

# Three paradoxes that stimulate research on school improvement and change -The Finnish Experience

Pasi Sahlberg, CIMO, Helsinki

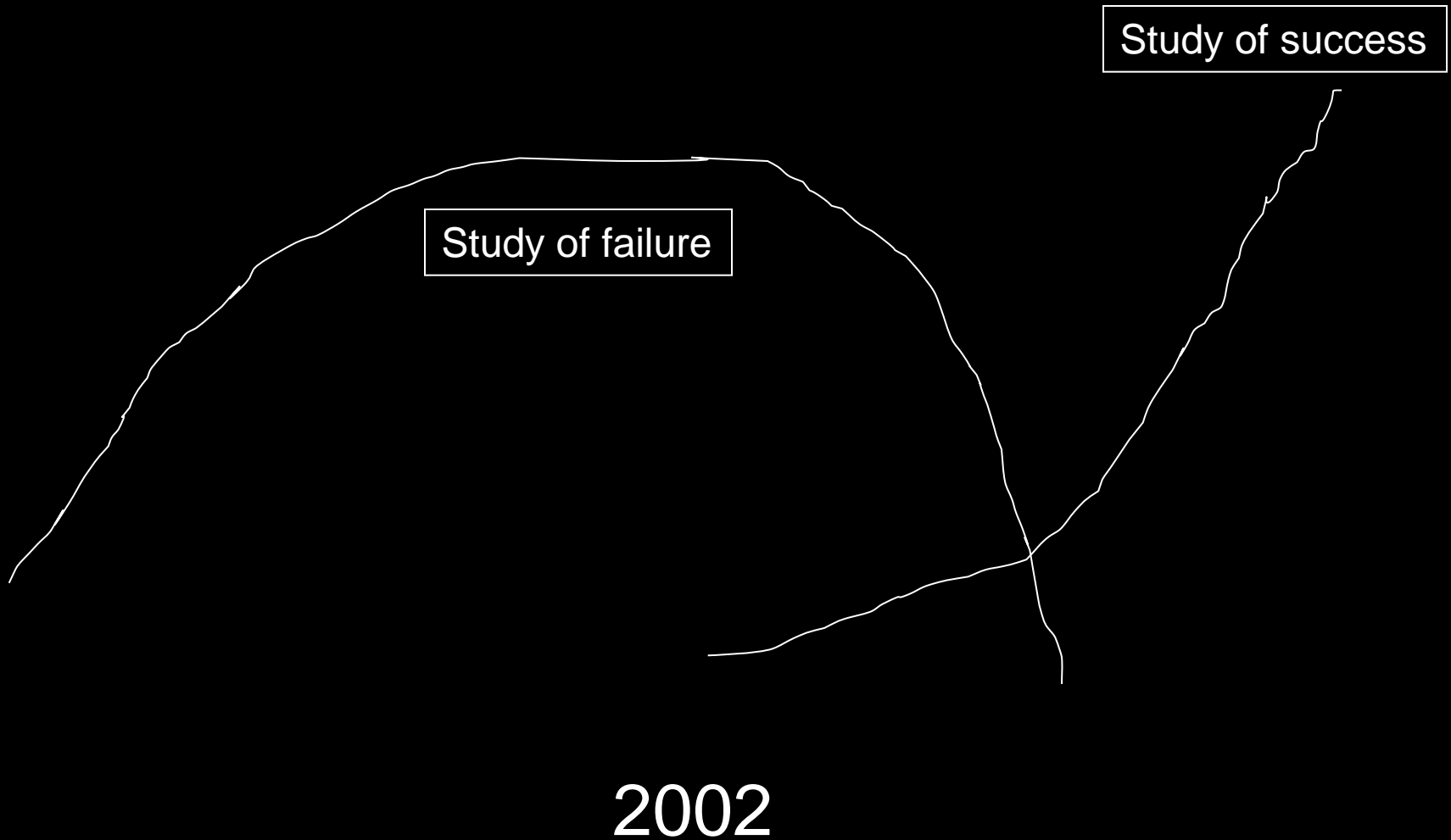
AISI Research Symposium, 10 February 2010  
Edmonton, CANADA

# Mathematics Olympics since 1959 (selected countries)

	medals			number of participations	number of participating students
	gold	silver	bronze		
China	101	26	5	23	134
USA	80	96	29	34	216
Soviet Union	77	67	45	29	204
Hungary	74	138	77	48	324
Romania	66	111	88	49	332
Russia	65	28	9	17	102
Bulgaria	50	89	88	49	336
Japan	23	52	30	19	114
Canada	16	37	66	28	168
Sweden	5	23	66	41	271
The Netherlands	2	21	48	38	250
Norway	2	10	24	25	142
Finland	1	5	47	35	224
Denmark	0	3	18	18	102

