Lessons learned in ICILS 2013 countries
- the case of Germany

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ICILS 2013 in Germany

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Outline

1. **Germany's key results of ICILS 2013**
   and implications for the national educational system provided by the German national study center
2. **Dissemination of ICILS findings**
   media, scientific community and practitioners
3. **Implications of ICILS on the policy level**
   shifts in educational agenda on national and federal state level
4. **Outlook**

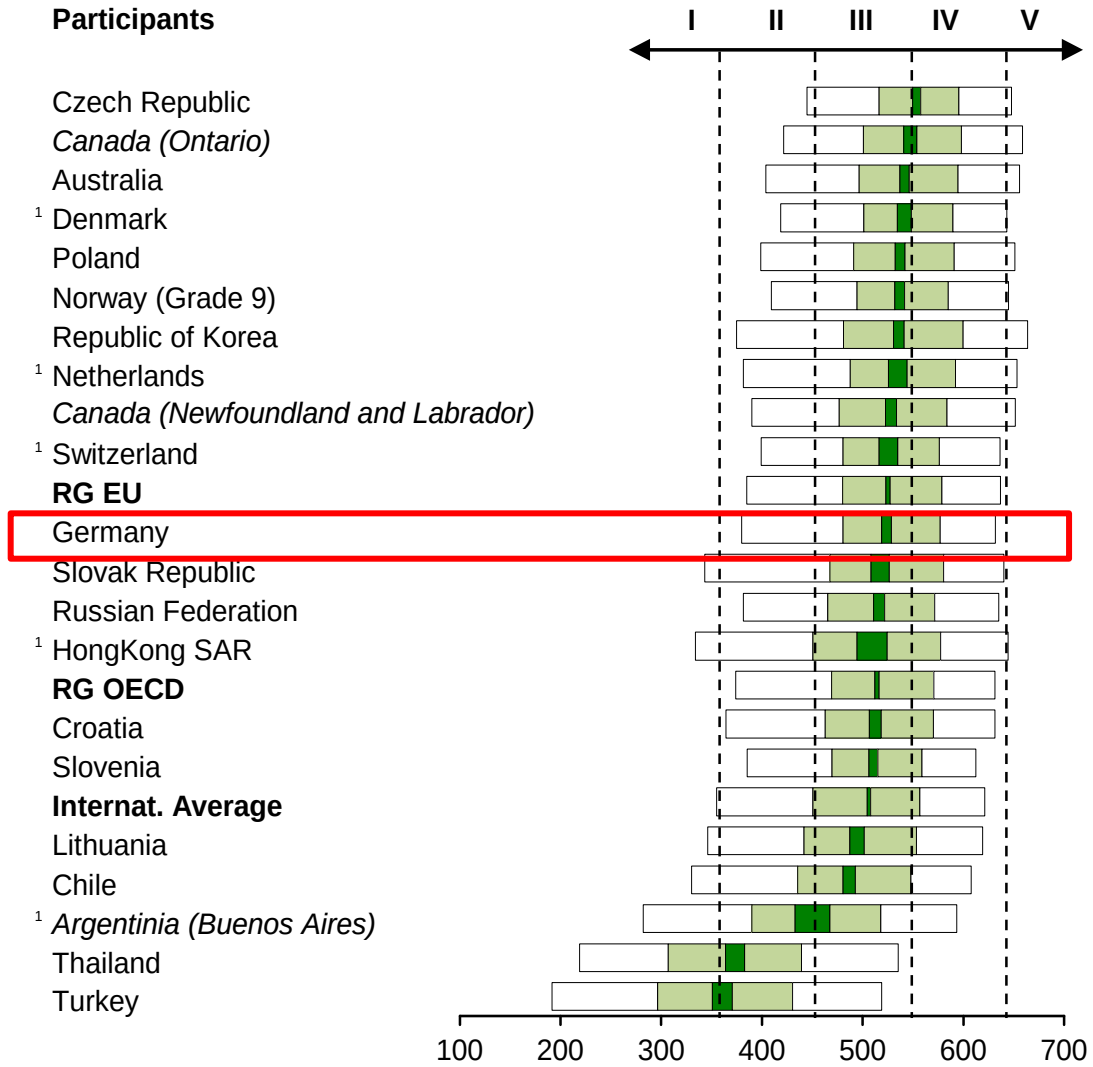
Outline

1. **Germany's key results of ICILS 2013**
   and implications for the national educational system provided by the German national study center

