What PISA can tell us about educational systems - and what it can‘t

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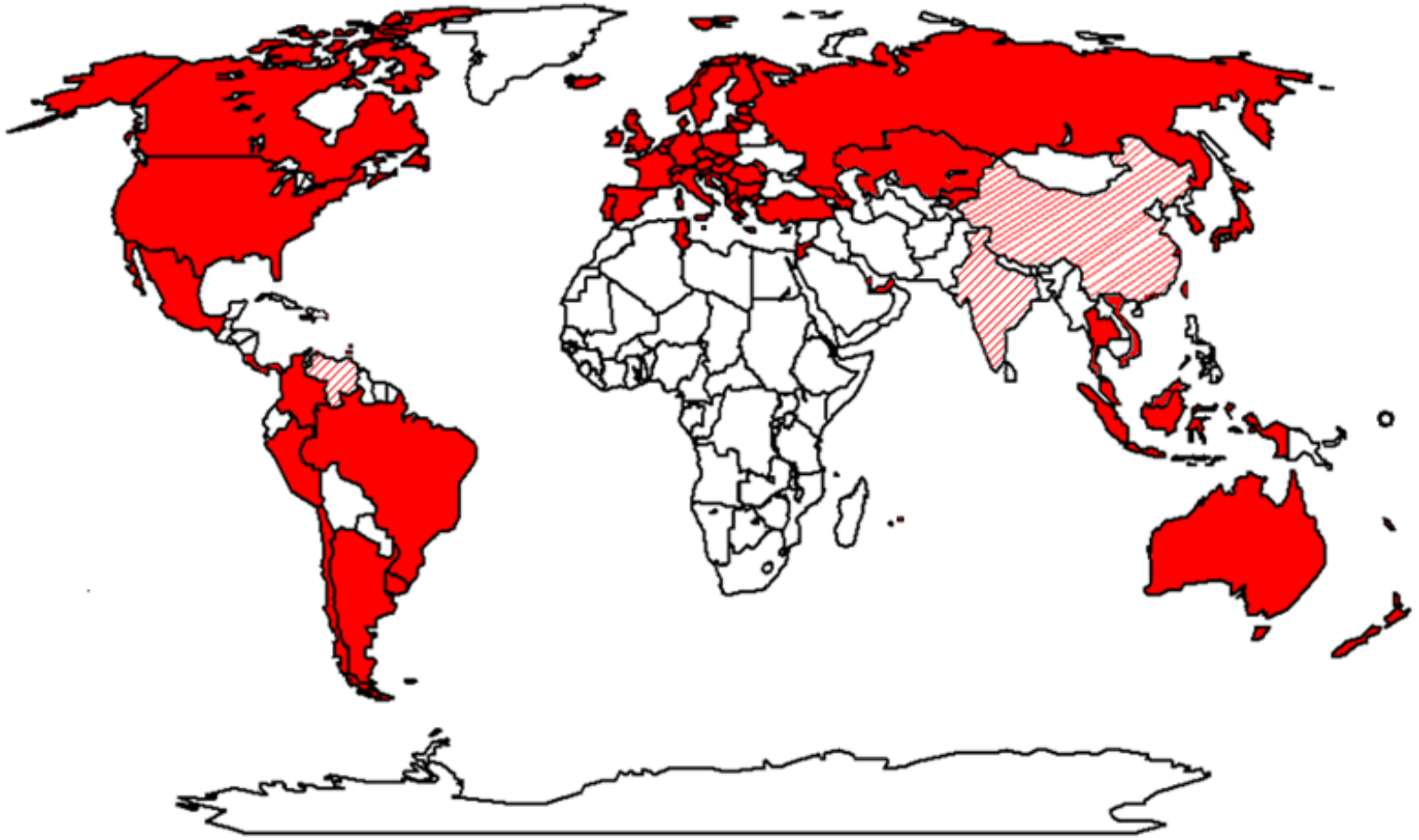
PISA is an international student assessment, run every 3 years (starting 2000) by OECD



