

Digital information literacy in Italy

Building a learning culture for the digital world

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Literacy in the 20th century was about extracting and processing pre-coded and – for school students – usually carefully curated information; in the 21st century, it is about constructing and validating knowledge. In the past, teachers could tell students to look up information in an encyclopedia and to rely on that information as accurate and true. Nowadays, Google presents them with millions of answers and nobody tells them what is right or wrong, and true or not true. The more knowledge technology allows us to search and access, the more important it is to develop deep understanding and the capacity to navigate ambiguity, triangulate viewpoints, and make sense out of content.

PISA 21st-Century Readers: Developing literacy skills in a digital world

Definition of digital literacy

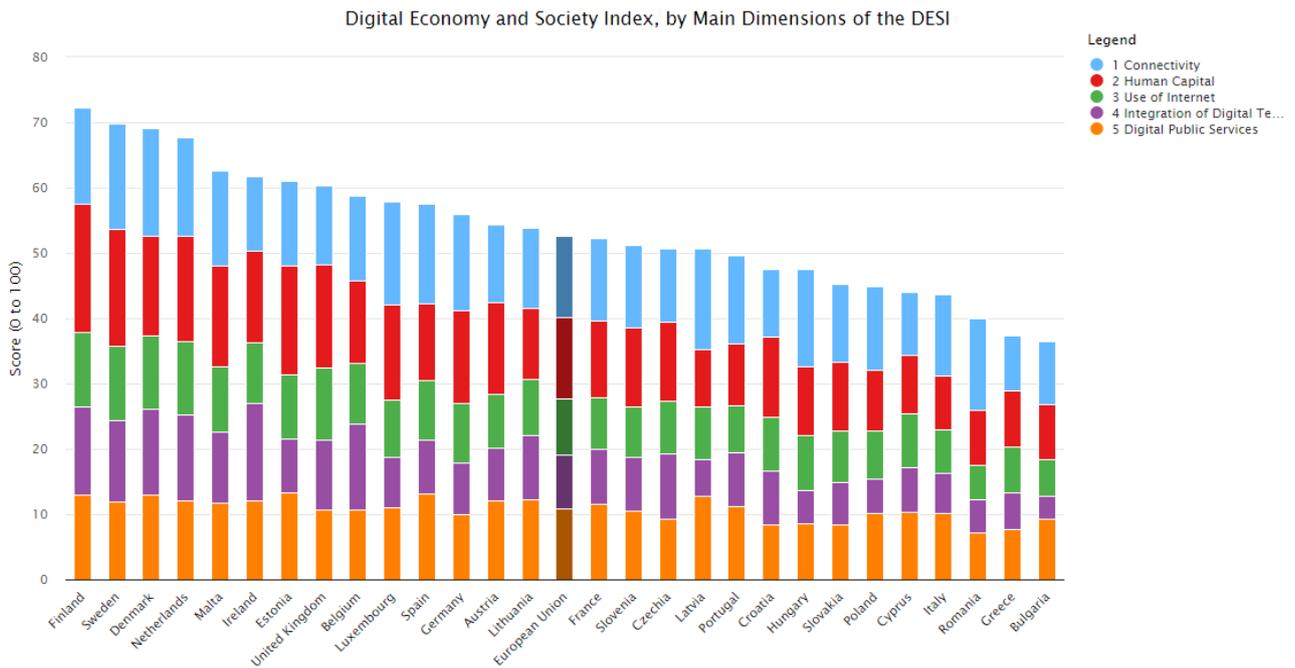
Digital literacy includes the ability to use digital technology, communication tools or networks to find, evaluate and use information. Students need to understand and use information from a wide range of internet sources and perform tasks effectively in a digital environment. Digital literacy also includes the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate new knowledge gained from the internet.

Internet and computer usage in Italy

At a time when digital solutions have been critical for education, work, and social interaction, Italy is lagging behind almost all of its neighbors in internet and computer usage, according to the European Union's annual index of member states' digital competitiveness.

After Romania and Bulgaria, Italy ranked third-to-last in Europe for internet usage, and it ranked dead last in internet and digital development skills.