1. Germany's key results of ICILS 2013

International comparison of Grade 8 students' average computer and information literacy in ICILS 2013

- Average student score in Germany: 523
- Average Ref. Group EU: 525
- International Average: 500

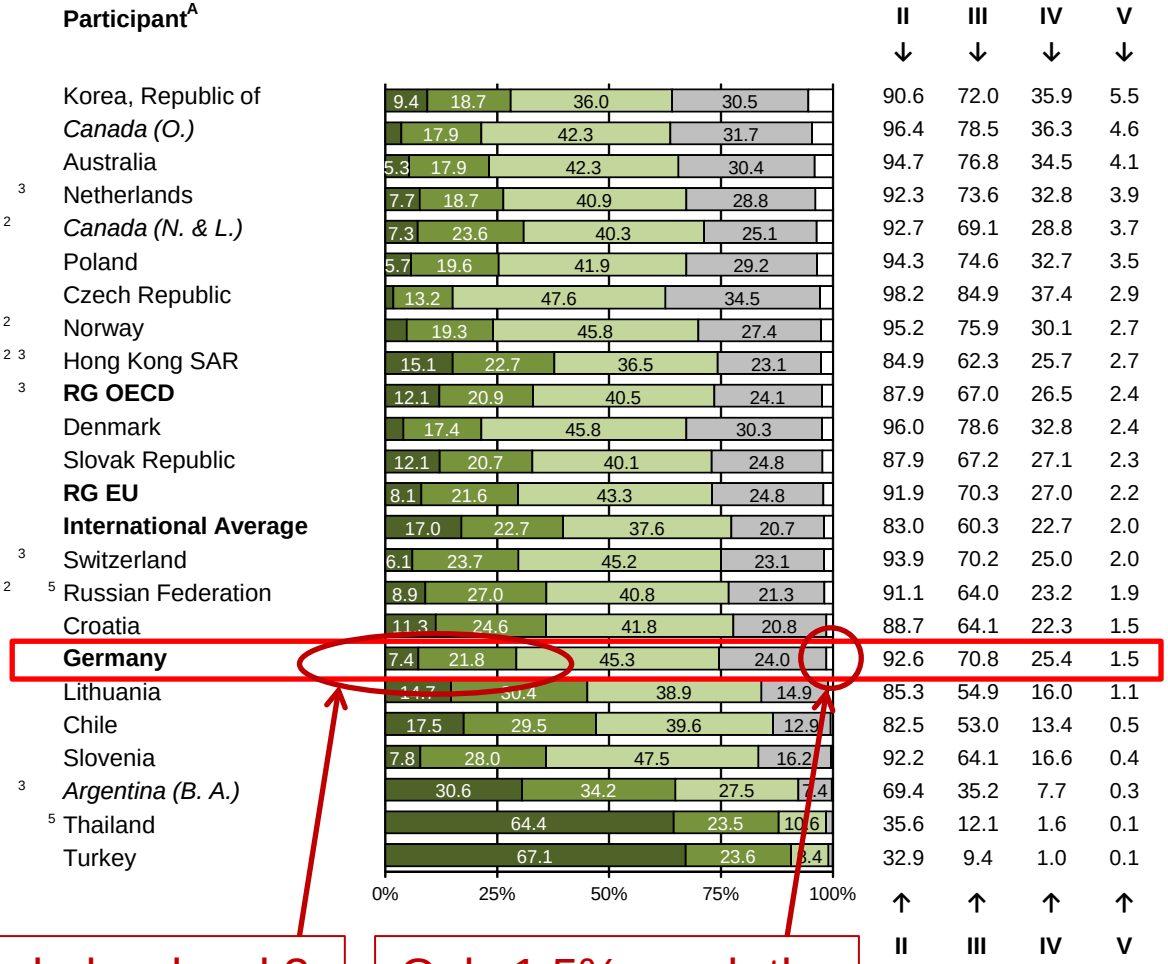


Fraillon et al., 2014
Bos, Eickelmann & Gerick, 2014

1. Germany's key results of ICILS 2013

Percent of students at each proficiency level across countries

- Level 1*
- Level 2
- Level 3
- Level 4
- Level 5



* Level 1 in the national German report is "below level 1" in the international report, level 2 refers to the international level 1

