AHELO Feasibility Study
Increasing need for sophisticated forms of management, evaluation and quality monitoring – **to do more, better, with less**

Higher education is growing in significance and scale – clear rationales for increasing output and ensuring **quality outcomes**

Higher education is faced with huge cost and competitive pressures – **evidence-based management helps** expand provision with quality

Internationalisation pervades all facets of teaching and learning, and graduate outcomes – **international perspectives are vital**
AHELO addresses serious information misalignments and gaps in global higher education.

Learning outcomes data helps policy and institutional leaders manage growth, quality and cost complexities.

Further reliance on flawed, simplistic rankings will constrain growth and prosperity – robust multidimensional perspectives required.

Measures of learning outcomes are the key to diagnosis and reform in higher education worldwide.

AHELO’s unique and significant value-add.
AHELO world map

Linguistically diverse...

Arabic  Dutch  English  Finish
Flemish  Italian  Japanese  Korean
Norwegian  Russian  Slovak  Spanish
<table>
<thead>
<tr>
<th>Country</th>
<th>Management</th>
<th>Context</th>
<th>Generic Skills</th>
<th>Economics</th>
<th>Engineering</th>
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<tbody>
<tr>
<td>United States</td>
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<td>Slovak Republic</td>
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<td>Australia</td>
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Country by strand
In-country communication
>300 individuals involved directly

Hundreds of organisations/institutions

Up to 10,000 leaders, faculty, students

Many thousands of public stakeholders

International stakeholders

- Email
- Tele-/video-conferencing
- AHELO Exchange
- Face-to-face meetings
- Newsletters
- Media
- Conferences
Is it feasible to develop frameworks and instruments to test discipline-specific learning outcomes?

**Test fields:** Economics, Engineering

**Contextual Dimension**

- Generic Skills
- Economics
- Engineering

**Instrument architecture**

- Student Context Instrument
- Faculty Context Instrument
- Institution Context Instrument
- National Context Information
Framework and item development

Framework creation
- Outcome specification
- Document analysis
- Consultation
- Synthesis, review

Item creation
- Gather existing materials
- Item workshops
- Technical review
- Framework mapping
- Adaptation, translation
- Verification

Instrument validation
- Qualitative testing
- Quantitative testing
- Operationalisation

Authentic, hybrid item types
‘Above content’ reasoning

Tuning AHELO / QAA frameworks
- Curriculum documents
- Accreditation systems
- Discipline research

Curriculum documents
Accreditation systems
Discipline research

Authentic, hybrid item types
‘Above content’ reasoning
Translation, adaptation and verification

Designed to maintain cross-national comparability of assessment materials

A holistic, robust and flexible approach, linked with item production and validation

Adaptations managed as a continuous process

Native speakers of target language trained to detect specific pitfalls

Economics or engineers who are speakers of target language and domain specialist

Source version

Translation 1

Translation 2

Reconciliation

Verification: verifier (linguist) and domain specialist

National review

Final check
Generic Skills Assessment

AHELO Technical Advisory Group
Peter Ewell, United States (Chair)
Vaneeta D’Andrea, United Kingdom
Paul Holland, United States
Motohisa Kaneko, Japan
Lynn Meek, Australia
Keith Rust, United States
Frans Van Vught, Netherlands
Robert Wagenaar, Netherlands

Roger Benjamin (Director)
Robin King, Australia (Chair)
Giuliano Augusti, Italy
Mario Gomez, Mexico
Michael Hoffman, Germany
Kikuo Kishimoto, Japan
Johan Malmqvist, Sweden
Nobutoshi Masuda, Japan
Jim Melsa, United States
Lueny Morell, United States
Non-engineering Basic/Engineering sciences Practice Engineering processes Analysis Design Practice Item situation Engineering competence Problem context Branch-specific General Engineering Assessment Framework Emphasis on constructed response Generic skills Engineering Non-engineering MCQ-oriented
Based on Japanese licensing examinations

Focused on Basic and Engineering Sciences

40 items selected, revised and internationalised

Items panelled and mapped
Representative sample of authentic and engaging Civil Engineering contexts

Photographs, diagrams and charts used to stimulate interest and minimise text

Students need to exercise components of Engineering competency

Can they think like an Engineer?