The COVID-19 pandemic laid bare Italy's difficulty implementing online classes and remote work and brought to light the country's deficit of digital skills and digital literacy.



The digital gap

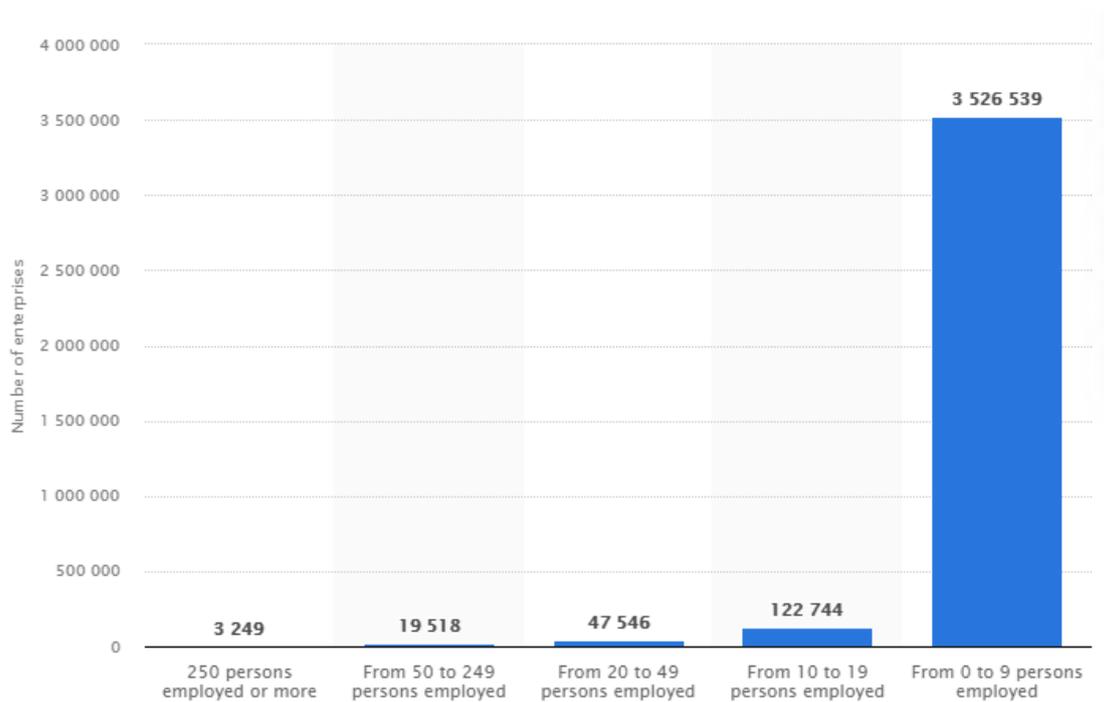
There are a number of factors that contribute to this digital gap:

- 1) dimension of business
- 2) infrastructural limitations
- 3) educational gap
- 4) teachers' age

1) dimension of business

the vast majority of businesses in Italy are of small and medium size and often lack the financial resources and initiative to digitize their businesses. Compared to other European countries, Italy lacks the presence of many large corporations that normally motivate a country's adoption of new digital strategies and processes.

number of enterprises in the non-financial business economy in Italy in 2016, by size class of employment



source: <https://www.statista.com/statistics/502536/italy-number-of-enterprises-by-employment-size-class/>

