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Regular computer users perform better in key school subjects, OECD study shows

School students who are established computer users tend to perform better in key school subjects than those with limited experience or a lack of confidence in their ability to perform basic computer functions, according to a new OECD report.

The study *"Are students ready for a technology-rich world?"* provides the first internationally comparative data in this area, based on OECD's PISA 2003 assessment of educational performance by 15-year olds. It backs up previous OECD analysis about the importance of computers in schools.

While access to computers in schools has increased in most OECD countries (see Figure 1), there are some where large numbers of students still have only limited opportunities to use them (see Figure 2). Moreover, even though access to computers is more universal at school than at home, 15-year-old students use their computers at home more frequently.

Nearly three out of four students on average in OECD countries - and in Canada, Iceland and Sweden nine out of 10 – use computers at home several times each week. In contrast, only 44% use computers frequently at school (see Figure 4). In some countries, the discrepancy between home and school use is marked: Germany has the lowest percentage of frequent computer users at school among OECD countries (23%) but a high proportion of frequent users at home (82%) (see Figure 3).

The relationship with student performance in mathematics is striking. Students who have used computers for several years mostly perform better than average. By contrast, those who don't have access to computers or who have been using computers for only a short time tend to lag behind their class year.

According to the OECD study, students who had been using computers for less than one year (10% of the total sample) scored well below the OECD average. By contrast, students who had been using computers for more than five years (37% of the total sample) scored well above the OECD average.

In general, the poor performance of students who have only recently had access to computers is partly influenced by their home backgrounds: students with low home access, in particular, are likely to come from disadvantaged backgrounds. Even taking account of socio-economic factors, however, a sizeable positive effect from regular computer use is evident. This is particularly clear in Australia, Belgium, Germany, Korea, Switzerland and the U.S.

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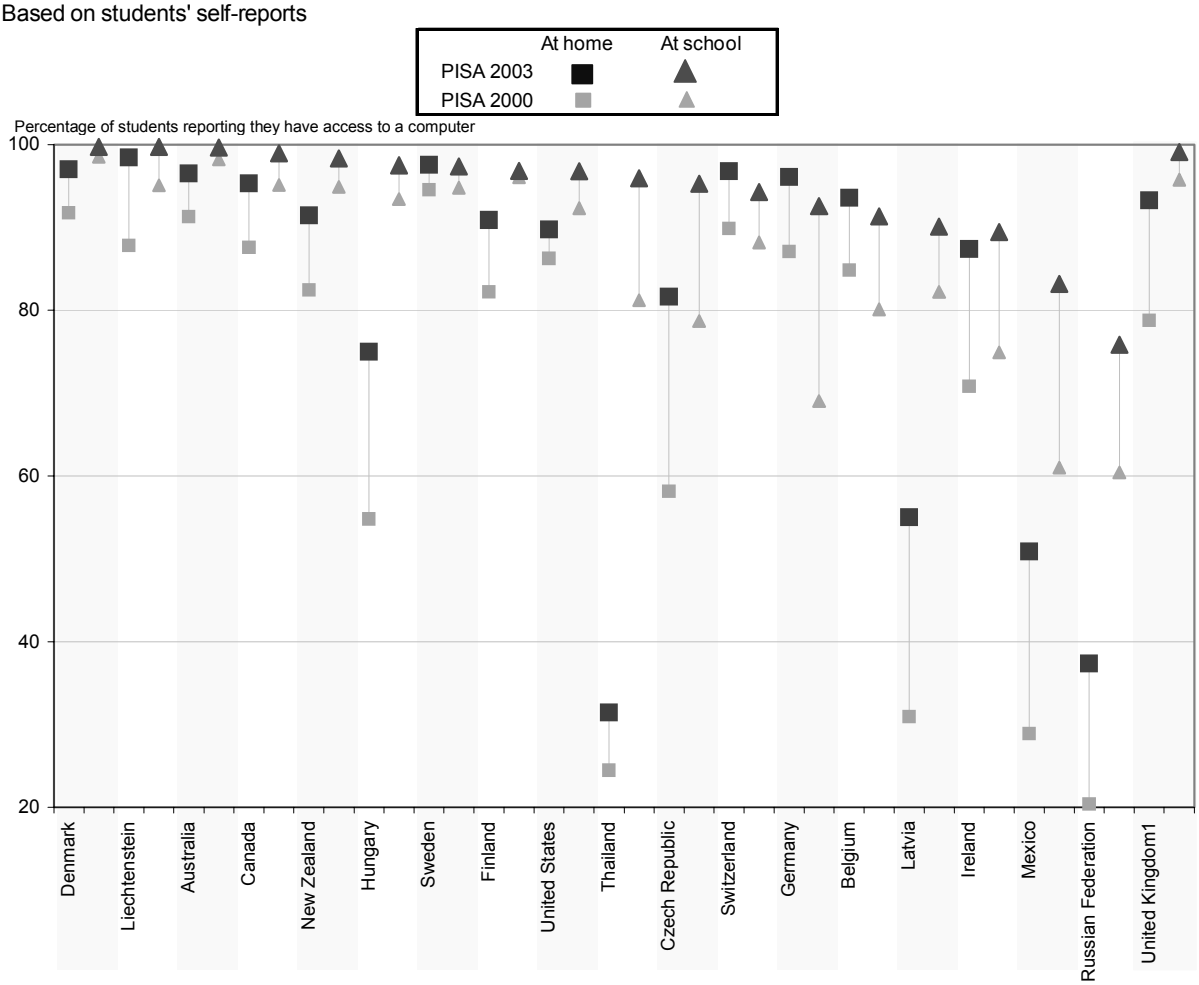
Other findings of the study include:

- Students use computers at home for a wide range of functions, not just to play games. Half of all students surveyed reported frequent use of word processing software and of the Internet as a research tool.
- Students in Austria, Canada, Germany, Iceland, Korea, Poland and Portugal were among the most positive in their attitudes towards computers. Students in Denmark, Finland, Hungary, Ireland and Japan were among the least positive.
- Girls are less confident than boys in performing computer functions, especially high-level tasks such as programming or multi-media presentations. Girls also tend overall to use computers less frequently than boys, who are more likely than girls to have computers at home in most OECD countries and more likely to play computer games and do programming.
- Greece, Mexico, Poland, the Slovak Republic and Turkey are among the OECD countries where 15-year olds have the lowest access to computers at home, particularly in the case of students from disadvantaged backgrounds.
- Boys and girls have equal levels of access to computers in school in most OECD countries. In Belgium, Ireland and Korea, more girls than boys report having access to computers at school.
- Even when schools are equipped with computers, students don't necessarily have the same degree of access from one country to another. The number of students needing to share a computer in a school in Germany, for example, is three times higher than in Australia, Korea and the U.S.

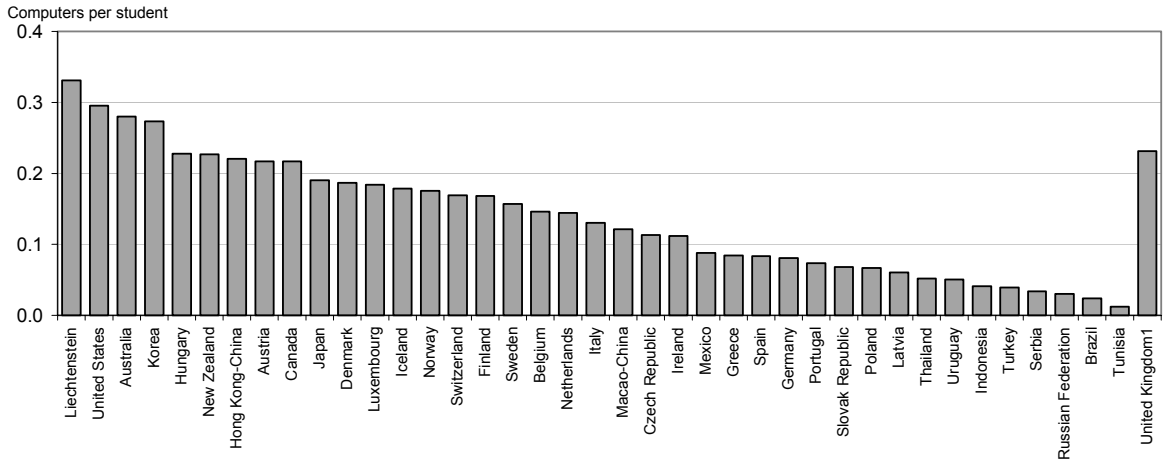
"Are students ready for a technology-rich world?" is available to journalists from the OECD's Media Division (newscontact@oecd.org). For further information, journalists are invited to contact Andreas Schleicher, Head of the OECD's Education Statistics and Indicators Division (tel. 33 1 45 24 93 66 or 33 6 07 38 54 64 or Andreas Schleicher).

Figure 1
Access to computers at home or at school in PISA 2000 and PISA 2003
Based on students' self-reports



Countries are ranked in descending order of percentage of students reporting having access to a computer at school in PISA 2003.
Source: OECD (2005) *Are students ready for a technology-rich world?* Table 2.2a.

