



THE OECD INITIATIVE¹ FOR AN ASSESSMENT OF HIGHER EDUCATION LEARNING OUTCOMES²

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Abstract. At a time when innovation, knowledge and human capital are at the core of our economies and societies' progress, higher education has a key role to play in preparing students to become effective workers and citizens. The OECD has a long standing interest in improving the quality of higher education to equip the next generation with the tools and opportunities for success. But we need to first overcome information gaps in the evidence base on learning. Therefore, the AHELO feasibility study is a groundbreaking attempt to assess whether it is possible to measure on an international scale what undergraduate students know and can do. To provide proof of concept, the AHELO feasibility study is exploring several areas from generic skills to discipline-specific competencies with economics and engineering being the focus at this stage. The aim is to develop different measures, ranging from cumulative performance to measures that capture the learning gain at an institution, as well as the contextual factors that influence learning outcomes. This paper provides an overview of the AHELO feasibility study, its goals, its approach and expected outcomes as well as the status of the project and its next phases.

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Keywords: higher education, learning outcomes, economics, engineering, generic skills, international, measures, assessment.

Reikšminiai žodžiai: aukštasis mokslas, mokymo rezultatai, ekonomika, inžinerija, tarptautinės priemonės, įvertinimas.

Introduction

The Organisation for Economic Co-operation and Development (OECD) has embarked on a feasibility study to evaluate the viability of assessing higher education learning outcomes on an international scale. The Assessment of Higher Education Learning Outcomes (AHELO) seeks to measure

learning outcomes in ways that are valid across cultures and languages, and across the diversity of institutional settings and missions.

Higher education now plays a central role in the knowledge economy and is vital for success. Investment in higher education is significant and growing, both from public and private sources. Following decades of rapid expansion of higher education and growing internationalization is increasing the recognition that greater attention should now be paid to quality and relevance to ensure quality provision for all. Policymakers as well as the public devote considerable attention to the outcomes of higher education given its importance for human capital development, its cost to public finances as well as to students and their families, and the needs of business and industry.

At the same time, efforts to improve the quality of teaching and enhance the learning outcomes of

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² This article builds on documents written by different authors over the course of the project, particularly Karine Tremblay, Richard Yelland and Fabrice Hénard at the OECD.

students enrolled in higher education suffer from a considerable information gap. There is no reliable information which would enable comparative judgments to be made about the capability of students in different countries and different institutions, or about the quality of teaching. The reputations of higher education institutions (HEIs) are based largely on research performance. International rankings derived from inputs or research-driven outputs are distorting decision-making by individuals, institutions and governments. Developing measures that give due weight to teaching practices and learning outcomes has thus become essential.

1. AHELO Goals and Challenges

The purpose of the AHELO feasibility study is to assess whether it is possible to measure at the international level what undergraduate degree students know and can do, in order to provide relevant information to HEIs, governments and other stakeholders including students and employers.

Strategic goals

The underlying motivation for the AHELO is that this information could contribute to HEIs' knowledge of their teaching performance, and thereby provide a tool for development and improvement. As such, the AHELO central emphasis is on the improvement of teaching and learning and on providing higher education leaders with tools to empower them and foster positive change and enhanced learning.

The feasibility study has two key aims:

- Test the science of the assessment—whether it is possible to devise a scheme for the assessment of higher education outcomes and collect contextual data that facilitates valid and reliable statements about the performance/effectiveness of learning in HEIs of very different types and in countries with different cultures and languages.
- Test the practicality of implementation—whether it is possible to motivate institutions and students to take part in such an assessment and develop appropriate institutional guidelines. In addition, the feasibility study will involve related work exploring other options for capturing indicators of higher education quality indirectly.

Challenges to address in AHELO

The development of an AHELO presents a number of scientific and practical challenges. It is of crucial importance that an assessment has both reliability and validity. Constructing an assessment that is valid across HEIs, cultures and disciplines implies taking into account:

- the diversity of HEIs;
- differences between national systems of higher education;

- the absence or presence of selection in the system or certain HEIs;

- variations in the duration and content of programmes; and

- cultural and linguistic diversity.

Practical and operational challenges that also have to be addressed are the search for the ways to motivate students and HEIs to participate and the assurance of a fair assessment of HEIs and programmes.