2) infrastructural limitations

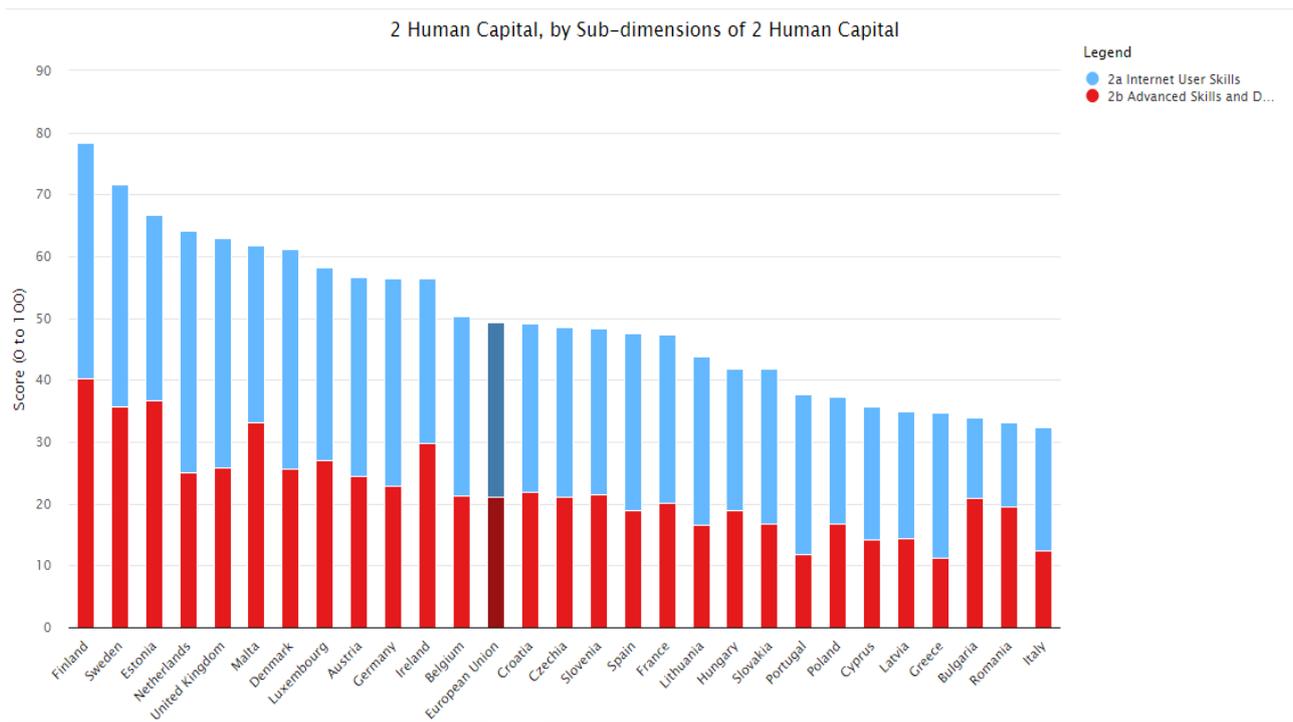
The lack of a nationwide tech-savvy culture could be traced back to infrastructural limitations. Italy relied entirely on radio waves for its broadcasts until the late '70s, when the slow transition to the coaxial cable began. And today, 50 years later, online and digital tools still have a hard time replacing more traditional practices already well-established in business, communication, and several public administration sectors across Italy.

To attempt to move the country into the twenty-first century, the Italian government created a Digital Transformation Team in 2016 with the purpose of “building the operating system of the country.”

3) educational gap

the head of the Department for Digital Transformation said the gap is “**not so much an infrastructural problem as an educational one.**”

Italy reports the lowest internet skills rate in the EU and a public-led education effort is not yet happening.

