Improving Education through Accountability and Evaluation:
Lessons from Around the World

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PROMISING INNOVATIONS INSIDE AND OUTSIDE THE CLASSROOM

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questions for a digital world …

Digital information technologies are transforming the way we learn, work and communicate.

How are education systems providing students with **digital skills**:

- the ability to locate, organize, understand and analyze information using digital technology
- awareness of the way technology can be used and offers possibilities in everyday life, in work, in shaping the future

How are education systems dealing with the **integration of technology** to:

- improve the quality of learning and teaching
- expand access to education and customize service provision

… and more general questions on innovation

What **kind of innovation** - not only ICT - **are schools experimenting inside (and outside)** their classrooms, which of these experiments look promising and whether market-based incentives push schools to produce successful innovation for students *(but we will not deal with this point here)*.

Are digital skills "new" skills?

What does it take to make a **skilled user** of technology, web-based resources and services? How can we identify and **measure these skills** ? Should we continue to look at the more traditional cognitive skills *(i.e, reading, math)* and do they change when performed on digital media?

- **reading** has never been as important as today, but the nature of reading is changing: decode words + comprehend text + **activate higher-order strategic processes** *(J-F Rouet)*
- the skills required to read and comprehend printed materials in the area of literacy and numeracy on a computer screen are **nearly identical** to those required for the materials in the paper and pencil format (*K Yamamoto*)
- international large assessment surveys *(e.g. PISA, PIAAC)* are including computer-based testing with numerous **advantages in terms of data collection** *(cleaner, faster and more info)* and items to **measure specifically the strategic skills** needed in the digital world *(critical evaluation, relevance, location, integration of information contents)*

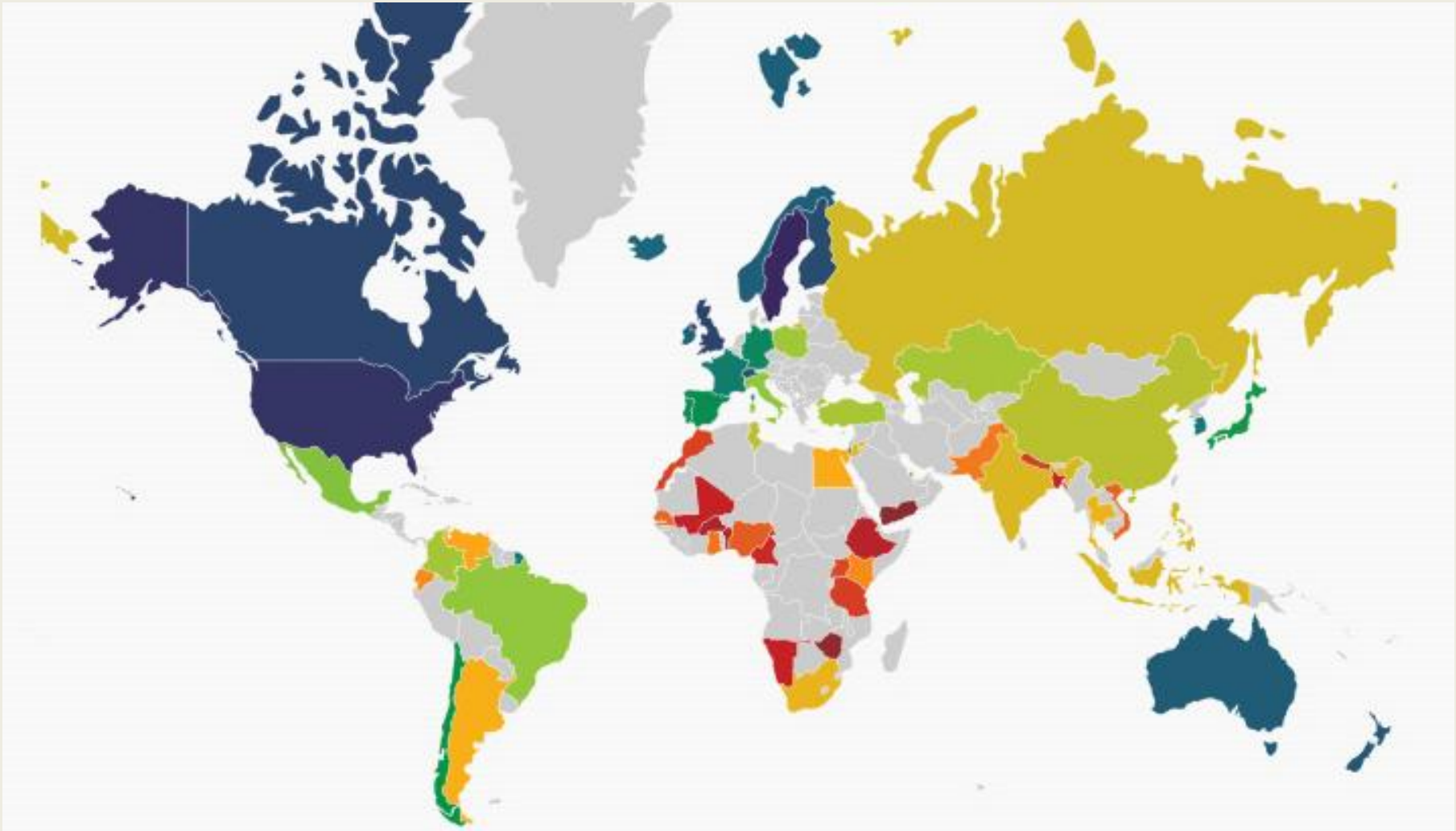
Dealing with a world of "digital natives"