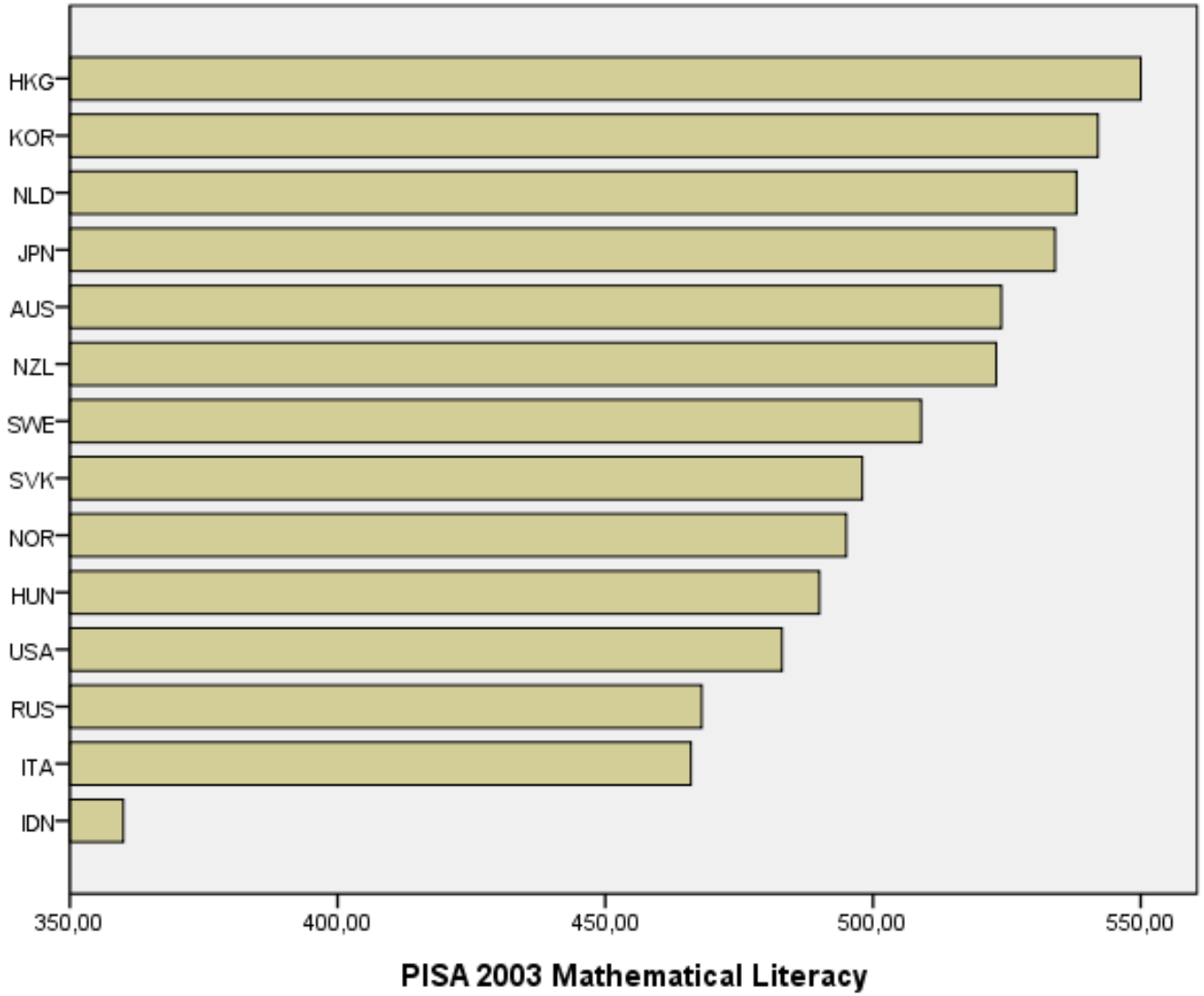
I) LSA provide indicators for policy making

An indicator is not simply a numerical expression or a composite statistic:

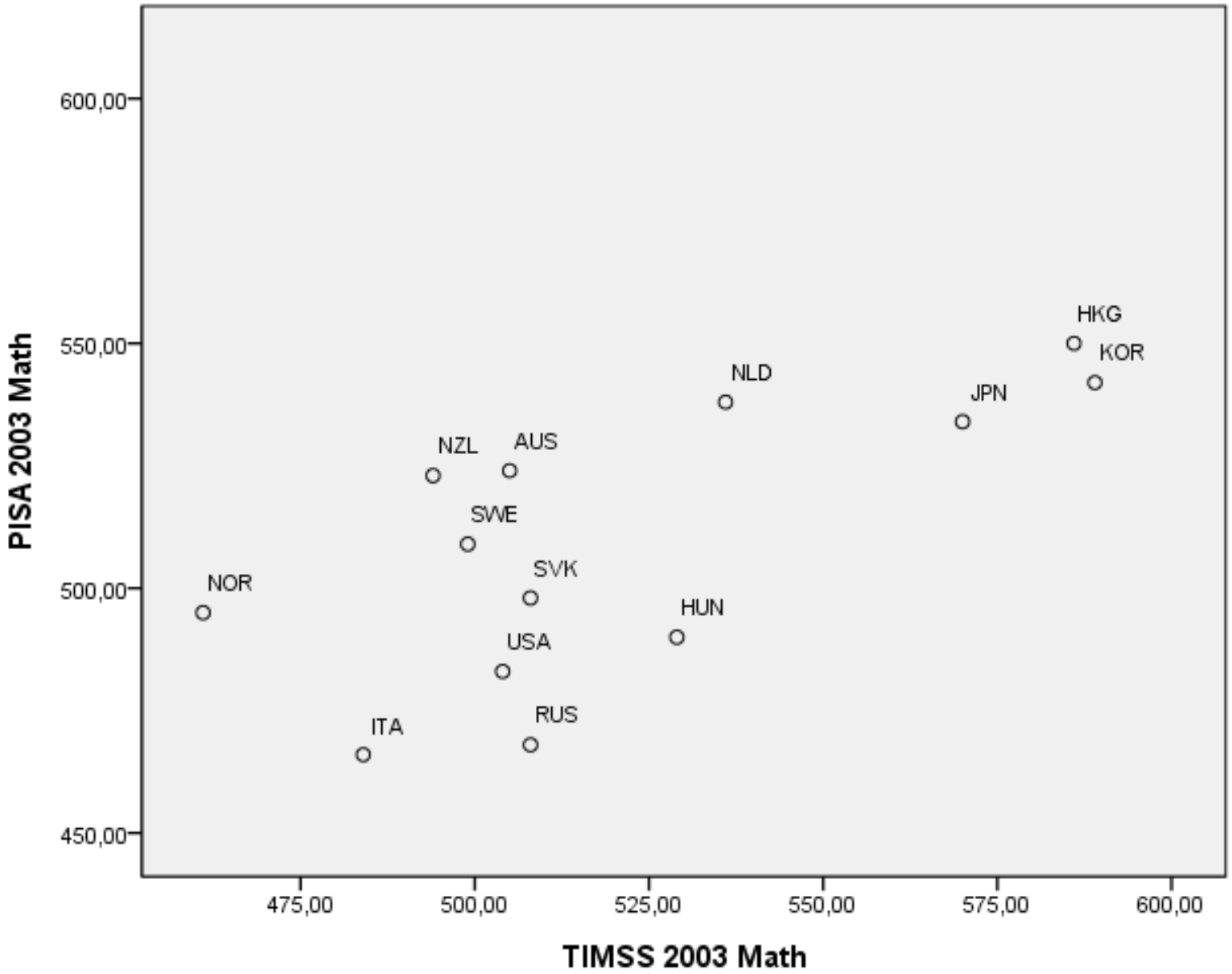
It is intended to tell something about the performance or behavior of an education system, and can be used to inform stakeholders – decision-makers, teachers, students, parents and the general public.