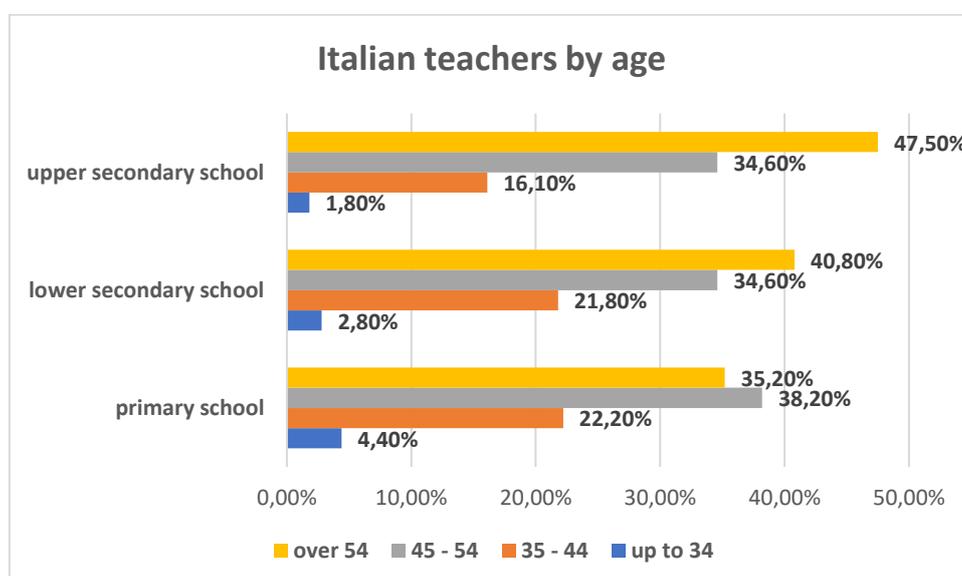


4) Teachers' age

Italy has the **oldest teacher population in Europe**. In addition to being, on average, older, Italian teachers earn about 80% of the average salary of their European colleagues and, above all, the difference between entry and exit salaries is very small. This factor contributes greatly to their demotivation.

OECD data from 2018 show that half of Italian teachers had not received formal training in how to use technology for teaching purposes.

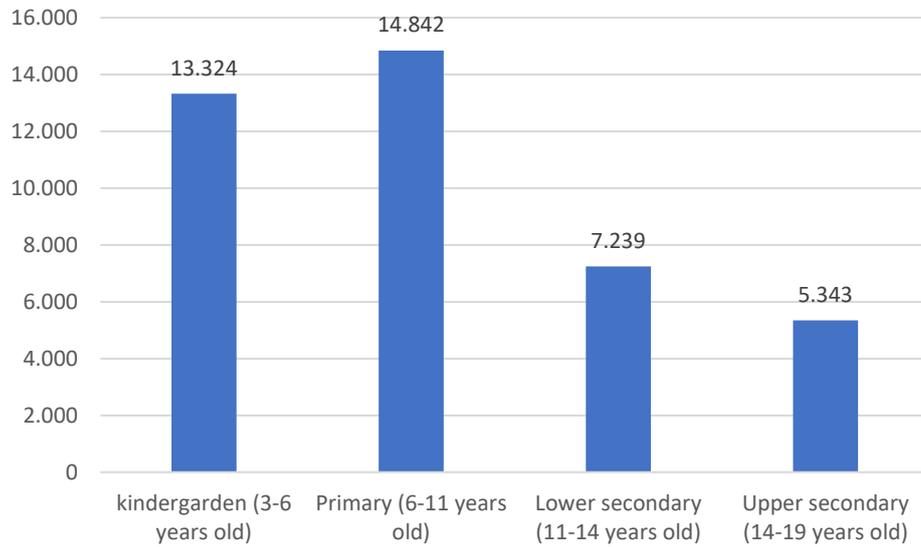
The Teachers and Learning International Survey (TALIS) administered every five years by the OECD, highlights that in 2018 only 35.6% of Italian teachers felt adequately prepared to use information and communication technologies (ICT) in the workplace.