Competencies demonstrated in student responses
Psychometric reviews
Psychometric review

Students (X)

Linear metric being measured

Test items

Four constructed response modules (28 items) and 40 multiple-choice items

First constructed response module (7 items)

Second constructed response module (5 items)
<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The task covered topics relevant to my program</td>
<td>39</td>
<td>42</td>
<td>33</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>The time available was sufficient for me to complete this task</td>
<td>40</td>
<td>31</td>
<td>6</td>
<td>14</td>
<td>6</td>
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<tr>
<td>The task was relevant to the content being assessed</td>
<td>17</td>
<td>44</td>
<td>33</td>
<td>33</td>
<td>3</td>
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<tr>
<td>The task assessed an appropriate range of knowledge and skills</td>
<td>28</td>
<td>22</td>
<td>28</td>
<td>22</td>
<td>22</td>
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<tr>
<td>The task was relevant to my program of study</td>
<td>39</td>
<td>28</td>
<td>22</td>
<td>14</td>
<td>6</td>
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<tr>
<td>There was good linkage between the questions in each task</td>
<td>25</td>
<td>42</td>
<td>14</td>
<td>19</td>
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<td>The materials stimulated my interest in the task</td>
<td>17</td>
<td>36</td>
<td>28</td>
<td>19</td>
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<tr>
<td>The task was relevant to future professional practice</td>
<td>33</td>
<td>25</td>
<td>22</td>
<td>17</td>
<td>17</td>
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<tr>
<td>The assessment materials were easy to understand</td>
<td>33</td>
<td>36</td>
<td>19</td>
<td>8</td>
<td>8</td>
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<tr>
<td>The task challenged me to think</td>
<td>31</td>
<td>31</td>
<td>22</td>
<td>14</td>
<td>14</td>
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<tr>
<td>The task required me to apply capability gained in my program</td>
<td>28</td>
<td>25</td>
<td>22</td>
<td>6</td>
<td>6</td>
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<tr>
<td>The task made me apply knowledge and skills in real-world ways</td>
<td>33</td>
<td>53</td>
<td>8</td>
<td>3</td>
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**Student feedback (1st task)**
The multiple choice items were easy compared to the constructed response task. There should be a better balance.

Some of the options are obviously incorrect, thus making the task too easy.

The diagrams were helpful in understanding the question. Focus on real world situations.

Had not learned much about environmental impact assessment and ethical issues. Very unfamiliar.

Its realistic problems make me to think and understand that the knowledge I learned from university are being applied in real world

Too technical, especially with the levels of assumed knowledge

We haven't touched on sustainable development so these questions were a bit tricky

Interest question which challenges people to think. Real situation for real application was interesting

Made me realise I forget things easily
Engineering Generic Skills
Effective communication and awareness of the wider civil engineering context.

Basic and Engineering Sciences
Knowledge and understanding of underlying scientific and mathematical principles - general sciences; materials and constructions; structural engineering; geotechnical engineering; hydraulic engineering; and urban and rural planning.

Engineering Analysis
Using analytical methods to identify, formulate and solve problems.

Engineering Design
Understanding and application of design methodologies to meet requirements.

Engineering Practice
Practical competencies required to solve problems, conducting investigations, and designing engineering devices and processes. Covers non-technical elements of civil engineering practice like professional ethics, responsibilities and the impact of engineering solutions in a global, economic, societal and environmental context.

Further information:
www.oecd.org/edu/ahelo
## Taking stock

### Phase 1

<table>
<thead>
<tr>
<th>Generic Skills</th>
<th>Economics</th>
<th>Engineering</th>
<th>Contextual Dimension</th>
<th>International Management</th>
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### Phase 2

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Defined engagement cycle established to support growing number of countries, institutions and students who want to take part.

Designed sustainable business models for AHELO.

Assessment frameworks and test instruments developed to support multidimensional test/context instrumentation.

Established test design, development, translation/adaptation and validation methods.

Defined operational workflow and quality control procedures required to support global testing.

Forming awareness of how AHELO positions in global contexts.

Emerging insights/ findings.
Leadership: International project management, and supporting national teams

Operationalisation: Preparing tests and context instruments for secure online delivery, and training coders

Sampling: Engaging institutions, and sampling faculty and students

Assessment: Supporting national training, managing testing in three strands, managing coding

Reporting: Compiling data products, and country, institution and stakeholder reports

Evaluating: Scientific and practical feasibility, recommendations for full-scale study
Testing and assessment!

Computer-based delivery platform

Training of test supervisors and coders

Sampling students and faculty

Managing and quality assuring test administration

Coding and data verification

Scaling and statistical analysis

Institutional and international reports

Significant work to be done
How AHELO works

Preparation
- Establish National Centre
- Translate and validate instruments
- Engage institutions
- Train Institution Coordinators
- Prepare for testing

Assessment
- Select students
- Administer secure test
- Score responses
- Verify and provide data

Reporting
- Prepare multilevel benchmarking reports
- Distribute reports to National Centres
- Interpretation for monitoring and improvement
Business models
AHELO

Institutional positioning

Faculty improvement

Policy research

Learner feedback

Stakeholder engagement

System monitoring

Change horizons
Australia is at the centre of universal policy

Appearance is dangerous: don’t sell academics to marketers

We need to ask critical questions of tests/data

Anti-enlightenment is out of step

Economists and students seek the same capacity development: institutes, assessment collaborations, benchmarking…
AHELO Feasibility Study