Almost 30 % of students below level 3
(rspct. Below level 2 with regard to the international scale)

Only 1.5% reach the highest competence level

1. Germany's key results of ICILS 2013

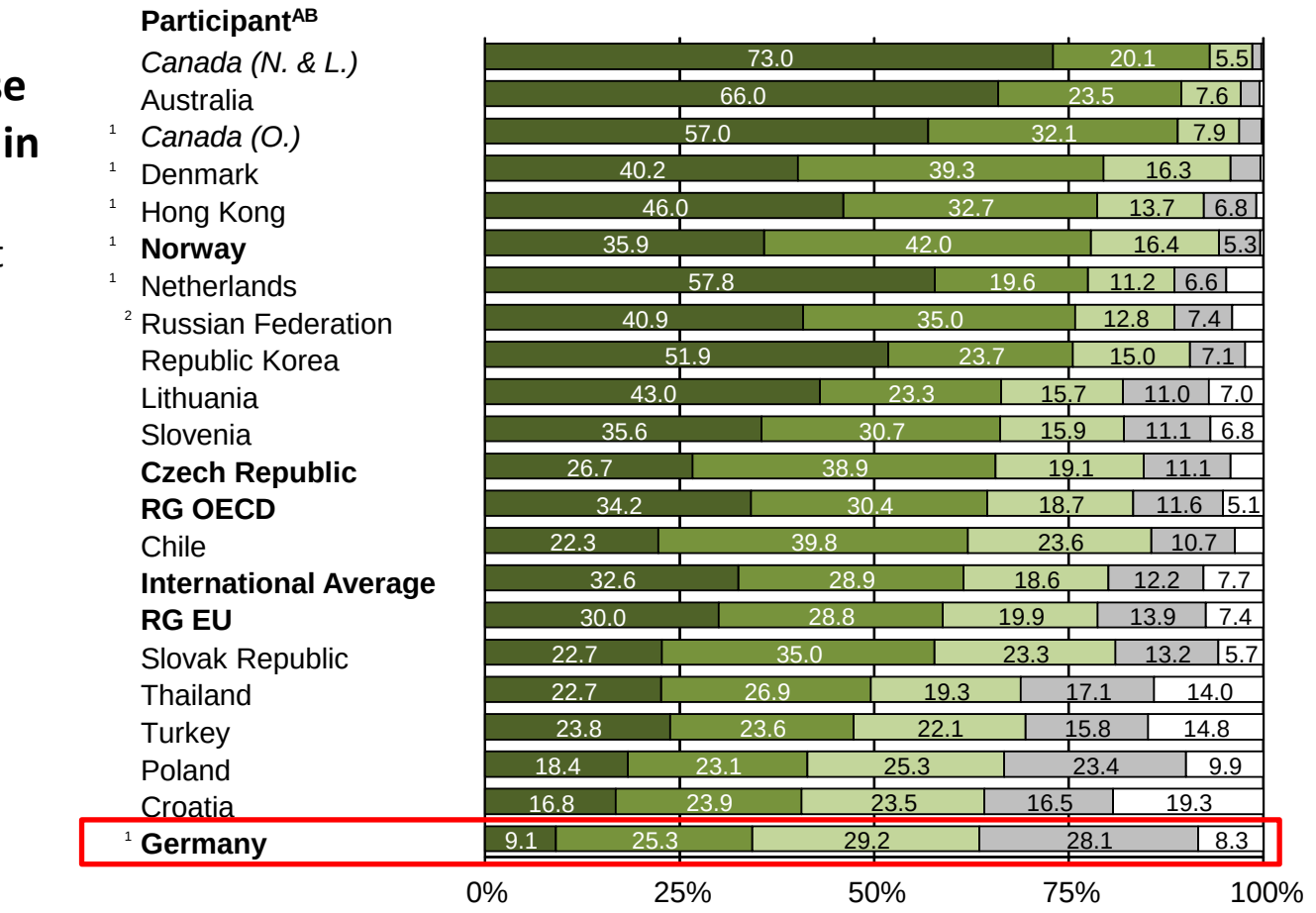
Home background indicators and students' CIL in Germany

- **Socio-economic status and immigration background:** strong negative effects (approx. 40 score points), as in other studies for Germany.
- **Gender:** Girls outperform boys (16 score points), but much less than in reading literacy.

