



# Measuring Transferable Skills in Postsecondary Students

## What Does HEQCO's Research Show?

- Graduates need transferable skills such as literacy, numeracy and problem solving to succeed in the labour market.
- HEQCO completed two large-scale assessment trials involving more than 7,500 students at 20 Ontario universities and colleges that measured numeracy, literacy, problem solving and critical thinking.
- The pilot projects demonstrated that large-scale assessment of transferable skills in postsecondary students is feasible.
- Large-scale skills assessments should be implemented on a province-wide level, and the results of the assessments should be used to improve teaching and learning practices.





## What is the Problem?

Transferable skills like literacy, numeracy and problem solving are essential for workplace success and lifelong learning. These are the skills that employers say they are looking for in prospective hires. But surveys show that both students and employers are concerned that these skills are not being adequately developed during postsecondary studies. How can colleges and universities ensure that graduates possess these skills?

## What Does HEQCO's Research Show?

### Transferable Skills Matter

Students' discipline-specific skills are rigorously tested throughout their postsecondary programs. Yet graduates need more than disciplinary knowledge to succeed in the workplace. Evidence shows that most Ontario postsecondary graduates will not end up working in their field of study.<sup>1</sup> They are also likely to change jobs several times over the course of their careers.<sup>2</sup> For these workers, transferable skills matter just as much as discipline-specific skills, yet they are rarely measured. Transferable skills are important indicators of future income and the likelihood of obtaining full-time employment; they are also associated with higher levels of GDP and better health outcomes.<sup>3</sup>


Surveys show that both students and employers are concerned that these skills are not adequately developed for success in the workplace.<sup>4</sup> Test results are validating these concerns: International and province-wide assessments have reported declining numeracy skills among Ontario students and adults.<sup>5</sup>

### Large-scale Skills Assessment is Feasible


HEQCO conducted two large-scale trials involving more than 7,500 students at 20 Ontario universities and colleges to measure literacy, numeracy, problem solving and critical thinking in entering and graduating students. The trials demonstrated that large-scale testing of employment-related skills across institutions is feasible.

The first trial, the Essential Adult Skills Initiative (EASI), used the Education and Skills Online (ESO), an assessment widely used by the Organization for Economic Co-operation and Development (OECD) that measures the literacy, numeracy and problem-solving abilities of adults using everyday scenarios. HEQCO administered the ESO in 2016 to more than 4,600 Ontario college and university students at 19 institutions. The students were either in their first or final year of study.<sup>6</sup>


The ESO is the commercial version of the Programme for the International Assessment of Adult Competencies (PIAAC), the OECD's test of adult skills. The ESO has undergone an extensive validation process. Rather than focusing on the mastery and mechanics of vocabulary or arithmetic operations, it assesses the real-world applications of literacy, numeracy and



problem solving in technology-rich environments. The results are available immediately and can be compared against those of other international jurisdictions. The test is delivered online, and test-takers can log on and off as they wish.




The ESO identifies five literacy and numeracy proficiency levels. The EASI trial found that final-year students had somewhat higher scores in literacy and numeracy than their first-year counterparts, although there was some variation among programs. About 25% of participating students scored at ESO Levels 1 and 2, 45% scored at Level 3 and 25% to 30% scored at Level 4/5, the highest level achievable.<sup>7</sup> An important qualifier is that participating students were volunteers and may not have been representative of the full postsecondary student population.



HEQCO's second large-scale trial, the Postsecondary and Workplace Skills (PAWS) project, used the HEIghten Critical Thinking Assessment, a test that is designed to evaluate students' ability to analyze evidence, understand implications and consequences, and develop valid arguments. More than 2,900 students at two institutions participated in the study, which was conducted by the Education Policy Research Initiative at the University of Ottawa in partnership with HEQCO.<sup>8</sup>

