

OECD PISA: Student Achievement and ICT Use at School and at Home



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Research programs regarding ICT in schools

- **IEA** (International Association for Evaluation of Educational Achievement) **COMPED** (Computers in Education) (1989 - 1992 - 1995)
- **IEA SITES** (Second Information Technology in Education Study) (1996-2000)
- **IEA SITES 2006**
- **OECD** (Organisation for Economic Cooperation and Development) **PISA** (Programme of International Student Assessment) (1998 - 2014)

ICT component in OECD PISA

- ICT component was administered in all OECD PISA cycles
- Data collection on ICT was performed from
 - School questionnaire
 - Student questionnaire and ICT questionnaire (part of student questionnaire), BUT we should keep in mind that
- **IMPORTANT!!!** ICT questionnaire was not designed to assess directly the quality of ICT use at school and the integration of ICT in pedagogy.


Results and problems regarding ICT in education indicated in the period 1990 – 2009 (different sources)

- Digital literacy is now a fundamental learning objective for all
- ICT in schools requires an extended professional role for teachers
- School Leadership and management must be fully committed to adopting ICT
- The need for pre-service and in-service professional development for teachers
 - To equip them with the technical skills for using ICT
 - To know how to incorporate ICT effectively into their teaching (how to get added value from ICT use).

Some «expected» results from OECD PISA


Number of computers at home and average achievement in OECD PISA 2012 (Latvia)

# of computers at home	Average achievement of students (Latvia)		
	Mathematics	Science	Reading
No	443	465	440
One	485	499	488
Two	501	510	501
Three or more	519	523	515





Age of first use of computer and average achievement in OECD PISA 2012 (Latvia)

Age of first computer use	Average achievement of students (Latvia)		
	Mathematics	Science	Reading
6 years or younger	505	514	502
7 - 9 years of age	497	507	499
10 - 12 years of age	488	500	485
13 years or older	453	477	463

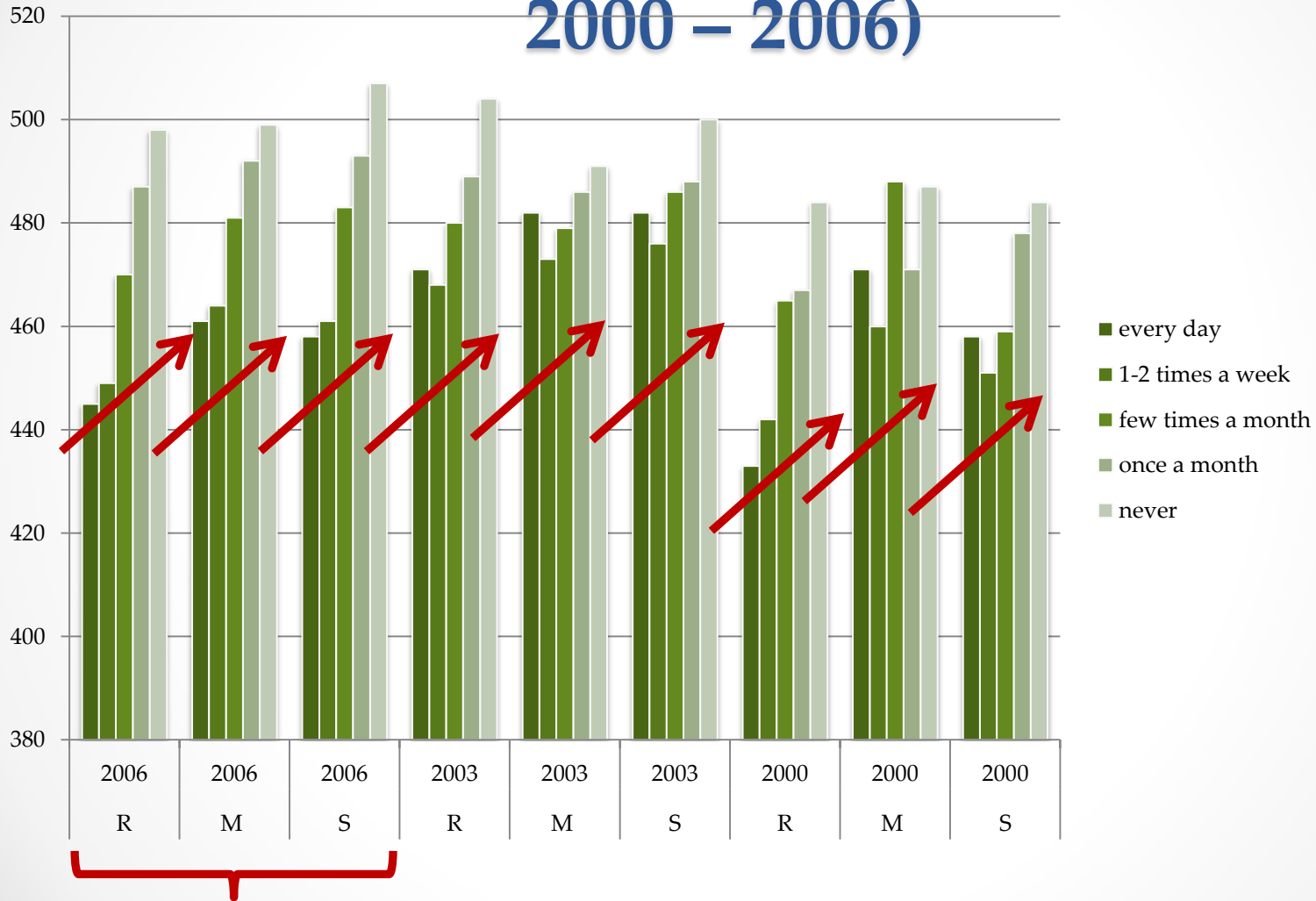


Some «alarming» results from OECD PISA

Access and use of computer at home and at school and average achievement in OECD PISA (Latvia)

Availability of computer		Average achievement (Latvia)		
		Mathematics	Science	Reading
Desktop computer at home	Yes, and I use it 	494	504	490
	Yes, but I do not use it 	504	515	508
	No	477	495	479
Desktop computer at school	Yes, and I use it	486	498	482
	Yes, but I do not use it	508	519	510
	No	468	480	485

ICT Program/Software use index and student achievement (OECD PISA 2000 – 2006)



Use of computers in regular classroom lessons (OECD PISA 2009; Latvia)

Subject area	Students' report on ICT use in regular classroom lessons	Average achievement (OECD PISA 2009; Latvia)
Reading	Never	494
	0 - 30 minutes	477
	31 - 60 minutes	439
	More than 60 minutes	431
Mathematics	Never	492
	0 - 30 minutes	471
	31 - 60 minutes	450
	More than 60 minutes	460
Science	Never	502
	0 - 30 minutes	490
	31 - 60 minutes	474
	More than 60 minutes	481

What we have?

- Inconsistent or even mutually exclusive results about access to computers and ICT use (at home and at school) and student achievement in OECD PISA .
- More detailed analysis should be performed to clarify the results presented on previous slides.
- It is clear that the problem of «added value of ICT in education process» is not solved yet

Problem of added value due to the use of ICT

- Added value of ICT to the instruction process and outcome - something we cannot gain without ICT
- Is it possible to determine precisely this added value in different subject areas?
- What are the main steps to reach understanding of added value in... (physics, history, languages ...)?
- This is one of the most important challenges for school teachers regarding ICT use in education.

**Thank You for
attention!**