2. The AHELO Approach and Its Rationale

A multi-dimensional definition of quality

Recognizing the multiplicity of potential uses and users, the OECD does not aim to establish a single performance measure that would then be used for a unidimensional ranking of HEIs or countries. The OECD also acknowledges that any effort to bring together all HEIs on one standard would risk driving the assessment down to the lowest common denominator. The AHELO aim is rather to establish a 'multi-dimensional quality space', in which quantifiable criteria for quality establish the dimensions of the space. Within this concept of the 'quality space', higher education systems, institutions, departments and faculties can then be situated depending on the prevalence of the different quality attributes. Students would then be able to choose programmes and HEIs depending on the configuration of the quality attributes that are most relevant to them, rather than depend on ratings that combine quality attributes in predefined ways, which may not necessarily be the most relevant ones for either students or providers. It would also become possible to portray policy trajectories of HEIs and systems over time, as they change their position on the different dimensions of this 'quality space', which in turn could become a powerful tool for public policy.

HEIs as units of analysis

The AHELO approach centres on the establishment of measures of learning outcomes at the level of HEIs, departments or faculties, the idea being to combine the definition of OECD measures of quality with valid and reliable assessment methods to which HEIs could, with an appropriate set of incentives, voluntarily subscribe and which could progressively find acceptance in a widening range of HEIs. Eventually, if an OECD assessment gathered pace and found wide acceptance, issues of assessing system-level performance might be addressed, and this would make the work relevant to a much wider range of stakeholders in the longer term.

Institution-level reports

The OECD recognizes diverging views on how the knowledge about learning outcomes in HEIs can and should be used. Some see such information primarily as a tool to reveal best practices, to identify shared problems among HEIs and to encourage collaboration and lateral capacity building among research and teaching personnel. With this approach, emphasis would be placed on the relevance of performance information for the institutions themselves and on contextualizing performance data with other information on the learning environment in HEIs. Other views extend the purpose of learning outcome measures to support the contestability of public services or market-mechanisms in the allocation of resources, e.g. by making comparative results of HEIs publicly available to facilitate choice.

Defined final-year student population

The OECD has devoted consideration to what would constitute meaningful target populations for AHELO. One possibility, that would facilitate comparisons across HEIs and countries, would be to focus the assessment on comparable age bands. However, this would make it very difficult to link results to national degree and qualification structures and thus make it difficult to interpret them in the national institutional context. Such an approach would also be very difficult to implement, as it would require the selection of age-based samples that may spread widely across the years of study. The approach therefore considers an assessment towards the end of the first undergraduate degree (of a three- or four-year duration depending on the programmes offered in participating countries) as a more practical solution for the feasibility study.

3. The Expected AHELO Feasibility Study Outcomes

There is currently considerable interest within institutional, political and scientific circles for measures of higher education learning outcomes, but also uncertainties and doubts of some actors as to whether it is scientifically and operationally feasible to measure learning outcomes across HEIs of very different types and in countries with different cultures and languages. In order to answer this question, a number of international experts have been consulted over the past three years. Three meetings were held in 2007, bringing together international specialists in the field³. The main conclusion of the experts

was that while it might be both desirable in terms of public policy and theoretically possible to assess and compare the central components of education outcomes, it would be necessary to conduct a feasibility study to test this proposition before undertaking any more systematic assessment. The feasibility study would have to test both the science of the assessment and the practicality of implementation.

The feasibility study is expected to demonstrate the feasibility—or otherwise—of comparing HEIs' performance from the perspective of student learning rather than relying upon research-based measures which are currently being used across the globe as overall proxies of institutional quality. To this aim, it will implement several instruments in different countries. It is anticipated that the assessment instruments and contextual surveys will be administered to students who are almost at the end of a bachelor-type degree, with the option of paper-and-pencil or electronic delivery, depending on operational considerations (logistics implications, security of testing, access to computers in some sub-systems for some participating countries). Because of the national differences in academic year, a window of testing time needs to be allowed.

