# ICT in Education: Is it Still Challenge for Teachers?

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# Research programs regarding ICT in schools

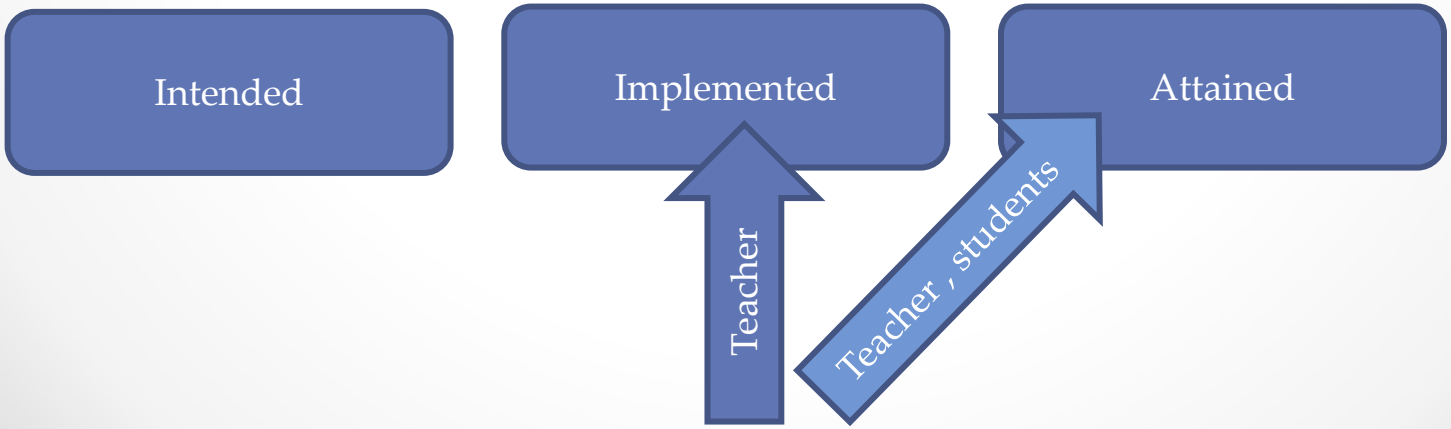
- **IEA** (International Association for Evaluation of Educational Achievement) **COMPED** (Computers in Education) (1989 – 1992 – 1995)
- **IEA SITES** (Second Information Technology in Education Study) (1996-2000)
- **IEA SITES 2006**
- **OECD** (Organisation for Economic Cooperation and Development) **PISA** (Programe of International Student Assessment) (1998 – 2013)

# Results and problems regarding ICT in education indicated in the period 1990 – 2009

- **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 commited 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).**

