

## Chapter 7: International Computer and Information Literacy Study

During 2013, approximately 60,000 Grade 8 students from twenty countries around the world took part in the first ever International Computer and Information Literacy Study<sup>1</sup> (ICILS). This study was developed to discover the extent students knew about, understood, and were able to use information and communication technology (ICT).

In Canada, Newfoundland and Labrador and Ontario were the only two provinces that participated in ICILS. This chapter will provide an overview of how this province's students fared. The data used throughout this chapter was obtained from *ICILS 2013 - Preparing for Life in a Digital Age: Results for Ontario and Newfoundland and Labrador* published by the Council of Ministers of Education. This report can be viewed at: [http://cmec.ca/Publications/Lists/Publications/Attachments/340/ICILS2013\\_CdnReport\\_EN.pdf](http://cmec.ca/Publications/Lists/Publications/Attachments/340/ICILS2013_CdnReport_EN.pdf)

Overall, the results showed that:

- Students in Newfoundland and Labrador were outperforming almost three quarters of the participating countries/regions.
- The percentage of students that achieved the highest levels of proficiency for Newfoundland and Labrador was higher than the average percentage of students across all other participating countries.
- Girls performed significantly better than boys in Newfoundland and Labrador, as well as in Ontario and most participating countries.



<sup>1</sup> ICILS is carried out under the support of the International Association for the Evaluation of Educational Achievement (IEA), and in Canada, the participation of provinces is coordinated by the Council of Ministers of Education, Canada (CMEC).

## What is the ICILS?

The International Computer and Information Literacy Study (ICILS) is a new assessment tool developed in response to:

- the increasing need for information and communication technology (ICT)-related literacies to be developed for citizens to function effectively in the digital age; and
- to inform policy-makers and educators on how to better understand the contexts and outcomes of ICT-related education programs in their countries.

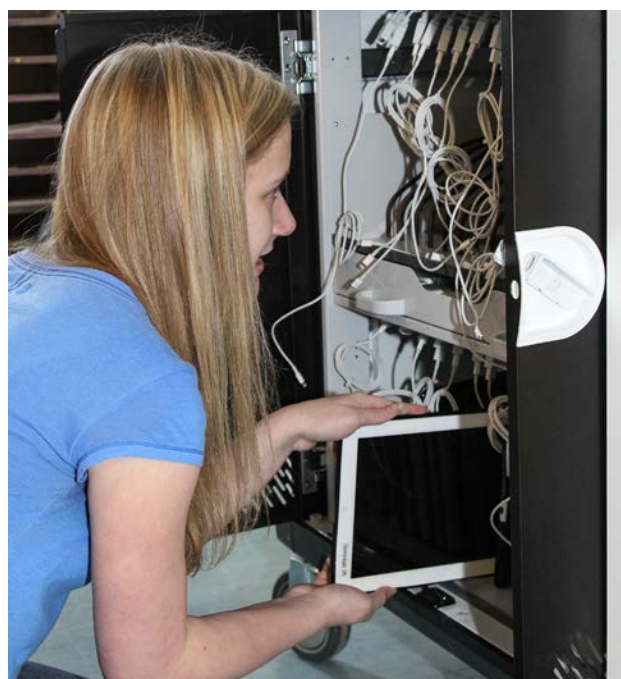
In broad terms, the ICILS assesses computer and information literacy (CIL) or “... an individual's ability to use computers to investigate, create, and communicate in order to participate effectively at home, at school, in the workplace, and in the community” (Fraillon, Schulz, & Ainley, 2013, cited in Labrecque & Dionne, 2014, p.3). To do this, the assessment focuses on the following two strands of ICT:

*Strand one: Collecting and managing information* which involves,

- Knowing about and understanding computer use,
- Accessing and evaluating information, and
- Managing information.

*Strand two: Producing and exchanging information* which involves,

- Transforming information,
- Creating information,
- Sharing information, and
- Using information safely and securely.



## Administering the ICILS

The administration of ICILS is conducted exclusively on computer. Students complete two 30 minute modules as well as an online questionnaire that gathers information about background characteristics, experience, and attitudes toward computer use and ICT. Teachers are surveyed to collect information on their background characteristics, the use of ICT in teaching, and their attitudes about ICT use in teaching and learning. The school questionnaire asks questions about school characteristics and school approaches when using ICT in teaching and learning. The questionnaire for ICT coordinators asks about ICT in schools, particularly the resources and support available for its use.

## Reporting student performance

The purpose of ICILS is to report results on the Grade 8 student population in Computer and Information Literacy (CIL) achievement. There are two measures of student performance used by the ICILS - average scores and proficiency levels.