The main criteria to assess the success of the feasibility study is to provide a proof of concept that the various instruments considered can be applied in diverse institutional, cultural and linguistic settings with appropriate adaptations and yet provide valid, reliable and free-of-bias measures of student learning outcomes as well as indirect measures of higher education quality. Key questions to assess the scientific feasibility of an AHELO will include questions such as:

- a) Is it possible to develop instruments to capture learning outcomes that are perceived as valid in diverse national and institutional contexts?
- b) Do the test items perform as expected and do the test results meet pre-defined psychometric standards of validity and reliability?
- c) Is it possible to score higher-order types of items consistently across countries?
- d) Is it possible to capture information on teaching and learning contexts that contribute to explaining differences in student performance?

The key questions to assess the practical feasibility of an AHELO will include questions such as:

- e) How effective are the strategies implemented at the national/institutional level to secure institutional and student cooperation?
- f) Can students be motivated to take part in such an assessment and take it seriously?

³ The expert meetings took place in Washington (28 April), Paris (5-6 July) and Seoul (26-27 October). The Washington meeting was primarily about the usefulness and desirability of an OECD international assessment of higher education learning outcomes, the Paris meeting focused on the conceptual possibili-

ty, and the Seoul meeting concerned how to move from possibility to feasibility. See www.oecd.org/edu/ahelo for the summary records and lists of participants from these meetings.

g) To what extent does the implementation of the feasibility study assessments bring benefits to participating HEIs?

h) To what extent does the implementation of the feasibility study contribute to demonstrating its value for the improvement of teaching and building support for an AHELO?

The design of the feasibility study will involve careful psychometric analysis, technical reviews by international experts as well as international conference presentations gathering different stakeholder groups to discuss whether, and how to take the results from the feasibility study forward. In case of positive results, this proof of concept would constitute a key pillar for longer-term work as it would assist OECD countries in deciding whether to launch a fully-fledged AHELO study.

Several strands of work

Any assessment of higher education learning outcomes will need to define and operationalize criteria for what constitutes quality. The OECD acknowledges that there is no generally accepted definition of what higher education outcomes ought to be, but considers that there are promising ways to examine various facets of learning outcomes underway. The feasibility study will thus involve different kinds of activities to explore the feasibility of directly measuring or indirectly capturing various aspects of quality.

For the sake of a feasibility study, it is not necessary to develop comprehensive instruments to assess student performance. Instead, the focus is on providing proof of concept, and it should be possible to take advantage of this feasibility study to explore different approaches, methodologies and instruments that might eventually be envisaged as parts of a fully-fledged assessment. As a result, the work is divided into several strands of work to be undertaken separately but coherently.

The generic skills strand

The generic skills strand is an essential component of the feasibility study. Indeed, competencies in critical thinking, analytic reasoning, problem-solving, or the generation of knowledge and the interaction between substantive and methodological expertise are widely viewed as critical for the success of individuals and of rising relevance in the information age.

It is therefore important for an AHELO to measure these transversal higher-order competencies that are necessary for success in both academic and business contexts—not only cognitive knowledge. A key advantage is that such competencies are largely invariant across occupational and cultural contexts and could be applied across HEIs, departments and faculties. Moreover, a focus on higher-order skills allows the coverage of a more diverse population

representing the whole undergraduate student body, whereas the discipline strands will only cover a subset of students enrolled in given disciplines.

International experts gathered in 2007 and reviewed the various initiatives taken in countries to assess higher education learning outcomes (Nusche, 2007). They were impressed with the Collegiate Learning Assessment (CLA) approach taken by the Council for Aid to Education (CAE) in the United States. The CLA is an initiative designed to assess the quality of undergraduate education by directly measuring student learning outcomes. The measures are focused on skill sets that students will need as they graduate and enter the work force, namely critical thinking, analytical reasoning, problem-solving and written communication. These skills are intertwined. Thus the CLA measures are holistic: they require students to use these skills together to respond to tasks. All CLA measures are administered online, using open-ended prompts that require constructed responses. Each task also has an accompanying library of information which students are instructed to use in preparing their answers. Tasks often require students to marshal evidence from these diverse quantitative and qualitative sources and exercise judgment on their relevance. Tasks are appropriate for students across a wide range of undergraduate academic majors and general education programmes.

The discipline strands: economics and engineering

Generic competencies underlie most facets of undergraduate education, but institutions and learners invest most of their effort in discipline-specific knowledge and skills. The limitation of an approach entirely restricted to generic competencies is that it would not assess the kind of subject-matter competencies that most higher education departments or faculties would consider their primary work. There would thus be a risk that what is measured becomes too far removed from what goes on in faculties and departments and does not capture the competencies that are uniquely the province of HEIs.