A primary place of interaction with digital information for students is **outside of schools walls**.
But early access and exposure to electronic information devices is far from enough to shape a generation of "digital natives“:

- international large-scale surveys show that the “digital natives”, **do not automatically know how** to operate effectively in the digital environment *(e.g., PISA 2009)*
- there are **differences** in the level of skills and awareness of the way technology works, **according to social and economic background**, gender, etc.
- ICT use at school is **not positively associated** with navigation skills or with performance in digital reading in the same way as home use is, even after accounting for students’ academic ability *(PISA 2009)*

So, education, has a role in enhancing these skills and in reducing the divides and must understand how to deal with them.

Why is this relevant for Italy? / 1



Italy is 23rd in the 2012 Web Index measuring connectivity, infrastructure, skills, access to and use of the Web – well behind the rest of Europe (www.webfoundation.org)

Is computer-assisted instruction a reasonable substitute to live classes? / 1

Computer-based instruction is attractive for several reasons, among which the idea we can:

- **expand access** to education to underserved populations (e.g., distant rural areas, disabled, non-literate adults)
- customize education to serve **individual learning needs** (e.g., pacing, repetition, student-centric, ...)
- have teachers concentrate on following and **supporting each student** (instead of all students)
- easily **provide teachers with frequent diagnostic and detailed information** on the difficulties their students encounter
- make the system more efficient / **cost-effective** (?!).

Is computer-assisted instruction a reasonable substitute to live classes? /2

There still is little evidence on whether technology-based platforms improve the quality of learning and student outcomes:

- actually, at the university level **modest experimental evidence** that live-only instruction dominates internet instruction, particularly among lower-achieving students *(Figlio et al.)* and in general a limited amount of studies with satisfactory characteristics, most non experimental or too small / not full course (only 51 studies "quasi-experimental,"only 16 RCT, only 2 of with same instructor teaching both the treatment and control group).

- at the primary school level, 22 interventions and 73 studies reviewed by What Works Clearinghouse brought **some support** to the proposition that computer-assisted interventions in reading are effective but in some areas it is no larger than the effect for non-computer programs *(Streke et al.)*

Putting innovation in (and out) of the classroom

Student learning also takes place out of the classroom and schools seem to have more and more interest in reaching to the outside world. There are several examples of **innovative school interventions involving other people** (not teachers!):

- cultural and scientific institutions *(such as museums in Urban advantage NYC / Weinstein et al.)*
- professional instructors *(Playing chess in Italy / Romano et al.)*
- career counselors *(Future to discover Canada / Ford)*
- research teams in internet-assisted programs *(LIRALEC France / Rouet)*
- parent associations *(innovation in governance: AGE Mexico/ Patrinos)*
- community services *(Ethiopian national project Israel / Ben-Rabi)*

There is a demand for evaluation about how to **identify policies that "work"**, there is a general question on shift of from a curriculum to a goals/competence based approach, there is question a on the role of teaching profession.

Why is this relevant for Italy ? / 2

The Italian school system could be **less prepared than others** to face the digital world because it (in practice) has:

- a **mostly curriculum and face-to-face** classroom teaching approach, although over time "general guidelines" (*indicazioni nazionali*) and "key competences" have replaced "programs"
- a strong formal education setting and a **weak practice of problem solving**
- efforts and resources **pay more attention to the technical and infrastructural dimension** than to actual use or development digital skills *(IPRASE, 2009; IARD, 2010)*
- there is mixed evidence on whether teachers ICT practices/attitudes play a role in developing students' digital skills, but in any case **many teachers are far** from adopting new media use inside the classroom (and skeptic when students' use of the Internet for doing their homework / *Gui et al.*)

Lessons for policy makers

- provide schools not only with technology, but also **enhance teachers' technical ability** to use it
- promote activities in schools that explicitly **target the need to develop digital skills** in students
- help teachers and schools **shift their traditional approach** by adopting innovative practices inside the classroom and by involving operators and institutions which are generally outside
- …and evaluate these interventions since their inception, so that **experimental evidence** can be gained
- make **more administrative data** on schools and teachers **easily available in a linked and longitudinal perspective**

- innovation is not just an "event" but rather **a process**, and therefore, do to underestimate the time frame for system-wide change

Lessons for INVALSI and evaluation research

- INVALSI standard assessment has finally pointed out to schools **what "competences" and "national guidleines" are about** …
- the Ministry's EU structural funds program (PON Istruzione) has push forward in **introducing PISA** to schools and teachers
- INVALSI should push forward in **measuring students' performance in digital skills**, alongside reading and numeracy (and participating in international assessments of digital literacy)
- there are **some challenges for experimental evaluation** too (where control and treatment group should be mutually exclusive), given the difficulty to identify groups of students "with" and "without" ICT
- tensions between internal validation of experiments and their generalizability often require replication of evaluation (**not one study but many**)
- ICT and web-based applications can contribute in a relevant manner to collect **faster, cleaner, more and cheaper** information on students performance **for evaluators**
- **but also for teachers**, provided we help them use the data to target the needs of each student