	<b>Target</b>	<b>Countries</b>	<b>Rank of Finland</b>
IEA First International Mathematics Study (FIMS) 1962–67	13-year olds and highschool completion	12	Average
IEA First International Science Study (FISS) 1967–73	10 and 14 year olds an highschool completion	18	Average
IEA Study of Reading Comprehension 1967–73	10 and 14 year olds an highschool completion	14	Average (one aspect third)
IEA Second International Mathematics Study (SIMS) 1977–81	13-year olds and highschool completion	19 (13 y) 15 (highschool)	Average
IEA Second International Science Study (SISS) 1980–87	At primary, middle and highschool completion	23	10-year olds high 14-year olds average Highschool bottom
IEA Written Composition Study 1980–88	At primary, middle and high school completion	14	Average
IEA Reading Literacy Study 1988-94	9 and 14 year- olds	32	Best in both groups
IEA Third (later Trends in) International Mathematics and Science Study (TIMSS) 1995, 1999, 2003, 2007	4th and 8th grade	1995: 45 1999: 38 2003: 50 2007: 59	Only in 1999 when in Maths 10th and science 14th
IEA Progress in International Reading Literacy Study (PIRLS) 2001, 2006	4th grade	35 45	No participation
OECD Programme for International Student Assessment (PISA) 2000, 2003, 2006, 2009	15-year-olds	2000: 43 2003: 41 2006: 57	On the top

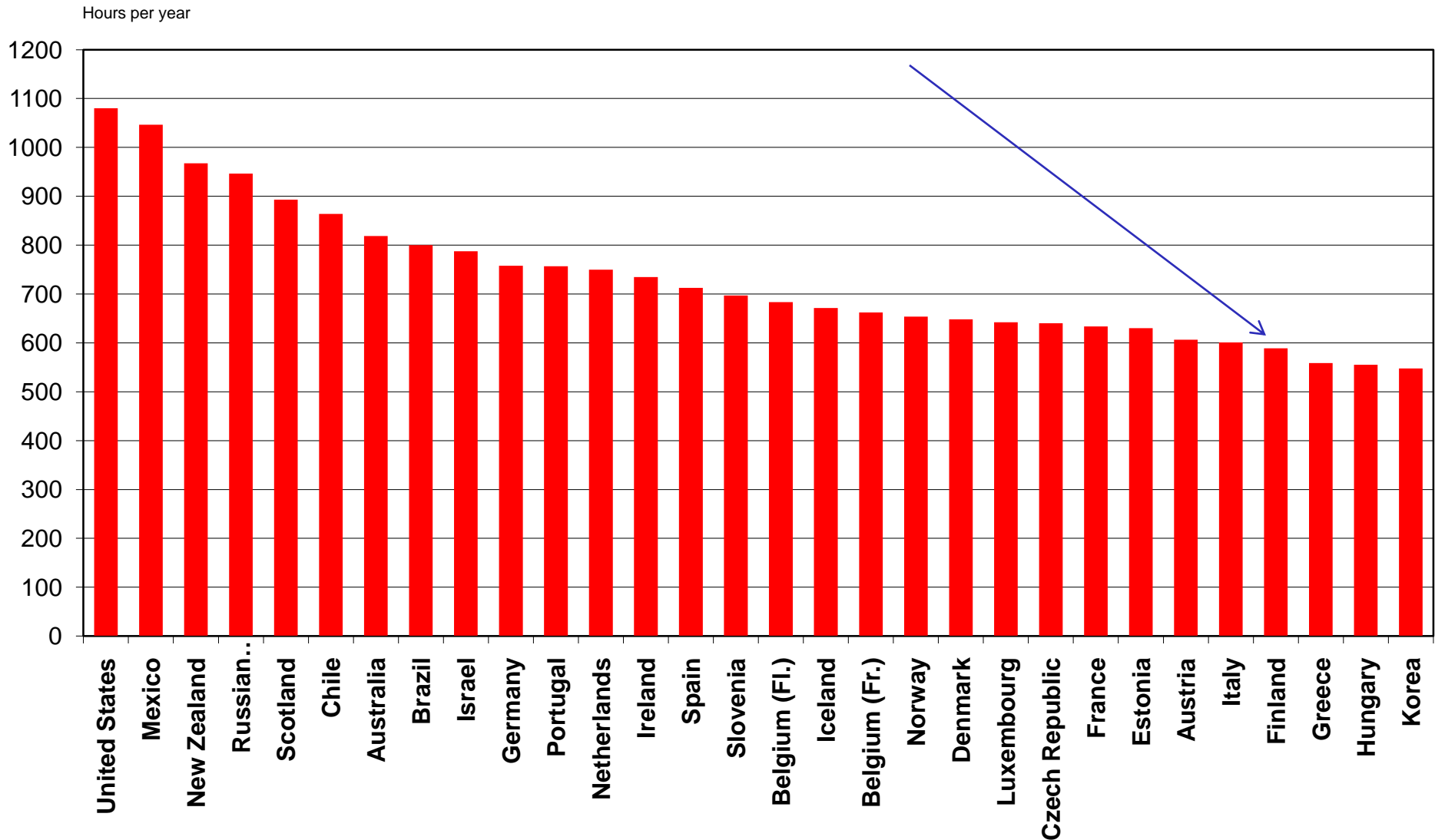
# Change of research the paradigm in Finland