(Bottani & Tuijnman 1994)

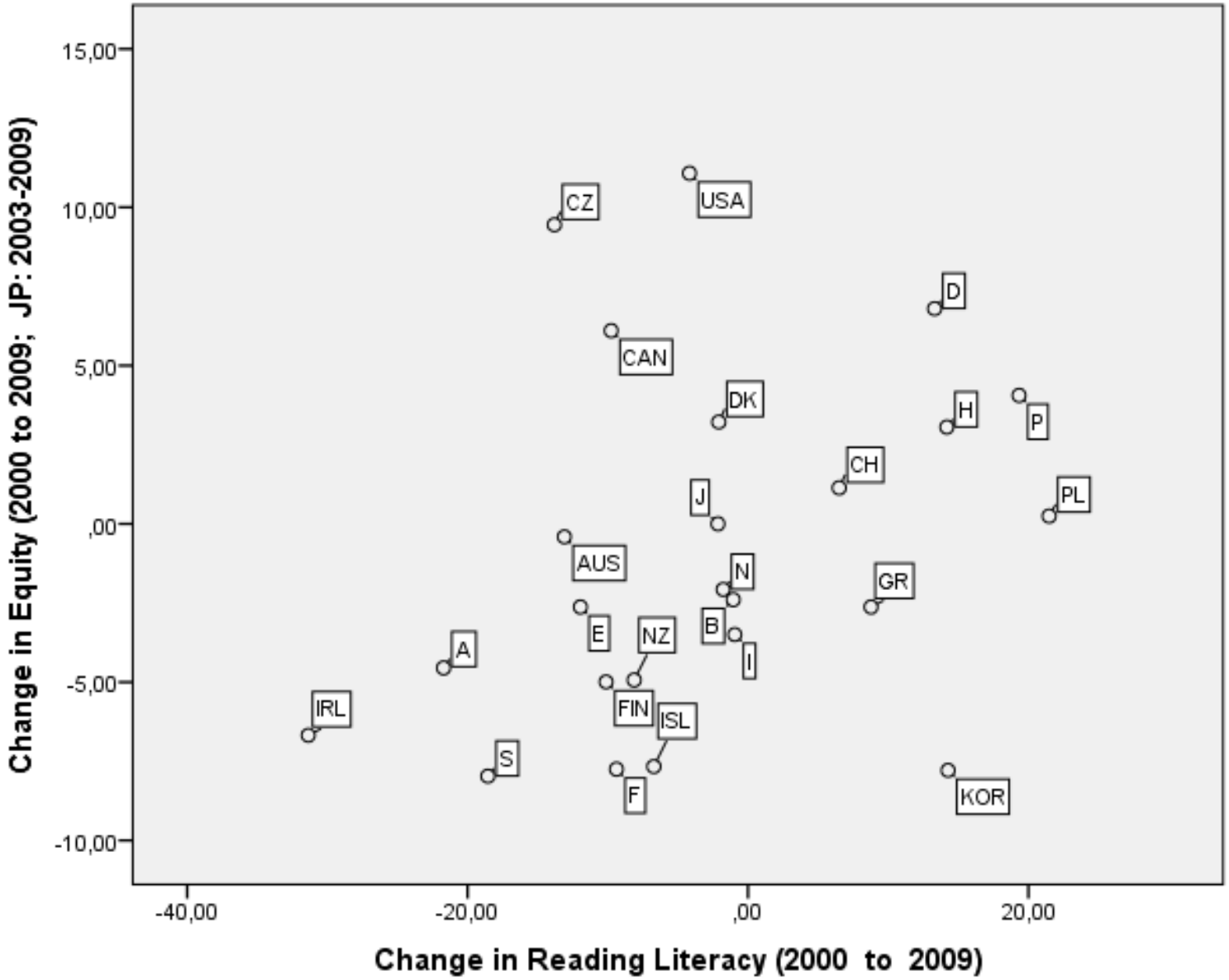
Indicators: 1) Mean Achievement (PISA 2003-Math)