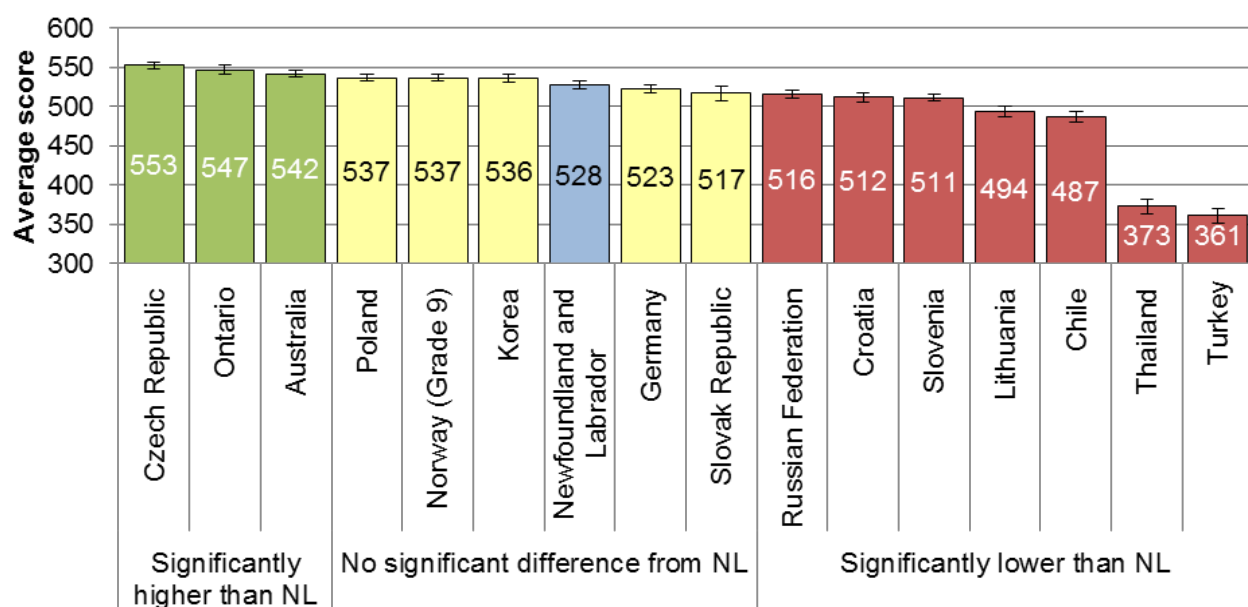
### Average scores

The CIL average score was based on a scale with an average of 500 points and a standard deviation of 100. Internationally, the average score ranged from 361 (Turkey) to 553 (Czech Republic). Overall, Canadian Grade 8 students performed very well on the assessment. The average score of Ontario and Newfoundland and Labrador students was 547 and 528 respectively. These were both significantly higher than the ICILS international average of 500.

Figure 23 shows how students from other regions performed in relation to Newfoundland and Labrador. Overall, only two countries (Czech Republic and Australia) and the province of Ontario, performed significantly better than Newfoundland and Labrador. On the other hand, seven countries performed significantly worse (see table 7.1).



**Figure 23: ICILS CIL average score**



(Source: Table 23)

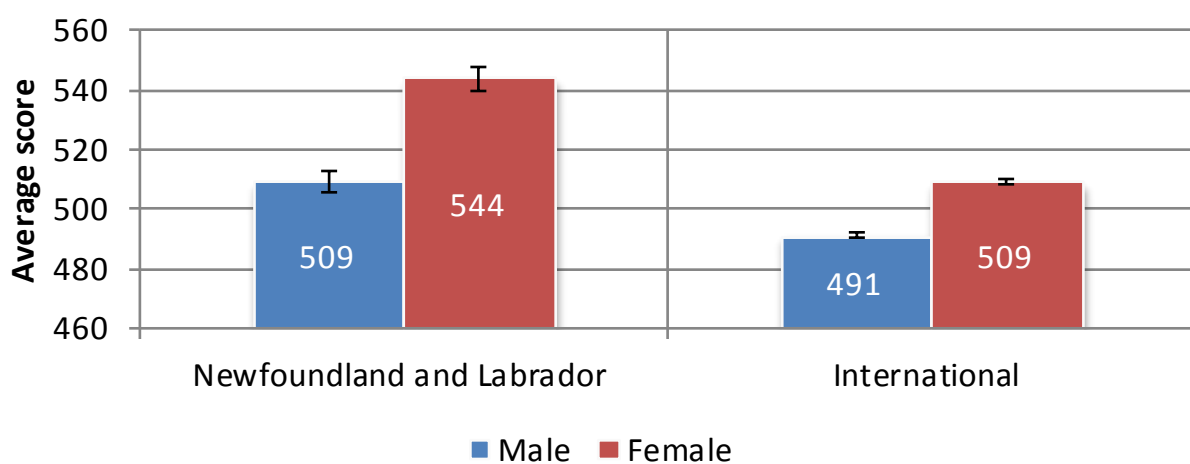
**Table 7.1: Provincial performance in relation to other countries**