For the purposes of the feasibility study, AHELO will focus on assessing learning in the fields of economics and engineering. This approach covers disciplines that are common among HEIs in OECD countries, are relatively divergent in terms of substance and context, are less likely to be influenced by unique cultural features and reflect the dynamics of disciplinary change.

The economics and engineering assessments will help gauge the viability of measuring discipline-specific skills, representing both scientific and social sciences domains, with the understanding that a fully-fledged AHELO main study would aim at expanding the number of disciplines covered over time.

The aim is to assess competencies that are fundamental and ‘above content’, i.e. with the focus on the capacity of students to extrapolate from what they have learned and apply their competencies in novel contexts unfamiliar to them. Indeed, the AHELO approach follows the PISA dynamic model of lifelong learning in which new knowledge and skills necessary for successful adaptation to a changing world are continuously acquired throughout life. AHELO therefore focuses on the aspects that higher education students will need in the future and seeks to assess what they can do with what they have learned. The development of the assessment instruments will not be constrained by the common denominator of programme curricula which are very diverse in higher education, but instead examine students’ ability to reflect and to apply their knowledge and experience to novel and real world tasks and challenges.

As with the generic skills strand, the discipline strands will explore the feasibility of directly measuring learning outcomes in the selected disciplines and across different cultural and linguistic contexts. A prerequisite for this is to reach international agreement on expected learning outcomes in these contrasted disciplines to provide proof of concept that it is possible to develop domain assessment frameworks in the disciplines in the context of great curriculum diversity in higher education programmes. Early progress on this front has been made using the Tuning approach, which has been successfully applied in Europe in many disciplinary fields and is now being piloted in other parts of the world. The outcomes of the Tuning-AHELO project (Tuning Association, 2009a, 2009b) have provided an intermediate output of the AHELO feasibility study, to demonstrate that agreements on expected learning outcomes can be achieved in contrasted disciplines. These frameworks provide a basis for developing more detailed assessment frameworks.

The contextual dimension

While the main focus of the AHELO feasibility study is to gauge the feasibility of assessing learning outcomes, it is also necessary to assess the feasibility of gathering context variables that will eventually be needed to interpret performance measures and help institutions understand the performance of their students and improve their teaching accordingly. Further, the context data collected through student and faculty instruments will be used to rehearse some psychometric analyses to identify relevant contextual variables for longer-term development and demonstrate the analytical potential of AHELO for institutional improvement.

This aspect of the feasibility study will also require ensuring that the contextual surveys are internationally valid and reflect the cultural context of the

countries in which the AHELO feasibility study will be implemented. Some initial development work has already been undertaken. A group of commissioned contextual dimension experts (Ewell et al., 2008, 2009), has developed a conceptual and analytical framework which served as a basis to prioritize desired contextual variables for the feasibility study.

The purpose of the contextual variables is to allow for disaggregation of assessment results by different kinds of institutional/programme characteristics and student populations and to provide information to help construct appropriate comparisons across institutions. The contextual information will be collected from existing documentation at the country, institution and programme levels, and through two surveys: a student survey and a faculty survey of a maximum duration of 15 minutes each.

The student survey will be administered with the AHELO assessment itself. The intent is to collect information on student characteristics such as demographics, experiences and behaviours (for example, exposure to specific teaching and learning practices) and self-reported outcomes such as the attainment of particular learning outcomes.

The faculty survey will be administered to all faculty members in the chosen department or to a random sample where departments are very large. The faculty will preferably be from departments/schools of economics and engineering to provide comparability within institutions participating in these two discipline strands. The intent is to collect information on institutional characteristics such as faculty reported teaching modes and unit/programme characteristics such as faculty perception of the status of undergraduate teaching.

The value-added measurement strand

Measuring the value-added in higher education, i.e. the learning gain that takes place during the higher education experience, imposes layers of complexity that, though theoretically well understood, are still challenging in the context of large-scale assessments. Given the complexity of measuring marginal gain, the feasibility study will first scrutinize possible methods for capturing marginal learning outcomes that can be attributed to attendance at different HEIs, both from a conceptual/theoretical perspective and in terms of psychometric approaches. It will build upon similar work carried out at school level by the OECD (OECD, 2008) and review options for value-added measurement in higher education. Researchers will be invited to study potential data sources, methodologies and psychometric evidence on the basis of datasets existing at the national level, with a view to providing guidance towards the development of a value-added measurement approach for a fully-fledged AHELO main study.