1. Germany's key results of ICILS 2013

Frequency of computer use by teachers in classrooms in international comparison
teacher statements in percent

Only 34.4 % of German teachers report frequent computer use



Benchmark-Participants are highlighted in *italic*.

[1] The overall teacher and school participation rate is below 75%.

[2] Different point of measurement.

[A] Differences in presented results may seem inconsistent because of rounding.

[B] Because of the low response rate to the teacher questionnaires, no results for Argentina (Buenos Aires) and for Switzerland are presented.

(cf. Eickelmann, Schaumburg, Drossel & Lorenz, 2014, p. 204)

1. Germany's key results of ICILS 2013

Explaining ICT use by teachers

	ß	(SE)
School characterisitcs		
Student-computer ratio	-0,10*	(0.04)
Lack of IT-equioment	0.08	(0.04)
Technical support for teachers	0.04	(0.05)
Pedagogical supoort for teachers	0.06	(0.11)
Particpation in PD measures/courses	0.07*	(0.03)
Self-estimated teacher competences	0.35*	(0.04)
Priority of using ICT in the school	0.20*	(0.03)
Positive attitututed towards the potential of ICT	0.12*	(0.03)
Teachers' background characteristics		
Age	-0.06*	(0.03)
Gender	-0.21*	(0.03)
R^2	.32	

Teachers' competences most relevant from the teachers' perspective

(cf. Eickelmann, Schaumburg, Drossel & Lorenz, 2014, p. 204)

1. Germany's key results of ICILS 2013

IT ressources in schools

- Student-Computer-Ratio 11.5:1 (EU 11.6:1; Norway 2.4:1)
- Mostly traditional settings (PCs based in special rooms).
- Tablet-PCs available in classrooms for 6.5 per cent of students (EU 15.9%; Australia 63.6%)
- Few interactive Whiteboards: Ø 5.5 per school, compared to 20.0 in Denmark and 25.5 in the Netherlands.

Teachers' perspective on IT ressources

More than 40 % of teachers are disatisfied by quantity and quality of IT ressources available in their school (e.g., slow internet connectivity, outdated machines, not enough machines).

Outline

2. **Dissemination of ICILS findings**
   media, scientific community and practitioners

2. Key element of dissemination: national report & publications

- **National report** (336 pages) published as a book with online access on 20 November ‘14 (together with the international report)

- **Short version** (30 pages.) focusing of selected findings and their implications for the national school and educational systems
  (target group: mass media and politicians aiming to get the results at a glance)

- In addition: **publications in journals for school practitioners and principals** already published at the beginning of 2015 (focusing on school improvement)

2. Dissemination in national media

Studie zum Computerwissen

Wir vergeuden das Potential einer ganzen Schülergeneration *(FAZ)*

Zu viele Schüler sind mit Computern überfordert

(Die Welt)

BILD (HTTP://WWW.BILD.DE/)

Lernen mit Computern lässt in Deutschland zu wünschen übrig

(Focus)

PISA-STUDIE 4.0

So digital sind unsere Kids

Im internationalen Vergleich stehen wir nicht gut da

Reaktion auf ICILS-Studie

Lehrer nennen Ausstattung der Schulen "mittelalterlich"

(Stern)

Anschluss verschlafen

(DIE ZEIT)

2. Dissemination in scientific community

Symposia at national and international conferences

March 2015: ICILS 2013 symposium at the conference of the GEBF (society of empirical research, Germany) comprising 8 contribution from national consortium and national German project team

September 2015: Two ICILS symposia at the ECER 2015 (European Conference on Educational Research); comprising 16 (!) presentations, e.g. from Norway, the Czech Republic, the Netherlands, Denmark, Poland and the ISC (ACER)), organized by the German NSC

2. Dissemination in scientific community

Presentations of ICILS findings and in-depth analysis at national and international conferences (German project team and consortium)