# ICT and curriculum

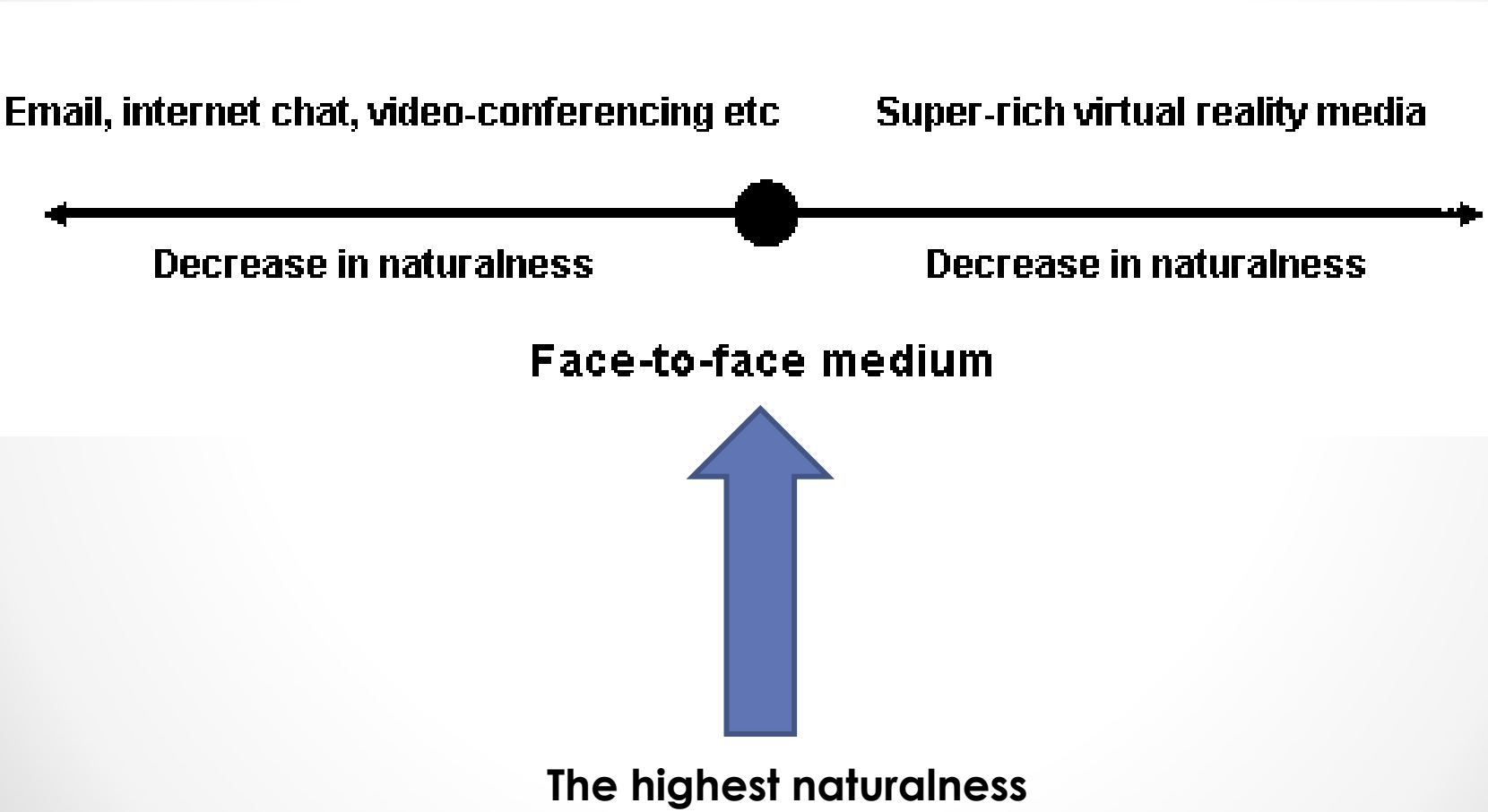
- **Intended** (theoretical, approved by Ministry of Education) – mostly general phrases about use of ICT
- **Implemented** – School level policy – how intended curriculum has been implemented into instructional process
- **Attained** – what students get from instruction



# Schools and ICT: today and future perspectives

- Computers (desktop)
- Computers (laptop)
- Intreractive whiteboards
- Digital Multimedia
- Graphic tablets
- E-book readers
- i-Pads
- i-Phones (smartphones)
- Pheripherals (printers, scanners, sensors etc.)
- Network
- Cloud Platform
- Software
  - General
  - Educational
- Etc.