4. The Unfolding of the Feasibility Study

Participating countries

Countries directly involved in the implementation of the AHELO assessments in the different strands of work are the following:

- Generic Skills Strand: Colombia (tbc), Egypt, Finland, Korea, Kuwait, Mexico, Norway and the United States.
- Economics Strand: Belgium (Flemish Community), Egypt, Italy, Mexico, the Netherlands and the Russian Federation.
- Engineering Strand: Australia, Egypt, Japan and Sweden.

Implementing the feasibility study in phases

The implementation of the feasibility study will unfold in several phases:

Phase 1: Initial proof of concept (January 2010 to June 2011)

The first phase of the work will consist in the development of provisional assessment frameworks and testing instruments suitable for an international context for each strand of work (generic skills, economics and engineering), and their small-scale validation (cognitive labs and think aloud interviews) to get a sense of cross-linguistic and cross-cultural validity.

Phase 2: Scientific feasibility and proof of practicality (July 2011 to December 2012)

In the second phase, the practical aspects of assessing students learning outcomes will be under focus, and the implementation of the three assessment instruments in a small group of diverse higher education institutions will explore the best ways to implicate, involve and motivate leaders, faculty and students to take part in the testing. A contextual dimension is embedded in the implementation of each

of the three assessments to make some preliminary explorations of the relationships between context and learning outcomes and the factors leading to enhanced outcomes.

Should these three assessment instruments demonstrate the feasibility of assessing student learning outcomes across different countries and institutions, the last phase will be to develop a value-added measurement strand to explore methodologies and approaches to capture value-added or the contribution of higher education institutions to students' outcomes, irrespective of students' incoming abilities.

By the completion of the feasibility study in late 2012, the information collected on student performance and the analysis of the results will help assess whether a full-fledged AHELO study could feasibly be taken forward from both scientific and practical standpoints. The outcomes of the AHELO feasibility study will guide the decision to be made by the OECD member countries of whether to launch a full-fledged study in the longer term.

5. Organization and Partners Involvement

The OECD is well placed to lead and implement the AHELO feasibility study given its institutional framework for cooperative and international comparative work as well as its credibility and demonstrated expertise in developing large-scale international assessments such as the Programme for International Student Assessment (PISA) focusing on 15-year-olds at the compulsory school level and the Programme for International Assessment of Adult Competencies (PIAAC) which focuses on the skills of the adult workforce.

Within the OECD, the Programme on Institu-

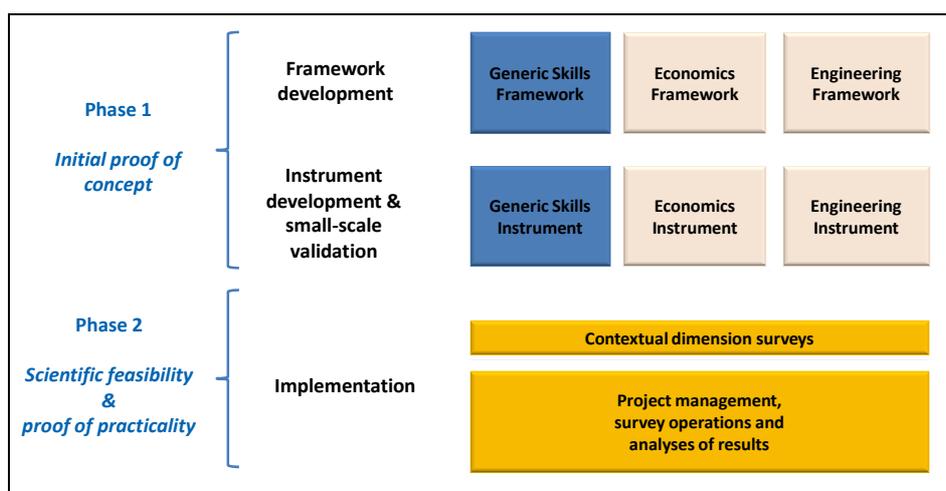


Figure 1. AHELO Phases 1 and 2

tional Management in Higher Education (IMHE) provides a platform for the engagement of higher education institutions in AHELO alongside governments, in a way which will ensure that the approaches adopted take account of institutional needs and concerns. IMHE is open to all recognized higher education institutions in OECD countries as well as associations of higher education institutions and representatives of governments. It can therefore provide a locus for consultation and steering of the feasibility study which also allows countries which are not directly involved in it to have their say and monitor progress.