Digitization in Italian schools

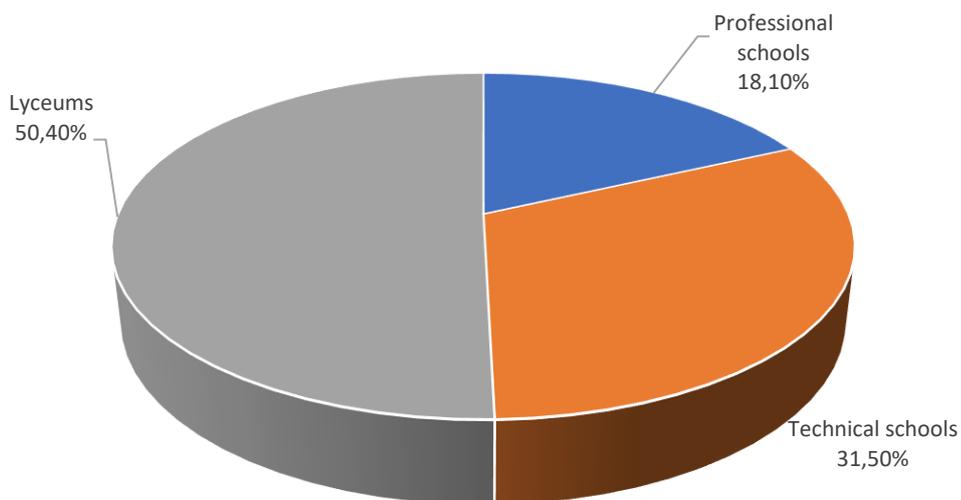
Schools and students: some data

In Italy there are **40.658** public schools



The 369.048 classrooms host 7.507.484 students, 268.671 of them with disability.

Upper secondary students attend different type of schools:



Connectivity of schools

According to the MIUR (Ministry of Education, University and Research) survey, approximately 97% of school buildings have a connection, but the size, grade or geographical distribution of these schools is not specified. Taking this figure into consideration, however, it is clear that in Italy there are 3% of institutions without any kind of connection. These are mostly elementary school located in Southern Italy.

Nationally, the percentage of schools connected at speeds greater than 30 Mbps is 11.2%.

High schools typically have faster and qualitatively better connections: only slightly more than 9% of elementary school have a network with speeds above 30 Mbps, 11% of junior highs and 23% of senior highs.

Schools with a connection that covers all available spaces are 74.6%: 83.9% among lower secondary schools, 78% among high schools and 71.4% among primary schools.

Digital teaching

According to data released by AGCOM (Authority for Guarantees in Communications), in 17.6% of schools, teaching activities are carried out with digital technologies by the entire teaching staff on a daily basis, while in 0.5% of schools a digital approach to lessons is completely absent since no teacher uses these tools.

Looking at teachers in general, 47% use digital tools (Internet connection, various online and offline devices) daily for their teaching activities, while 5% never use them. In schools with an ultra-wideband connection, the average number of teachers who use digital tools daily in teaching rises to 51%.

This gap, according to the OECD "Talis" survey, could derive from the level of digital skills of the teaching staff: if they are insufficient, teachers are less inclined to use digital tools for teaching.

Activities carried out at school with digital technologies

Mainly consultation of sources and content (this is done by the majority of teachers in 47.3% of institutions), but presentations for teaching or digital tools for assessment are also used (29.3%).

Activities of dialogue and sharing between teachers and pupils and of opening the school to the outside world are less widespread. According to AGCOM, "this evidence suggests that the propensity of the teaching staff to use digital technology is too often confined within each class, leaving little room for the use of innovative technologies aimed at opening up the classrooms, exchange and collaboration between teachers and students, both between classes of the same institution and between classes of different institutions".

Digital equipment

The most recent data regarding digital equipment in schools refers to the 2018/19 school year. According to this survey, for every 100 pupils there are an average of 5.7 PCs/tablets and 1.8 Interactive Multimedia Whiteboards (or interactive projectors/smart TVs).

With important differences between levels of education. The density of PCs and tablets per pupil is much greater in technical institutes, a fact certainly linked to the presence of laboratories, particularly in technological courses. Interactive whiteboards, on the other hand, tend to be more widespread in the first cycle of education (primary and lower secondary schools).

The Interactive Multimedia Whiteboard (IWB) is a tool already outdated in many other parts of Europe, where it has been replaced by PCs or tablets, one for each student, which allow a more interactive and participatory teaching.

In Italian schools, only 12% of students are able to use a personal device: 8% are provided with one free of charge by the school, while 4% have it on loan for a small fee.

According to data from the Osservatorio sulla Scuola Digitale Digitale (Digital School Observatory)- collected through interviews with over 7,000 middle and high school students - 35% of students say they have a computer room in their school, but never use it, 6% do not use the Interactive Multimedia Whiteboard - even if it is available -, 45% cannot use the telephone to support and supplement teachers' explanations, and 10% have never attended a lesson with multimedia support. The latter percentage rises to 15% among students in Southern Italy.