#1

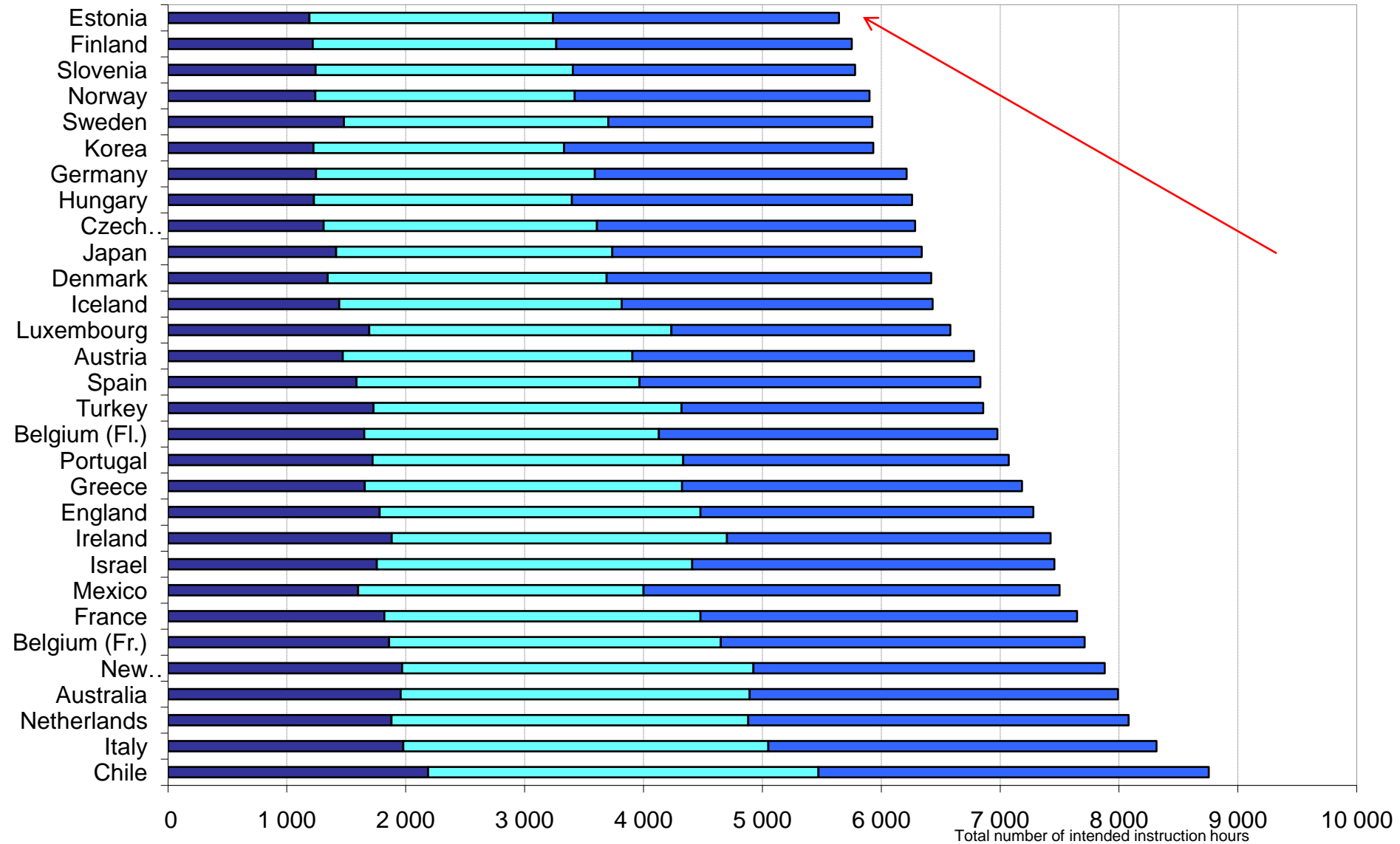
“Less teaching,  
more learning”