- More than 10 contributions at national German scientific conferences in 2015

International conference contributions in 2015

- **SITE** Conference (Conference of Society of Information Technology), Las Vegas, U.S., March 2015
- **IRC** (International Research Conference), Cape Town, South Africa, June 2015
- **IFIP** Conference (international Federation for Information Processing), TC 3 (Education), Vilnius, Lithuania, July 2015
- **ECER** (European Conference on Educational Research), Budapest, Hungary, September 2015
- **WERA** (focal meeting of World Educational Research Association), Budapest, Hungary, September 2015

Outline

3. **Implications of ICILS on the policy level**
   shifts in educational agenda on national and federal state level

2. Implications on the policy level

On national level

April 2015

Invitation (Eickelmann) to advise the committee for research and education of the German parliament (Bildungsausschuss des Deutschen Bundestages) as an external expert (Sachverständige)

Permalink http://dbtg.tv/cvid/4919154

During the meeting all delegates have had the national ICILS 2013 report on their tables and appeared to have read most of it beforehand. They e.g. asked questions to better understand the ICILS findings and to derive implications.

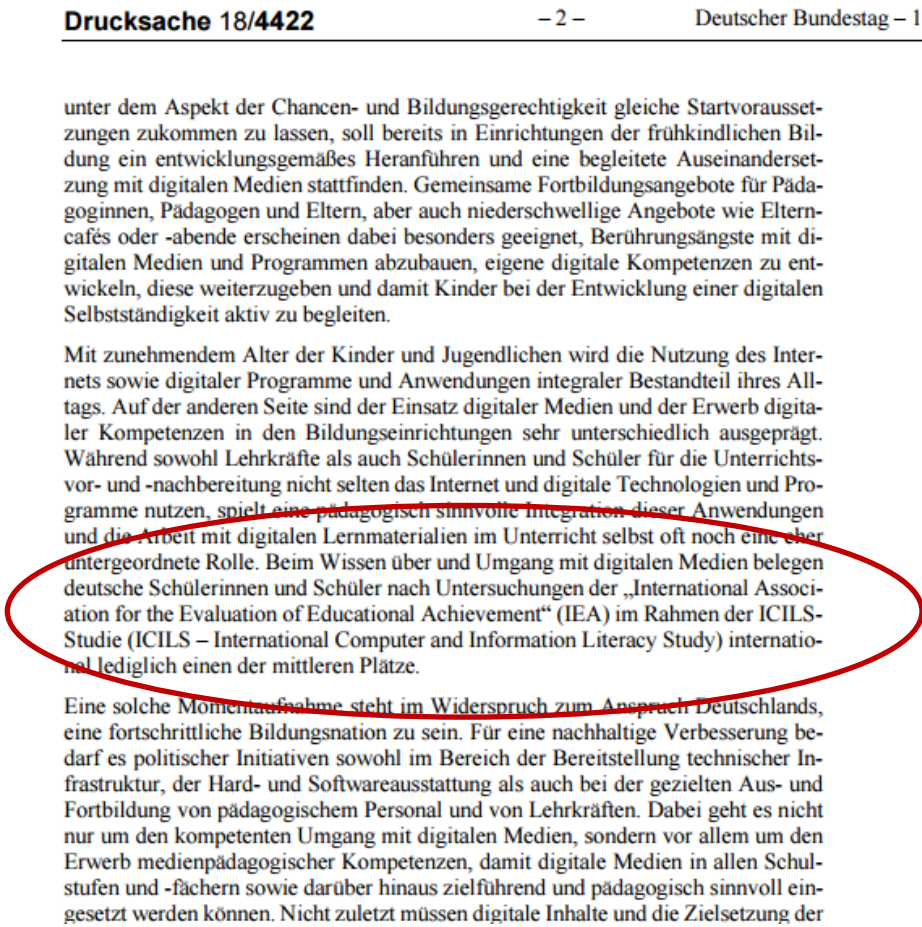
2. Implications on the policy level

On national level

July 2015

Passage of a motion (amendement bill on national level) to strengthen digital education in Germany

- document refers directly and explicitly to ICILS 2013 findings
- including concrete claims for strengthening teacher education and improving schools' IT-equipment
- and promoting the change of curricula acknowledging digital literacy