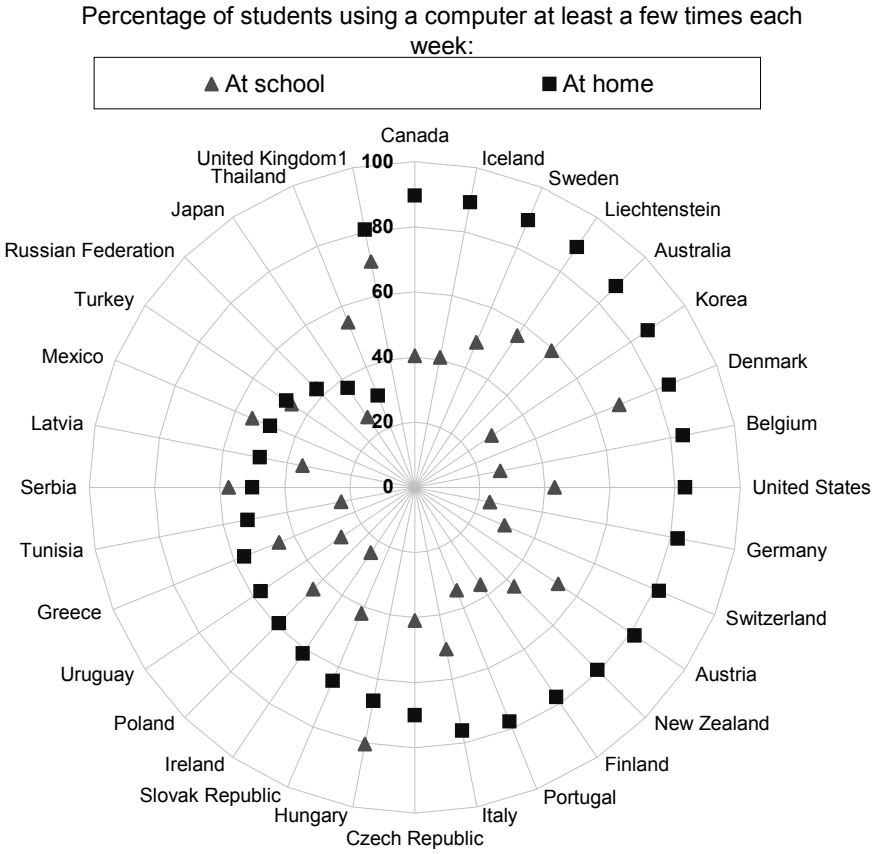
Figure 2
Number of computers per student
Based on school principals' reports in PISA 2003



Countries are ranked in descending order of number of computers per student.
1. Response rate too low to ensure comparability.

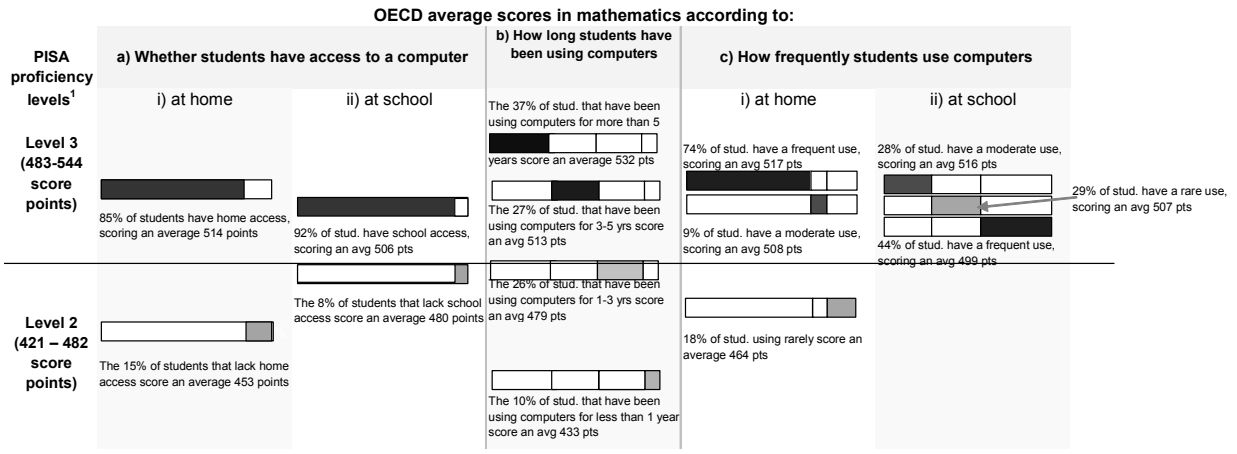
Source: OECD (2005) *Are students ready for a technology-rich world?* Table 2.4.

Figure 3
Students frequently using a computer at home or at school
Based on students' self-reports



Countries are ranked in descending order of percentage of students frequently using computers at school.
1. Response rate too low to ensure comparability.
Source: OECD (2005) *Are students ready for a technology-rich world?* Table 3.1.

Figure 4 **Students' mathematics scores on average in OECD countries and access to and familiarity with ICT**



1. At Level 3 students can reason from different information sources and provide short answers with results and reasoning, as well as use simple problem-solving strategies. At Level 2 students can take information from one source and interpret it literally, as well as use basic formulae.

Source: OECD (2005) *Are students ready for a technology-rich world?* Figure 4.1.