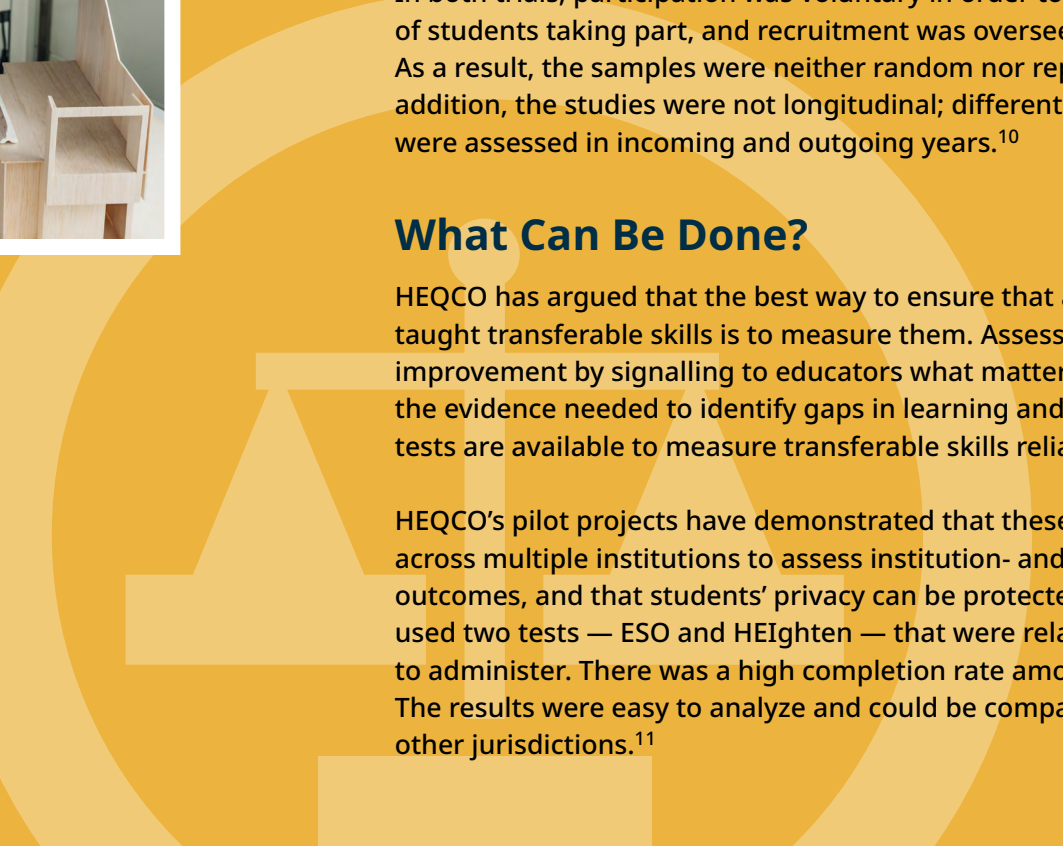
The PAWS trial found little difference between the test scores of incoming and graduating students in critical-thinking abilities, although it also showed considerable variation between programs.<sup>9</sup>



In both trials, participation was voluntary in order to maximize the number of students taking part, and recruitment was overseen by the institutions. As a result, the samples were neither random nor representative. In addition, the studies were not longitudinal; different cohorts of students were assessed in incoming and outgoing years.<sup>10</sup>

## What Can Be Done?

HEQCO has argued that the best way to ensure that all graduates are taught transferable skills is to measure them. Assessment facilitates improvement by signalling to educators what matters and by generating the evidence needed to identify gaps in learning and instruction. Validated tests are available to measure transferable skills reliably.



HEQCO's pilot projects have demonstrated that these tests can be applied across multiple institutions to assess institution- and program-level outcomes, and that students' privacy can be protected. The assessments used two tests — ESO and HEIghten — that were relatively straightforward to administer. There was a high completion rate among participants. The results were easy to analyze and could be compared to those of other jurisdictions.<sup>11</sup>



HEQCO's main objective in conducting the trials was to assess the feasibility of testing transferable skills on a large scale at postsecondary institutions. However, the test results for the students who participated raised concerns. One in four participants in the EASI trial scored below Level 3 on the ESO, the level widely recognized as the minimum required to perform well in today's workplace.<sup>12</sup> The results of the PAWS trial showed little difference in the test scores of the incoming and graduating students who participated.

Based on the outcomes of the two trials, HEQCO has called on institutions to:<sup>13</sup>

- Identify and define measurable competencies including discipline-specific and transferable skills that students are expected to develop and demonstrate as a result of their participation in a postsecondary program.
- Conduct province-wide assessments of transferable skills such as literacy, numeracy, critical thinking and problem solving of most students at entry and again at graduation.
- Use the ESO to measure numeracy, literacy and problem solving, and the HEIghten Critical Thinking Assessment to measure critical thinking.
- Conduct longitudinal assessments of students' skills that are repeatable over time.
- Use the data to introduce and expand teaching and learning practices that will improve outcomes for graduates entering the labour market.

## What More Would We Like to Know?

The Ontario government has indicated that the province's public colleges and universities will be required to begin measuring skills and competencies in postsecondary students. Measuring transferable skills is the first step in ensuring that students graduate with the skills that will help them succeed in the workplace. More research is needed to identify the best ways to teach those skills, and to determine whether the teaching practices can be replicated across institutions and programs of study. More research is also needed to determine whether teaching strategies need to be customized to adapt to students' individual needs.

## Endnotes

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