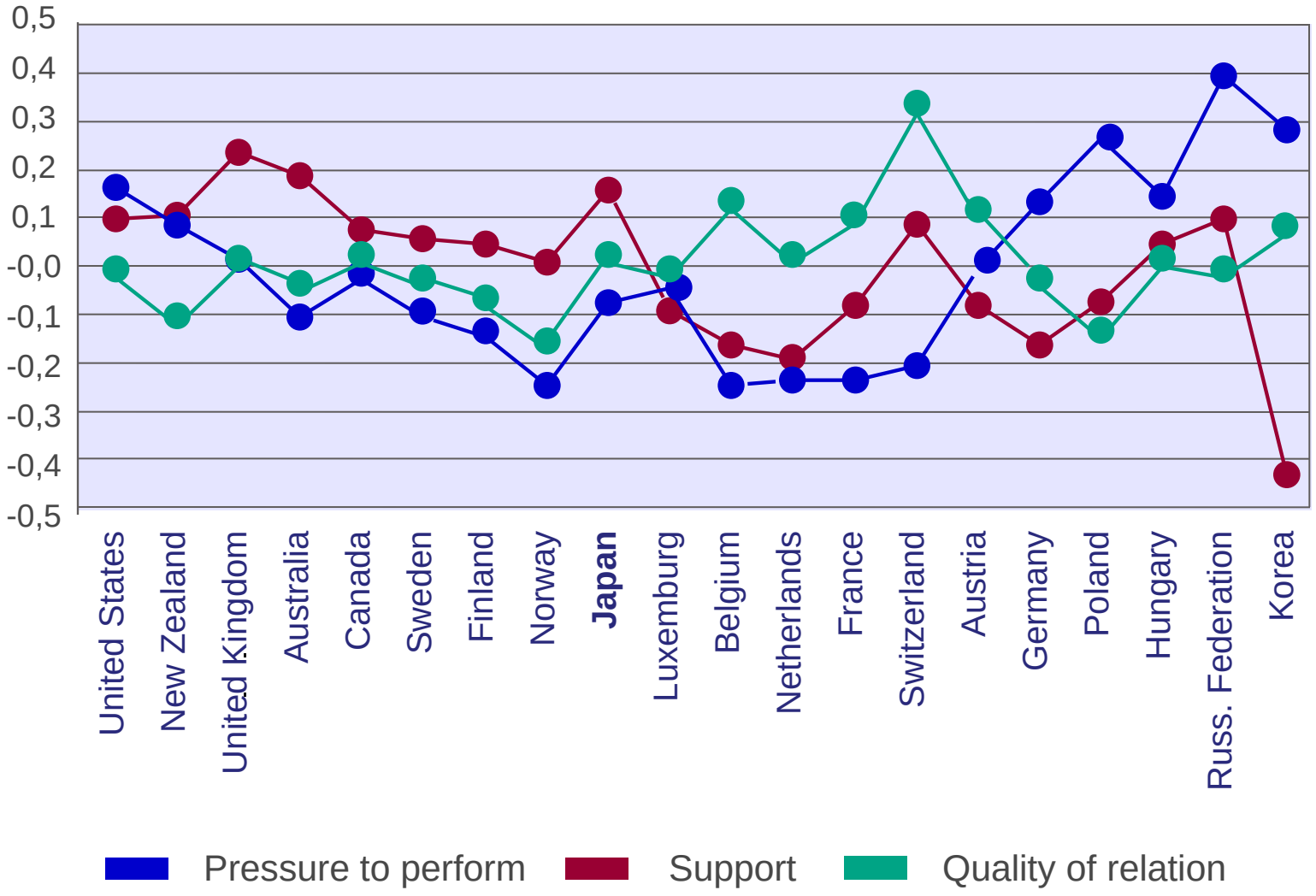
Indicators: 2) Profiles of Achievement (PISA/TIMSS)



Indicators: 3) Trends in Achievement and Equity



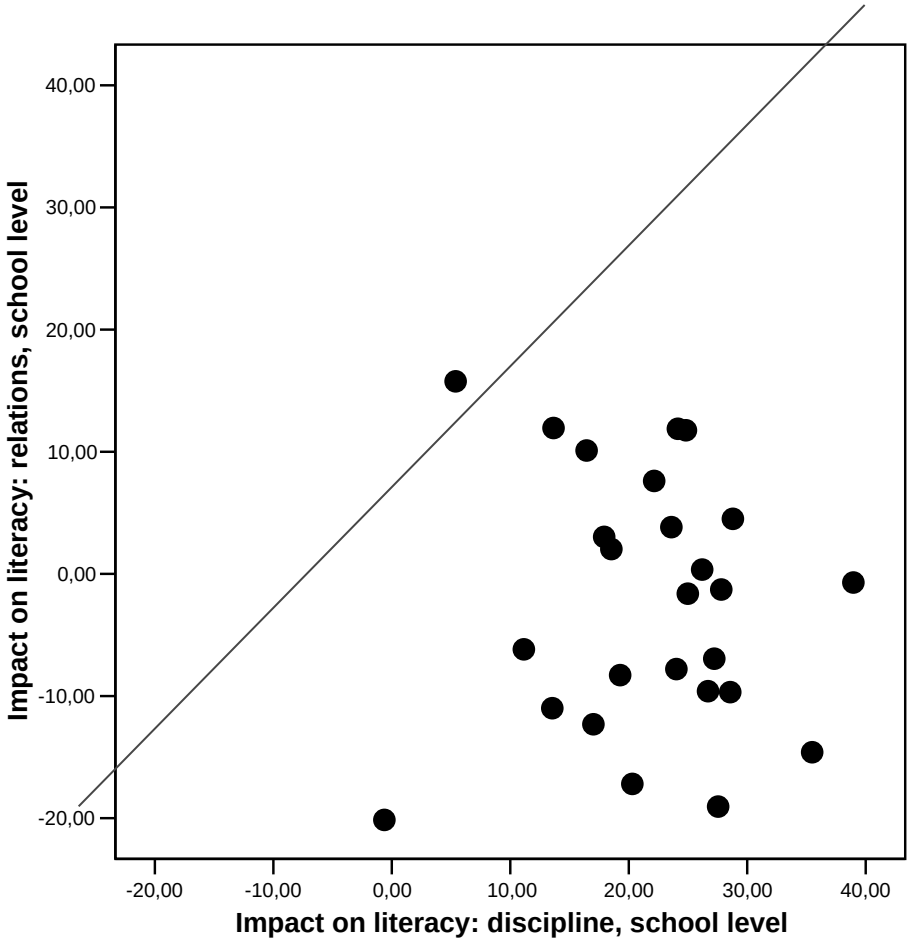
Indicators: 4) Profile of school climate (PISA 2000)