The feasibility study is managed by a small team at the OECD. The bulk of the technical work involved in the different strands of the AHELO feasibility study work will be carried out through the AHELO Consortium, a global Consortium that includes partners who bring high-level expertise in large-scale cross-national assessment and considerable experience with higher education research and development. The Consortium will also call on expert working groups to provide specialist input into the development and implementation of assessment instruments.

In addition, the OECD has also invited a group of organizations with a stake or interest in higher education to join the AHELO Stakeholders Consultative Group. It is a channel through which information about AHELO can be presented to and discussed with these organizations and a forum where those stakeholders can expose and formulate ideas about how the study can be implemented. The members of this group include, among others, international associations of quality assurance agencies, students or universities (the list of organizations involved is available at www.oecd.org/ahelo; www.oecd.org/edu/ahelo).

Conclusions

Higher education is an increasingly strategic investment for countries and for individuals. It is a critical factor in innovation and human capital development and has been expanding fast globally. Some 135 million students now study worldwide in more than 17 000 universities and other institutions of higher education.

However, there are no tools available to compare the quality of teaching and learning in those institutions on an international scale. The few studies that do exist are nationally focused, while international university rankings are based on reputation

and research performance and do not reflect the quality of teaching and learning, nor the diversity of institutions' missions and contexts.

The AHELO project is a unique and innovative attempt to fill this gap. It aims to develop criteria that will make it possible to evaluate the quality and relevance of what students learn in institutions around the world. For frontline higher education practitioners—from academics to institutional leaders—AHELO will provide valuable information on effective teaching strategies to enhance learning outcomes. Students, governments and employers also stand to benefit. AHELO will shed light on whether the considerable resources invested in higher education are being used effectively and on the capacities of graduates to enter and succeed in the labour market.

The OECD has launched the AHELO feasibility study to determine by the end of 2012 whether an international assessment of higher education learning outcomes is scientifically and practically possible. The outcomes of the feasibility study will guide the decision to be made by the OECD member countries of whether to launch a full-fledged study in the longer term.

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EBPO INICIATYVA VERTINANT AUKŠTOJO MOKSLO REZULTATUS

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Inovacijos, žinios ir žmogiškasis kapitalas yra ekonomikos ir visuomenės pažangos pagrindas, o aukštojo mokslo įstaigos atlieka labai svarbų vaidmenį rengiant specialistus ir ugdant jų pilietinį sąmoningumą. EBPO numato ilgalaikius aukštojo išsilavinimo kokybės gerinimo tikslus siekiant ateinančioms kartoms suteikti kuo daugiau sėkmingos veiklos priemonių bei galimybių. AHELO tyrimas yra svarbus bandymas įvertinti, ar įmanoma tarptautiniu mastu išmatuoti, ką moka ir gali atlikti baigiantieji bakalauro studijas – pradedant bendraisiais įgūdžiais ir baigiant specialiosiomis kompetencijomis, pirmiausia ekonomikos ir inžinerijos srityje. Pasitelkiamos skirtingos vertinimo priemonės, pradedant suvestiniu atlikimu ir baigiant padedančiomis nustatyti mokymosi institucijoje naudą bei susijusius veiksnius, nuo kurių priklauso mokymosi rezultatai. Straipsnyje apžvelgiami AHELO tyrimo tikslai, metodai, laukiami rezultatai bei tolesni jo etapai.

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Diane Lalancette – Ekonominio bendradarbiavimo ir plėtros organizacijos Švietimo direktorato analitikė, dalyvauja AHELO (Assessment of Higher Education Learning Outcomes) projekte. Baigė Monrealio universitetą, skaitė jame paskaitas studijų bei švietimo matavimų ir vertinimų klausimais, dalyvavo įvairiose tarptautinėse programose šiais klausimais ir buvo atsakinga už jų vadybą bei rezultatų diegimą.