# Number of teaching hours per year in lower secondary education (2007)



# Total number of intended instruction hours in public institutions between the ages of 7 and 14 (2007)

■ Ages 7-8      ■ Ages 9-11      ■ Ages 12-14



#2

“Less testing,  
better learning”

# Learning achievement

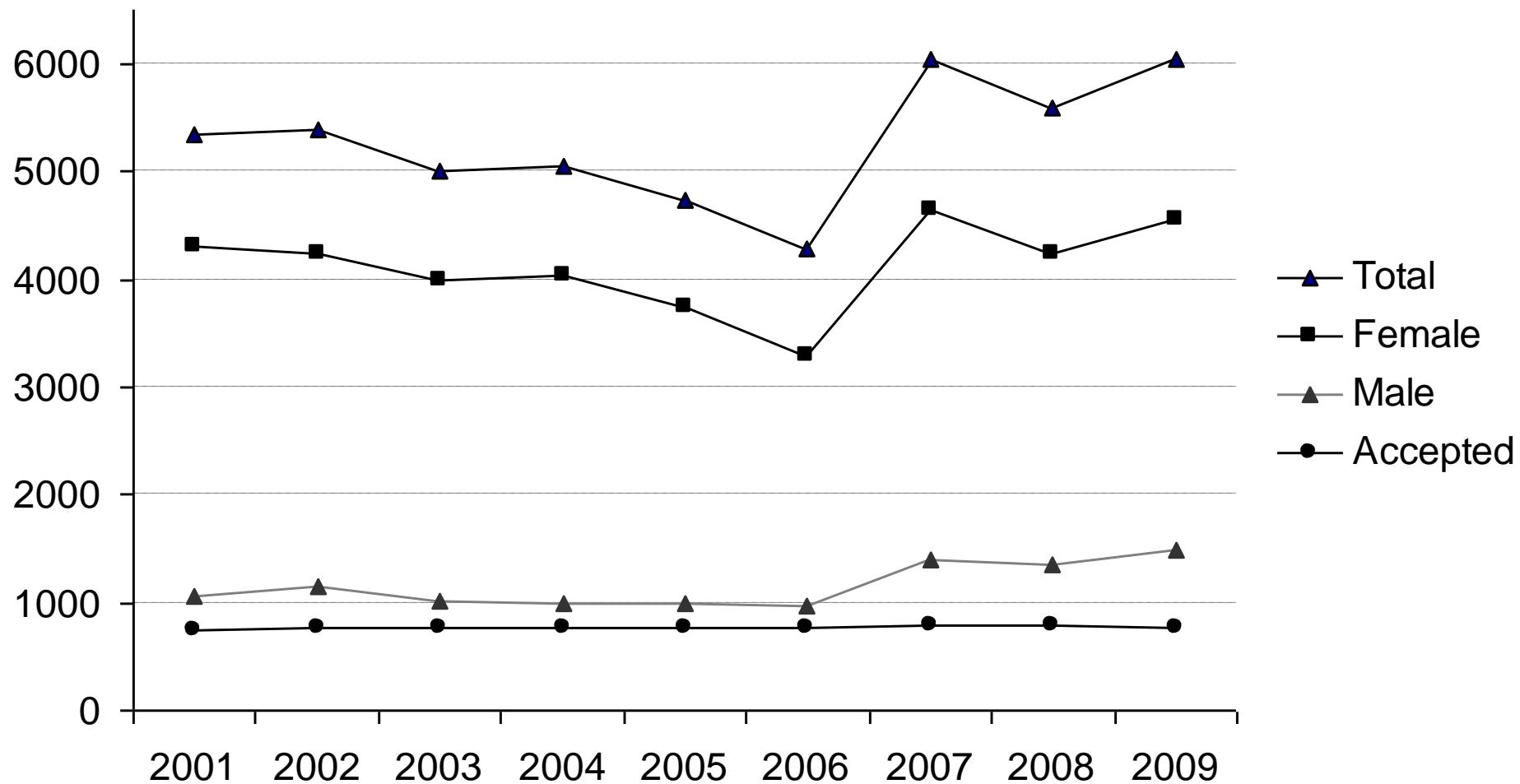
National averages of 15-year-old students learning outcomes in mathematics (OECD)



#3

“The Most Wanted”

# Applicants to Finnish primary school teacher education programs 2001-09



Acceptance rate is 12 – 14 %