Indicators: 5) Effects of school climate…(PISA 2000)

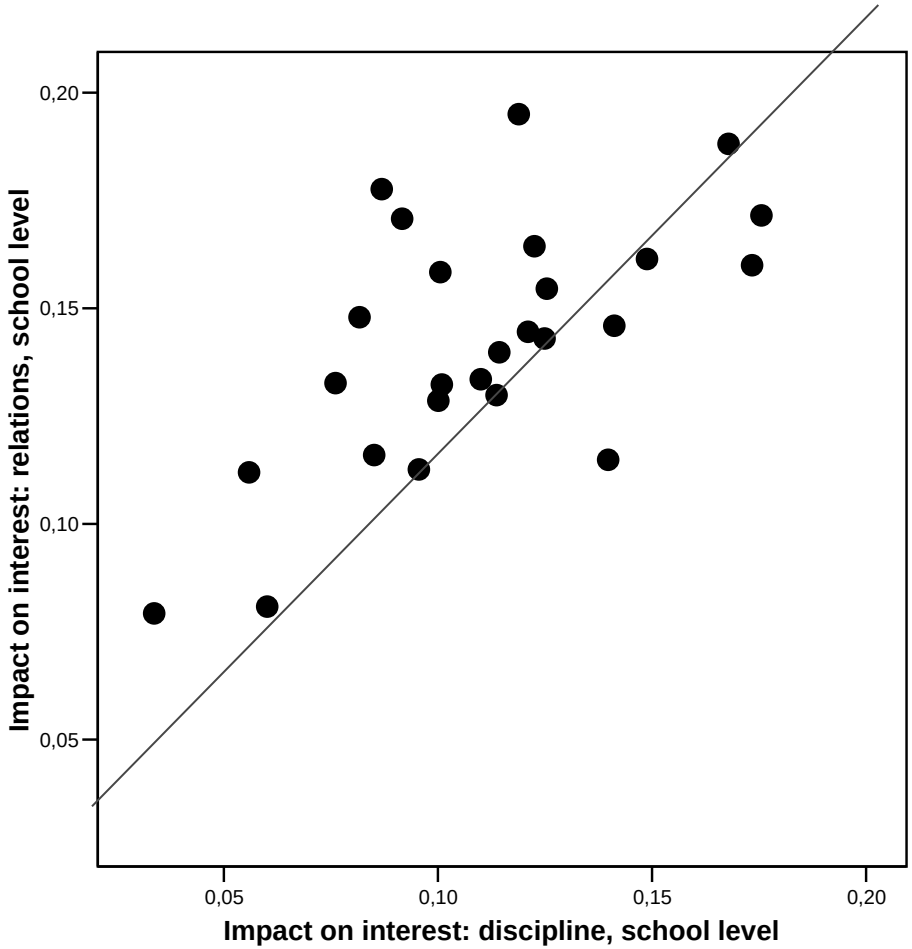
… on Reading Literacy:

Discipline > Relations



… on Interest in Reading:

Relations > Discipline



LSA inform about

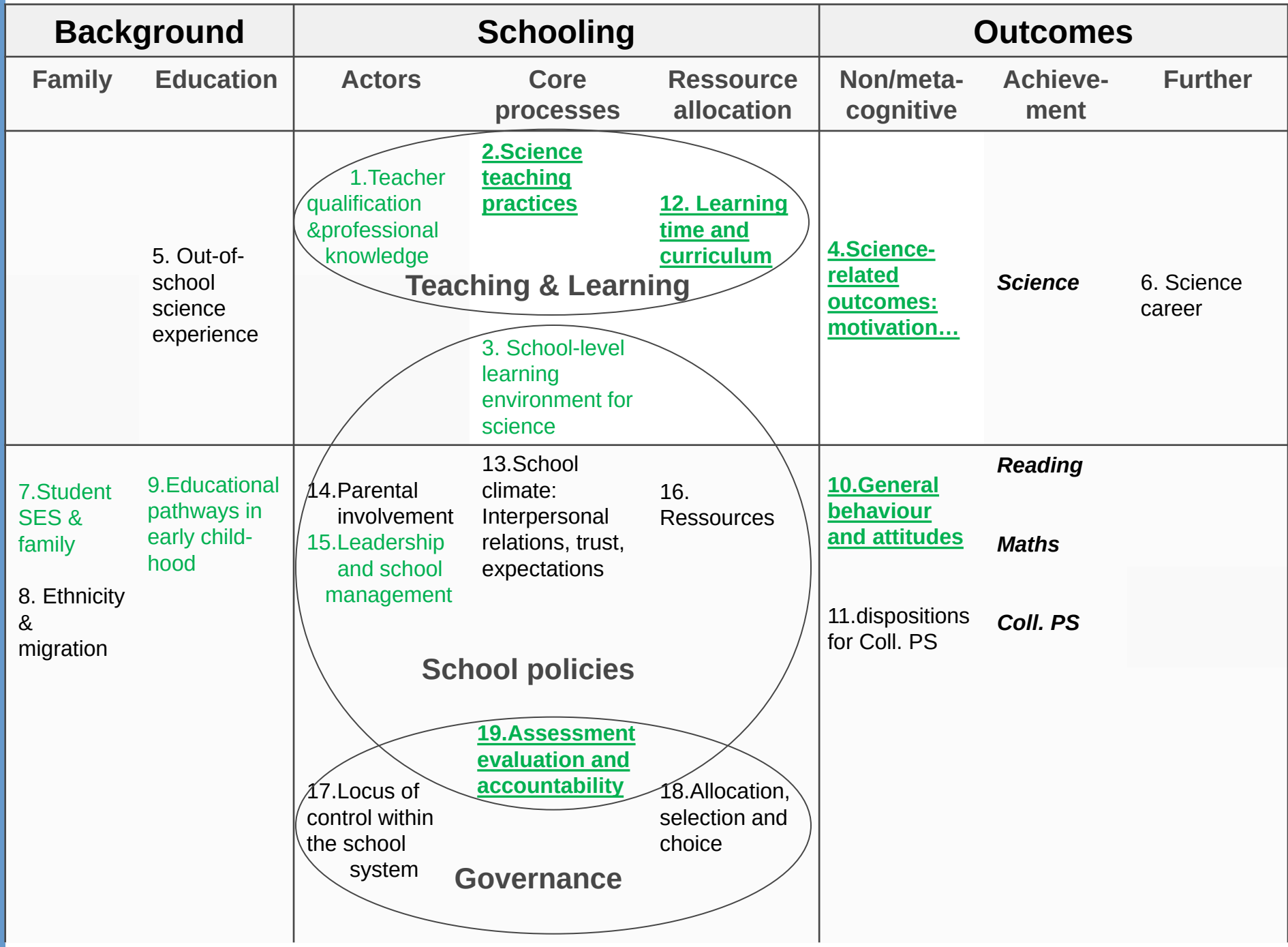
- **Functioning** of the educational system (input, processes)
- **Effectiveness**: Output (achievement: TIMSS) and/or outcome (competencies as yield, non-cognitive outcomes: PISA)
- **Equity**: Distribution of input, process, and outcome by (e.g.) SES, gender, immigration background, region
- **Efficacy**: Outcome (value-added ?) per investment
- **Production function**: Relationsship between input-process-outcome at the individual, classroom/teacher, school, system level