Province	List of countries/provinces that performed...		
	Significantly lower than NL	The same as NL	Significantly better than NL
<b>Newfoundland and Labrador</b>	<ul style="list-style-type: none"> <li>• Russian Federation</li> <li>• Croatia</li> <li>• Slovenia</li> <li>• Lithuania</li> <li>• Chile</li> <li>• Thailand</li> <li>• Turkey</li> </ul>	<ul style="list-style-type: none"> <li>• Poland,</li> <li>• Norway (Grade 9)</li> <li>• Korea</li> <li>• Germany</li> <li>• Slovak Republic</li> </ul>	<ul style="list-style-type: none"> <li>• Czech Republic,</li> <li>• <i>Ontario</i></li> <li>• Australia,</li> </ul>

### Gender differences

Typically, girls outperformed boys in terms of CIL. This was the case in all but two of the countries, Thailand and Turkey. The gender gap ranged from a low of 12 in the Czech Republic to a high of 28 in Korea. In Newfoundland and Labrador, this gender gap was large with 35 points separating the male and female average score (see figure 24). The gender gap is larger than the international average (18 points) and most other participating countries. Table 24 in Appendix A provides a breakdown for each of the countries.

**Figure 24: Gender differences in student performance**



(Source: Table 24)



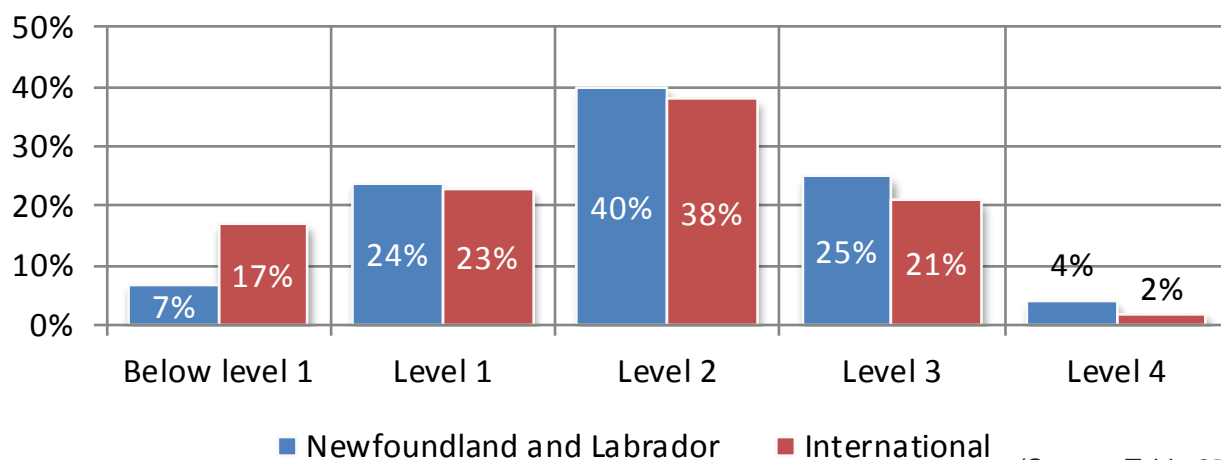
## Proficiency levels

ICILS ranks student performance into four proficiency levels where the tasks performed at level one are easier and less complex than those being performed at level four. It is likely that students who are below level one will not be able to perform the most basic skills (e.g., clicking on a hyperlink). Appendix B lists the criteria that define each level.

Students typically showed a level two proficiency. This was the case for all countries except Thailand and Turkey. In these two countries, close to two thirds of students were assessed at below level one. For the remaining countries, the percentage assessed with a level two proficiency ranged from 36% in Korea to 48% in the Czech Republic.

As shown in figure 25, while the bulk of students in Newfoundland and Labrador performed at level two proficiency (40%), close to a third (29%) of students in Newfoundland and Labrador achieved the highest proficiency levels (i.e., 3 and 4). These percentages are higher than the average percentage of students across all countries (ICILS average of 23%). Table 25 in Appendix A shows how each of the countries performed.

**Figure 25: ICILS proficiency levels**



(Source: Table 25)