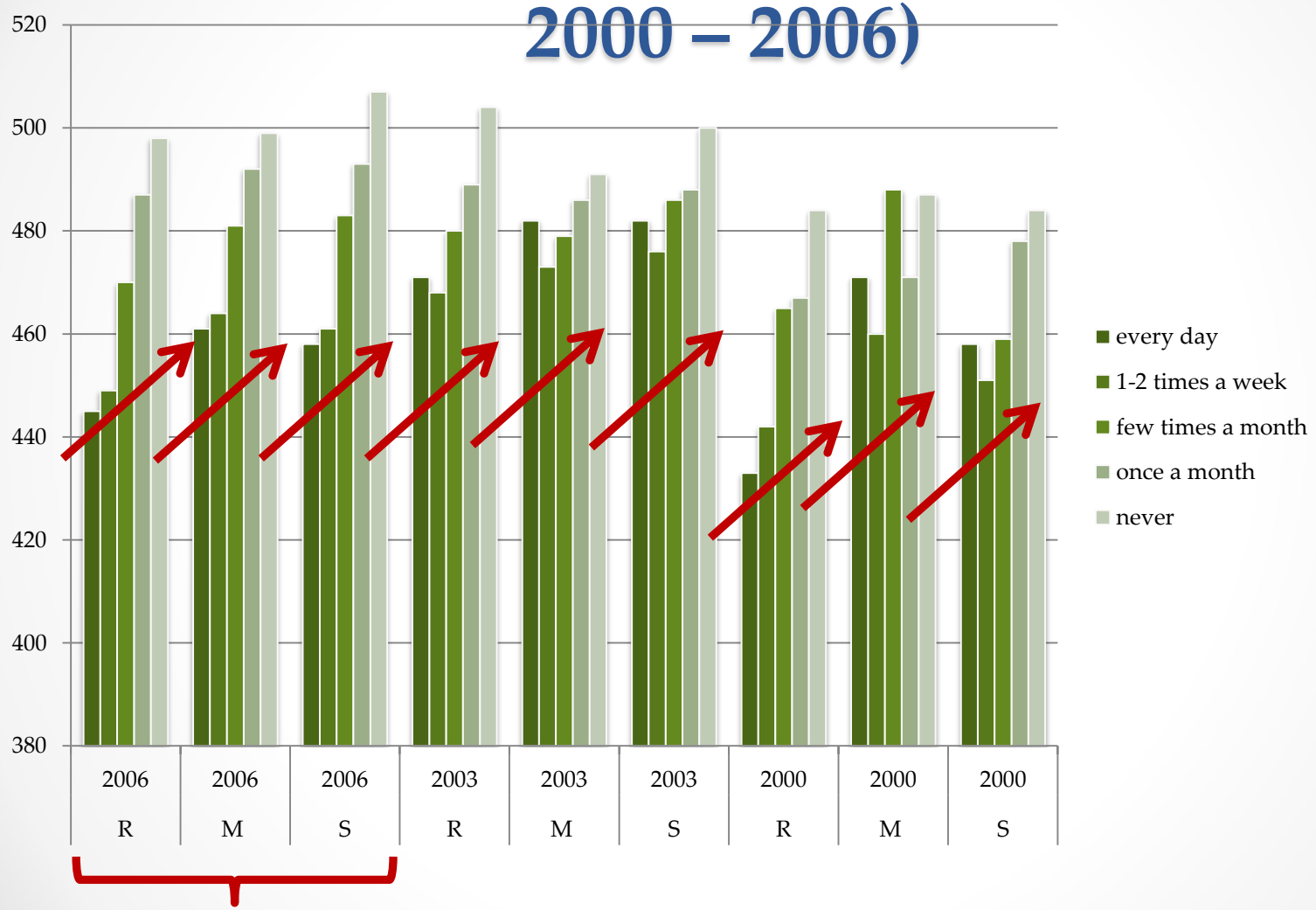
# Media naturalness theory



# Some «alarming» results

- **OECD PISA cycles show some results, which should be considered and analyzed in details**

# 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** |

# Frequency of use of computers at home and at school and student performance on the PISA test scale

| Frequency of use of computers | | Student achievement in Latvia (PISA 2006 test scale) | | |
|---|---|---|---|---|
| | | *Mathematics* | *Science* | *Reading* |
| Frequency of use of computers **at home** | Almost every day | 505 | 505 | 495 |
| | Once or twice a week | 490 | 497 | 490 |
| | Few times a month or less | 471 | 470 | 459 |
| Frequency of use of computers **at school** | Almost every day | 462 | 472 | 460 |
| | Once or twice a week | 499 | 501 | 493 |
| | Few times a month or less | 482 | 483 | 471 |

Same tendency in all countries

Same in Japan, Korea, New-Zealand, Germany, Sweden, Greece, Portugal, Italy, Turkey

# Lack of appropriate methodological support

- **Inese Dudareva defended doctoral thesis "The Usage of Sensors, Data Loggers and Interactive Whiteboard in the teaching/Learning Process of Physics" recently.**

**One of the conclusions was:**

- **"The emphasis in teacher's study programmes and in-service training courses should be put not only on technical skills enabling them to use the software, but even more on the methodology: for what purpose, how and why to use interactive whiteboard in physics lesson.**

**I.Dudareva. The usage of sensors, data loggers and interactive whiteboard in the teaching/learning process of physics. Summary of Doctoral Thesis. Riga, University of Latvia, 2013, ISBN 978-9984-45-671-3, 44 pp.**

# 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 set of issues is one of the most important (and serious) challenges for teachers**

# In-service and pre-service teacher training

- **Both in-service and pre-service teacher training includes ICT courses, but :**
  - **ICT Training is about software in most cases, and less attention is payed to problems regarding ICT integration in instruction with the main aim of getting added value**
  - **It is important to provide pre-service and in-service teacher training which brings to:**
    - **General (routine) knowledge and skills of ICT use in instruction**
    - **Ability of innovative ICT use in different subject area**
    - **Ability to provide ICT related added value in instruction**
    - **Ability to use ICT in specific subject area with clear vision and understanding of «WHY?», «WHEN?» and «HOW?» ICT should be used...**

# My answer is: YES!

1) ICT is still a challenge for teachers!

And even more:
2) ICT is challenge also for teacher trainers

Thank You for Your Attention!

# References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