These data are alarming, "especially if they are contextualized with the identikit of the children who attend schools today, the so-called Generation Z; students born in the digital age, with high knowledge of computers and smartphones, but not thanks to the school. In fact, 47% have learned almost nothing about new technologies thanks to the school.

This is also because in 2 out of 3 cases, the school has never bothered to organize specific courses aimed at improving students' knowledge on, for example, coding, programs, operating systems and 3D printers. Nor on safety and proper behavior to be kept online, since 40% (48% in the South), has never had the opportunity to follow lessons at school against the risks of the Web".

Even in the field of textbooks, digital seems far away: in 77% of cases, schools use exclusively paper books, not taking into consideration e-books. Only one student in 10 studies only on digital texts.

The Digital Facilitator

To spread the digital culture, the MIUR has also provided that each institute identifies a teacher responsible for coordinating and implementing the activities foreseen in the national plan to enhance digitalization in schools. The role is that of "digital facilitator", organizing training courses, involving students, defining innovative teaching methods, etc. Each year, resources are allocated for these activities. The surveys, however, shows that not all institutions have identified a coordinator, especially elementary school.

Conclusion

To invest in digital literacy is to invest in the potential of a new generation, equipping them for success in the virtual space and an increasingly remote working environment. Many hope that Italy will see a digital revolution catalyzed by the coronavirus crisis, where the sudden necessity to migrate into the virtual space provided the push Italy has needed for so long. But no revolution will really happen until a new, digital culture steps into the classrooms, universities, and more public education programs.

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Share of teachers aged 50 or over, primary to upper secondary, 2015

