small to be representative for individual countries
- Student engagement and effort during testing correlate with test results – motivation of students is critically important

Conclusions

- An international, cross-cultural, comparative assessment of generic learning outcomes of higher education is feasible.
- Lots of progress made in assessment of higher-order skills such as critical thinking. A valid and reliable instrument is available.
- During their time in higher education, students improved their critical thinking skills. The entire distribution moved upwards.
- However, given the importance attached to critical thinking in higher education's mission and ambition, the average learning gain is smaller than could be expected and too small to warrant and restore trust in higher education qualifications

Conclusions

- However, the large differences between country samples suggest that the quality of teaching and learning differs significantly, and that high-quality higher education, where a high learning gain is realized, is perfectly possible.
- Remarkable contrast
  - Between stronger effect of family background on the skills level of entering students in US sample compared to non-US samples, suggesting stronger selection effect in US higher education
  - and weaker impact of family background on learning gain in US sample compared to non-US samples, suggesting a more equitable education effect

Conclusions

- Lessons learned from implementation in countries
  - Political context, support from stakeholders (employers), a strong drive towards improving quality and institutional commitment are the main conditions to the successful implementation of assessment
  - As we have seen in PISA, assessment drives the reform agenda
  - Student motivation and engagement are critically important – rewarding successful students with digital badges and credentials

Prospects

- Assessment of generic skills that matter in the workplace will become a major tool for
  - national and institutional benchmarking,
  - institutional quality assurance and improvement,
  - students demonstrating proficiency
  - ensuring employers that skills that matter are acquired.


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Thank You!