Drucksache 18/4422 – 2 – Deutscher Bundestag – 1

unter dem Aspekt der Chancen- und Bildungsgerechtigkeit gleiche Startvoraussetzungen zukommen zu lassen, soll bereits in Einrichtungen der frühkindlichen Bildung ein entwicklungsgemäßes Heranführen und eine begleitete Auseinandersetzung mit digitalen Medien stattfinden. Gemeinsame Fortbildungsangebote für Pädagoginnen, Pädagogen und Eltern, aber auch niederschwellige Angebote wie Elterncafés oder -abende erscheinen dabei besonders geeignet, Berührungsängste mit digitalen Medien und Programmen abzubauen, eigene digitale Kompetenzen zu entwickeln, diese weiterzugeben und damit Kinder bei der Entwicklung einer digitalen Selbstständigkeit aktiv zu begleiten.

Mit zunehmendem Alter der Kinder und Jugendlichen wird die Nutzung des Internets sowie digitaler Programme und Anwendungen integraler Bestandteil ihres Alltags. Auf der anderen Seite sind der Einsatz digitaler Medien und der Erwerb digitaler Kompetenzen in den Bildungseinrichtungen sehr unterschiedlich ausgeprägt. Während sowohl Lehrkräfte als auch Schülerinnen und Schüler für die Unterrichtsvor- und -nachbereitung nicht selten das Internet und digitale Technologien und Programme nutzen, spielt eine pädagogisch sinnvolle Integration dieser Anwendungen und die Arbeit mit digitalen Lernmaterialien im Unterricht selbst oft noch eine eher untergeordnete Rolle. Beim Wissen über und Umgang mit digitalen Medien belegen deutsche Schülerinnen und Schüler nach Untersuchungen der „International Association for the Evaluation of Educational Achievement" (IEA) im Rahmen der ICILS-Studie (ICILS – International Computer and Information Literacy Study) international lediglich einen der mittleren Plätze.

Eine solche Momentaufnahme steht im Widerspruch zum Anspruch Deutschlands, eine fortschrittliche Bildungsnation zu sein. Für eine nachhaltige Verbesserung bedarf es politischer Initiativen sowohl im Bereich der Bereitstellung technischer Infrastruktur, der Hard- und Softwareausstattung als auch bei der gezielten Aus- und Fortbildung von pädagogischem Personal und von Lehrkräften. Dabei geht es nicht nur um den kompetenten Umgang mit digitalen Medien, sondern vor allem um den Erwerb medienpädagogischer Kompetenzen, damit digitale Medien in allen Schulstufen und -fächern sowie darüber hinaus zielführend und pädagogisch sinnvoll eingesetzt werden können. Nicht zuletzt müssen digitale Inhalte und die Zielsetzung der

2. Implications on the policy level

On federal state level
(16 federal states in German – 16 educational systems)

January to September 2015/by now
Presentation of key findings in school ministries of several federal German states (Wilfried Bos & Birgit Eickelmann)

Adoption of selected aspects of ICILS on federal state level, e.g.

- for school inspectorate (Rhineland-Palatinate)
- as a focus of school policy (Schleswig-Holstein)
- as a compulsive element in training for beginning teachers & duplicating the number of ICT consultants for schools (North-Rhine Westfalia)

Outline

4. Outlook

4. Outlook

- Continue analyzing national and international ICILS 2013 data
- Second national report coming soon (focusing on more nationally relevant aspects, e.g. all-day schooling, mobile learning, role of school leadership etc.)
- Publications in national and international journals submitted/ in preparation (e.g. Large Scale Assessments in Education; European Educational Research Journal (EERJ); Computers and Education, Education and Technology (EAIT))
- Continue distributing findings at (scientific) conferences
- Submit research proposals, e.g. to the German National Research Funding Organization (DFG):
  - National extension of a reading test in ICILS (Eickelmann)
  - Case studies of successful ICILS schools (Gerick)

ICILS 2018

German participation recently (September 24) approved by the joint steering committee on educational monitoring
of the 16 Länder and the Federal Government

National consortium newly established; lead by Birgit Eickelmann, approved by IEA-Germany