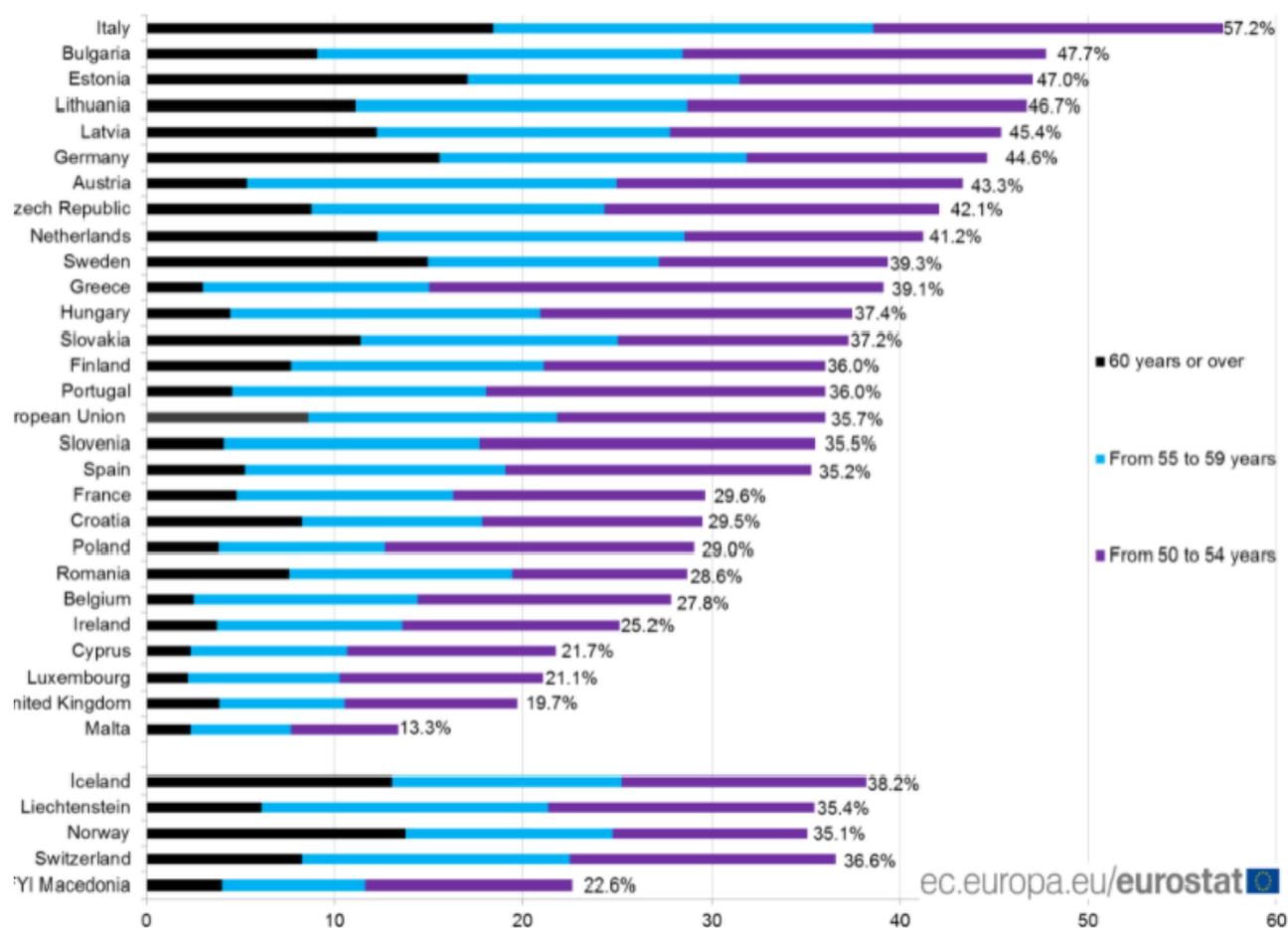


Table B.1.1
Time spent on the Internet outside of school in 2012, 2015, 2018
Based on students' reports

	Time (in hours per week ¹) spent on the Internet outside of school on weekdays and weekend days ²								
	PISA 2012			PISA 2015			PISA 2018		
	Hours	S.E.	s	Hours	S.E.	s	Hours	S.E.	s
Italy	15	(0,1)		25	(0,2)		28	(0,2)	
OECD average	18	(0,0)		23	(0,0)		27	(0,0)	

Table B.1.2
Time spent on the Internet at school in 2012, 2015, 2018
Based on students' reports

	Time (in hours per week ¹) spent on the Internet at school					
	PISA 2012		PISA 2015		PISA 2018	
	Hours	S.E.	Hours	S.E.	Hours	S.E.
Italy	2	(0,1)	6	(0,2)	7	(0,2)
OECD average	3	(0,0)	6	(0,0)	8	(0,0)

Table B.1.3
Time spent on the Internet in total in 2012, 2015, 2018
Based on students' reports

	Time (in hours per week ¹) spent on the Internet					
	PISA 2012		PISA 2015		PISA 2018	
	Hours	S.E.	Hours	S.E.	Hours	S.E.
Italy	18	(0,2)	30	(0,4)	35	(0,4)
OECD average	21	(0,1)	29	(0,1)	35	(0,1)

Table B.2.6
Frequency of opportunity to learn digital literacy skills at school
Results based on students' self-reports

Students reported that during their entire school experience they were taught the following:								Item 'Capacity to distinguish facts from opinions' - Equated P+ (CR551Q06) ²															
All students																							
How to use keywords when using a search engine such as <Google>, <Yahoo>, etc.	How to decide whether to trust information from the Internet	How to compare different web pages and decide what information is more relevant for your schoolwork	To understand the consequences of making information publicly available online on <Facebook>, <Instagram>, etc.	How to use the short description below the links in the list of results of a search	How to detect whether the information is subjective or biased	How to detect phishing or spam emails																	
%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s						
44,2	(0,9)		57,9	(0,8)		57,3	(0,8)		60,4	(0,9)		31,7	(0,9)		49,0	(0,7)		27,3	(0,8)		40,0	(0,4)	
55,9	(0,1)		69,3	(0,1)		62,6	(0,1)		75,8	(0,1)		48,5	(0,1)		54,5	(0,1)		41,2	(0,1)		47,4	(0,1)	