Next slides:

Framework for Questionnaire Design in PISA 2015 (as developed at DIPF and accepted by the PISa Governing Board)

Pisa 2015 will provide indicators for 19 policy issues („modules“), with a focus on
- assessment, evaluation, and accountability
- non-cognitive outcomes.

The Main Study design depends on available space, especially in the Student Questionnaire.


Background
Schooling
Outcomes
Family
Education
Actors
Core processes
Ressource allocation
Non/meta-cognitive
Achieve-ment
Further
1.Teacher qualification &professional knowledge
2.Science teaching practices
12. Learning time and curriculum
Teaching & Learning
4.Science-related outcomes: motivation…
Science
6. Science career
5. Out-of-school science experience
3. School-level learning environment for science
7.Student SES & family
9.Educational pathways in early child-hood
8. Ethnicity & migration
14.Parental involvement
15.Leadership and school management
13.School climate: Interpersonal relations, trust, expectations
16. Ressources
School policies
Reading
10.General behaviour and attitudes
Maths
11.dispositions for Coll. PS
Coll. PS
19.Assessment evaluation and accountability
17.Locus of control within the school system
18.Allocation, selection and choice
Governance

Module 19: Assessment, evaluation, and accountability

General assessment practice (ScQ) Purpose of assessment results (ScQ)			
Evaluation policies (ScQ)			**Teaching practices**
External evaluation (ScQ)	Teacher evaluation (ScQ,TQG)	Internal valuation (ScQ,TQG)	Classroom assessment
		Foci	Grading (TQG)
See „evaluation policies“	Teacher evaluation methods	Processes	Classroom assessment practices (TQG/TALIS)
Use of achievement data for accountability Use of external evaluation	Teacher incentives	Consequences	Feedback: student perception (StQ). use by students (StQ) Adaptation of instruction (StQ, TQS)

