State of the CS education in Europe

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CECE:
Committee on European Computing Education

Born from Informatics Europe + the ACM Europe Council

"Are we all on the same boat?" report on the state of Computing Education in Europe (may 2017)

(similar to "Running on empty" a report on USA C.S. Education)

Goal: understand how Computing Education is approached in the different countries, at student, teacher, school, state levels.

Topics covered by the report

Informatics

- first contact
- availability of courses
- curriculum consistency
- enrolment

Digital Literacy

- first contact
- a separate subject?
- curriculum consistency
- enrolment

Teacher training

- special qualifications
- number of subjects
- entry requirement
- in-service length
- stand-alone digital lit. curr.
- stand-alone Informatics curr.
- typical path availability
- professional as teachers
- professional experience

Other topics covered

Could teachers from other subjects teach CS? (and how well?)

- Mathematics
- Physics
- Business
- Engineering
- Others

Security of employment

Data sources

Educational policies

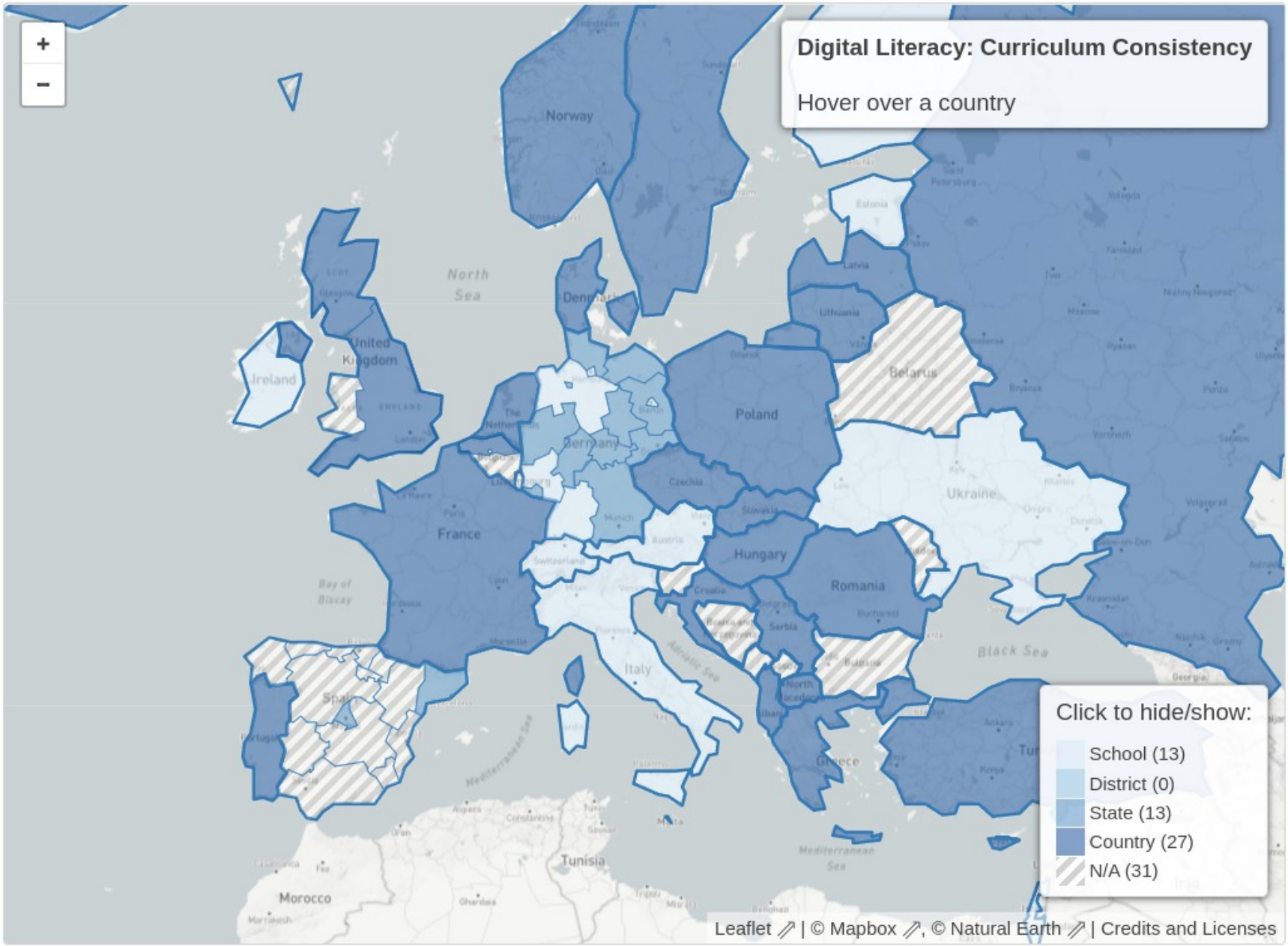
Learning Objectives

Missing?: are schools and homes ready for Computer education?

- **schools connectivity**
- **students connectivity**
- **educational LMSs**
- **digital devices for the students**

CECE Map: an interactive data exploration tool

Digital Literacy: Curriculum Consistency



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Italy

C.S. Education: Programma il futuro (based on code.org, 2017)

Il Piano Nazionale Scuola digitale (from the MIUR ministry)

- 70% of classes are connected (part with poor connection)
- 42% has interactive whiteboards (LIM)
- 36% of teachers ask for specific update courses
- 62% of teachers are 50 years old or more (w.r.t. 35% in Europe)

Goals:

- wideband connectivity
- digital learning environments
- BYOD (Bring Your Own Device) !!!!! (no support for families!)
- digital portfolio
- teachers' "digitalization"

Proposals

In the meantime an Informatics Reference Framework for School is proposed by the Informatics for All coalition (2022):

- ACM Europe Council
- CEPIS Education Committee
- Informatics Europe
- IFIP TC 3 Education

Goals

At the end of high school the student will:

- Use digital tools in a conscious, responsible, confident, competent and creative way
- Understand the phenomena, concepts, principles and practices of informatics and the multifaceted ways of applying them to model, interpret, and operate on reality
- Analyse, design, frame and solve problems by devising representations, designing algorithmic solutions and implementing these in a programming language
- Develop computational models to creatively investigate, understand and communicate about natural and artificial phenomena and systems
- Identify, analyse and discuss ethical and social issues associated with computational systems and their use as well as their potential benefits and risks

Core topic areas

Data and information	
Algorithms	Design and development
Programming	Digital creativity
Computing systems	Modelling and simulation
Networks and communication	Privacy, safety and security
Human-computer interaction	Responsibility and empowerment