Modules 4+10: Non-cognitive outcomes

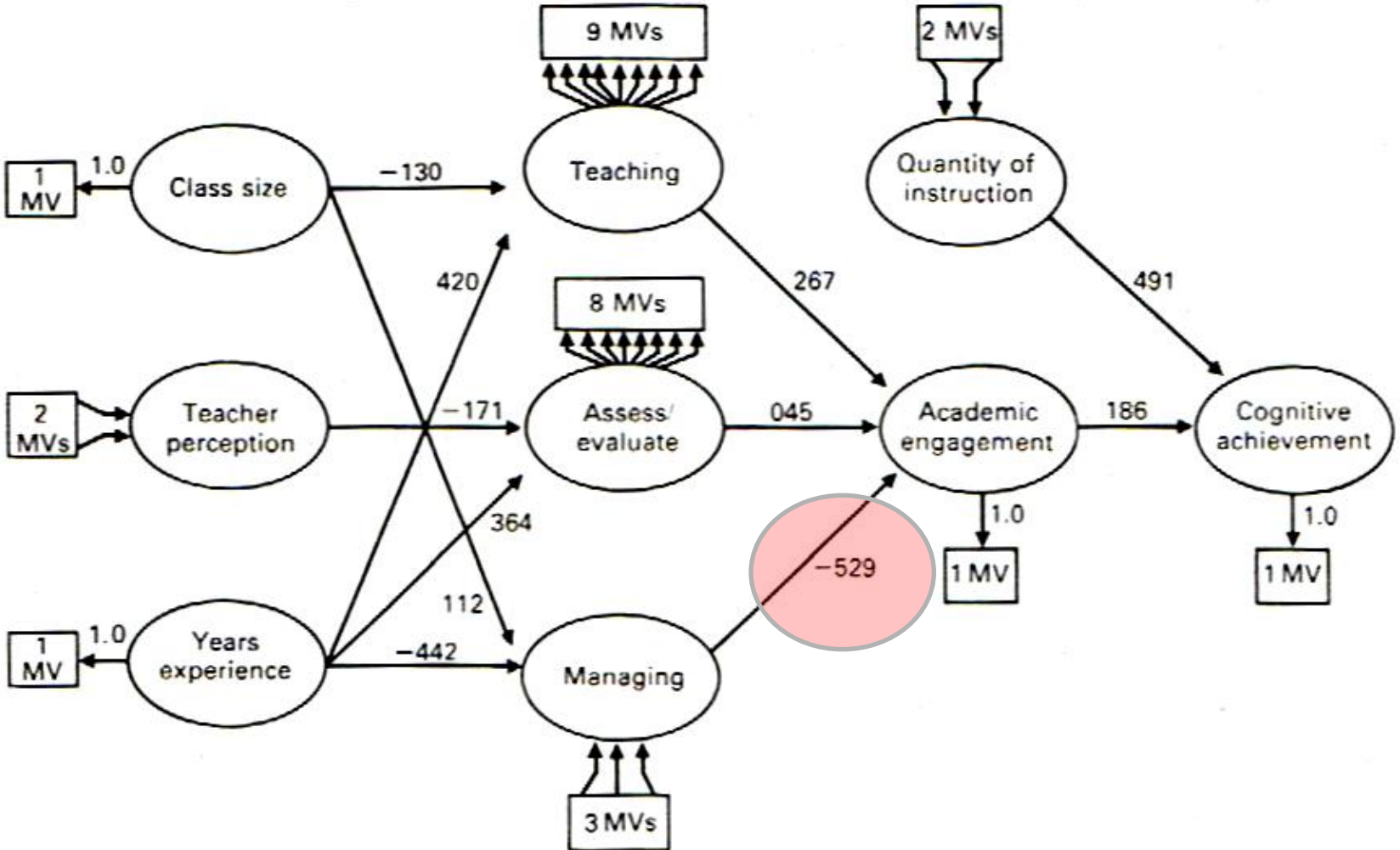
	Science-related (M4)	Domain-general (M10)
Self	**Self concept** Self efficay	**Academic self-efficacy** Performance self efficacy/grade goals Test Anxiety *Well-being*
Attitudes	**Interest** in school subjects Interest in broad topics **Instrumental Motivation**	Approaches to learning **Attitudes towards school learning: activities / outcomes**
Beliefs/ prefer-ences	***Value of science*** Dealing with uncertainty Valuing scientific approaches to enquiry ***Environmental Awareness***	**Openness** **Perseverance** Industriousness Organisation Procrastination
Techno-logy – ICT	Frequency of technology use Perceived competence Committment Technology-related beliefs	Interest in ICT Perceived competence Autonomy in using ICT ICT in social interaction
Beha-vior		Health: physical activities, nutrition Time use

II) LSA allow for modeling patterns and relationships among input, process, and educational outcomes –

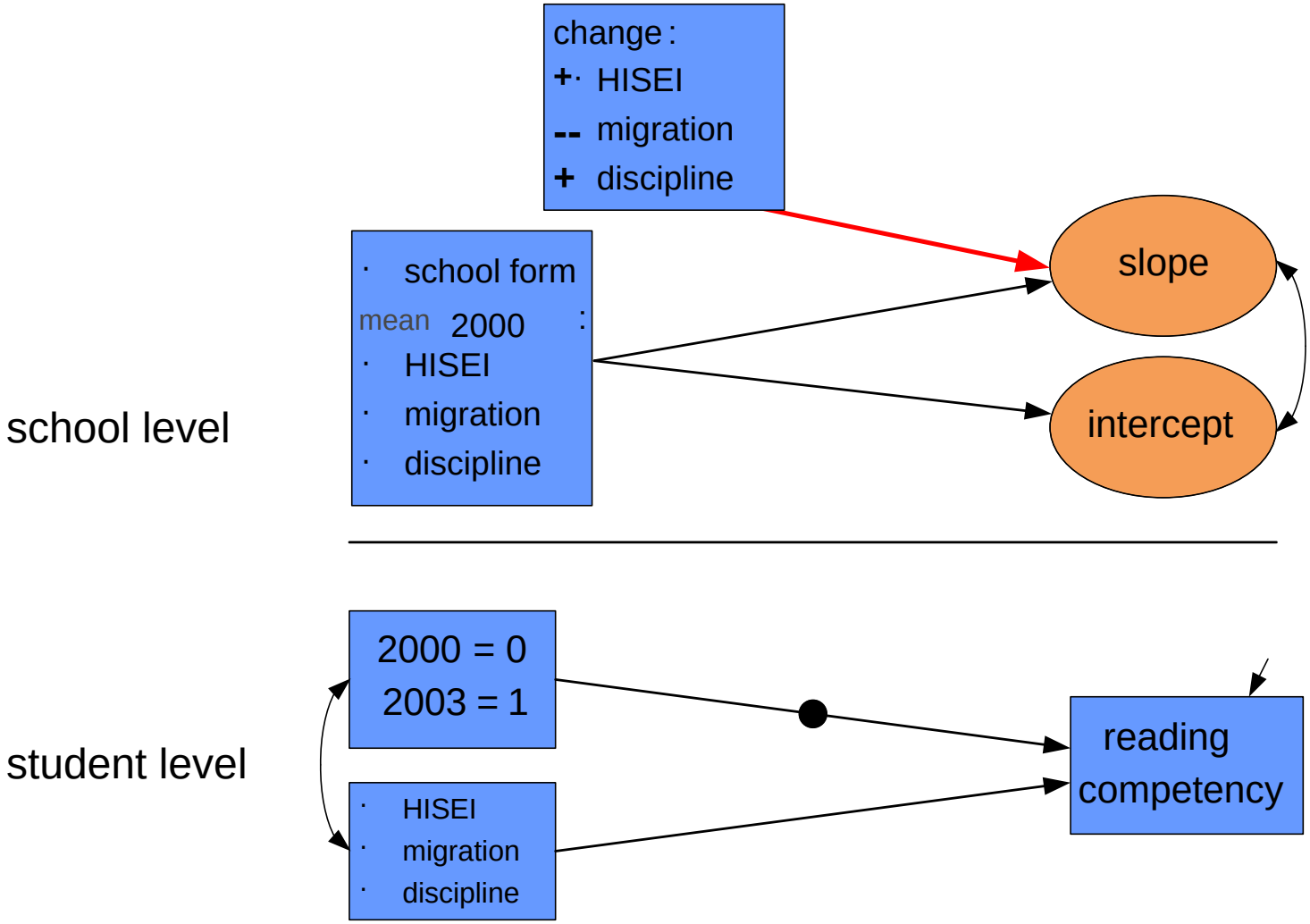
With limited explanatory power, however, due to the cross-sectional nature of the studies

Limitations of LSA: Reverse Causality

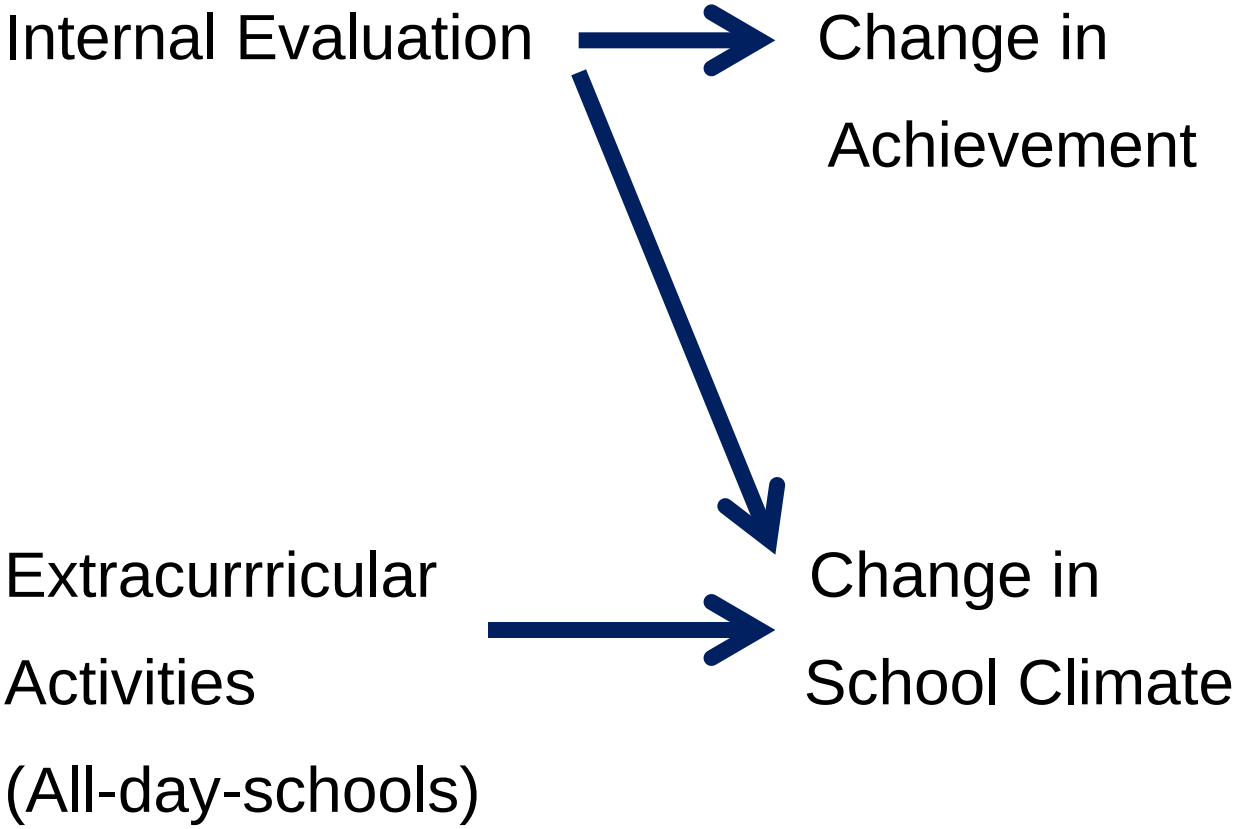
(Example: IEA classroom environment study, Anderson et al. 1989)



Explaining change in reading literacy at the school level (PISA 2000-2003, Germany)



Explaining change in reading literacy at the school level: PISA 2000-2009 Germany - school panel (Bischof et al., 2013)



Conclusions

- LSA provides indicators and models that are relevant for professionals and policy makers.
- The new (2012, 2015) PISA design incorporates information on teaching & learning, school policies, and governance.
- LSA need to be informed by research. Educational research provides information on school effectiveness, school change, quality of teaching.
- Longitudinal designs (follow up, school panel) significantly enhance the explanatory power of LSA studies.

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Thank you for your attention!

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