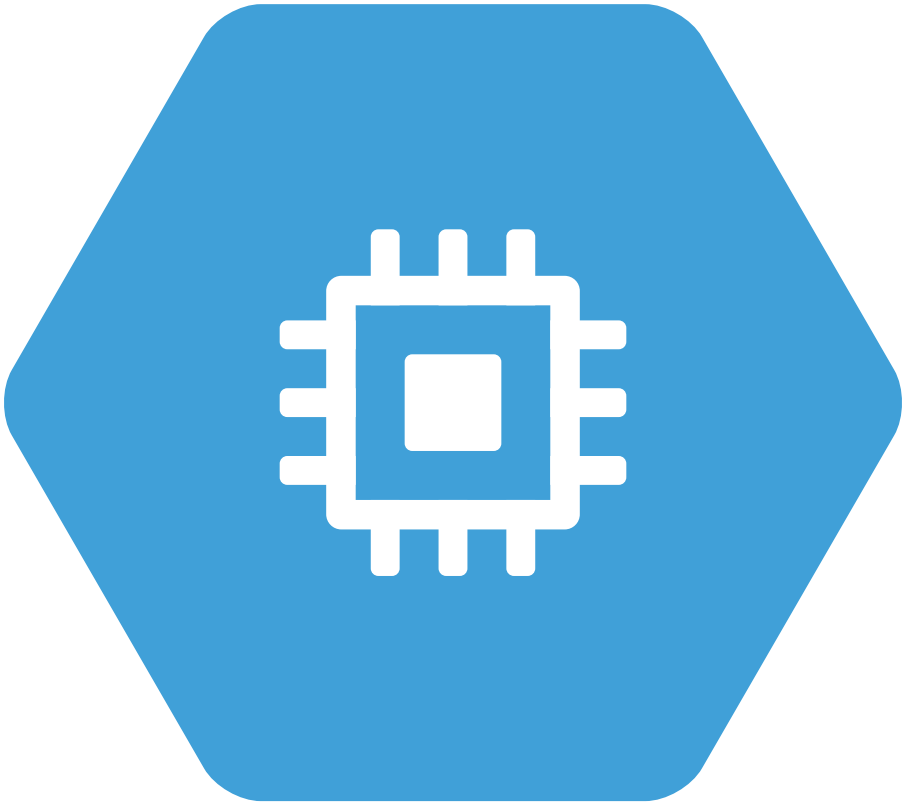

COMPUTER SCIENCE EDUCATION IN SPAIN 2015

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GOBIERNO DE ESPAÑA
MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD

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Google, the Spanish Foundation for Science and Technology (FECYT) and everis have developed the "**Computer Science Education in Spain 2015**" report, with the goal of analyzing the current situation of Computer Science education in Spain in children between 6 and 16 years old.

Due to the exponential growth of technologies and their impact on the transformation of society, it's essential for new generations to learn and understand how these technologies work, develop and evolve, and especially, to have Computer Science knowledge. Learn to code helps us to know more about technolgy, and at the same time allows us to acquire different abilities necessary in several areas. In addition, coding promotes the development of "computational thinking", which includes skills such as logical reasoning, problem solving and decision making, among others.

The report suggests a series of recommendations, elaborated from the study conclusions, to introduce, spread and improve Computer Science education in the medium and long term.

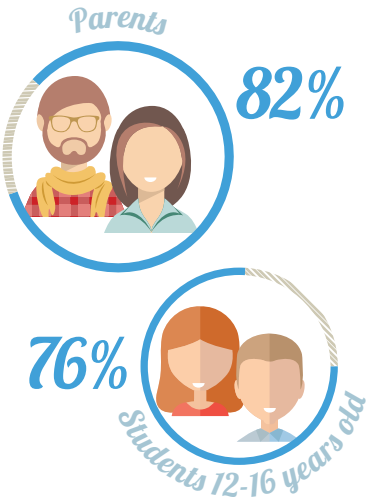
For the purposes of this study, the following definition of Computer Science has been applied:

> "How computers are designed and how to write step-by-step instructions to enable them to perform tasks and solve problems"

CONCLUSIONS

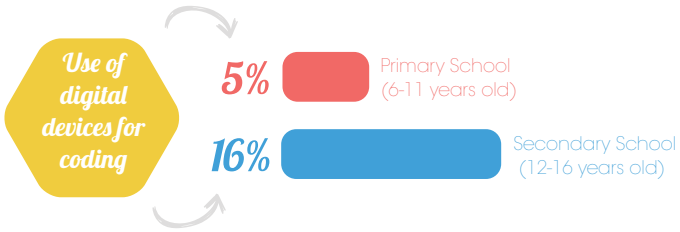
CS: Computer Science

CS: an unkown concept for the Spanish society



Do not know what CS entails or **relates it to other concepts**

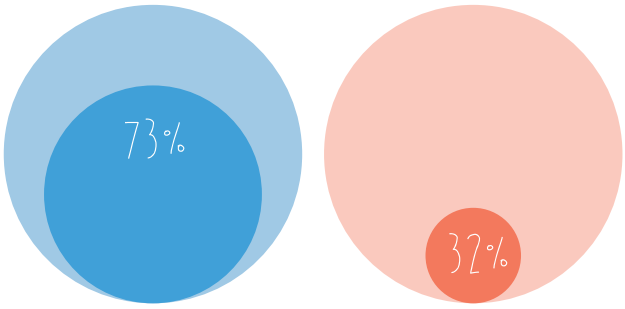
Most of the children do not have access to CS education in Spain



Do they know any programming languages or tools?

24% Only 24% of the kids recognize Scratch, the most renown programming tool

Parents show an ambivalent attitude towards their children learning CS

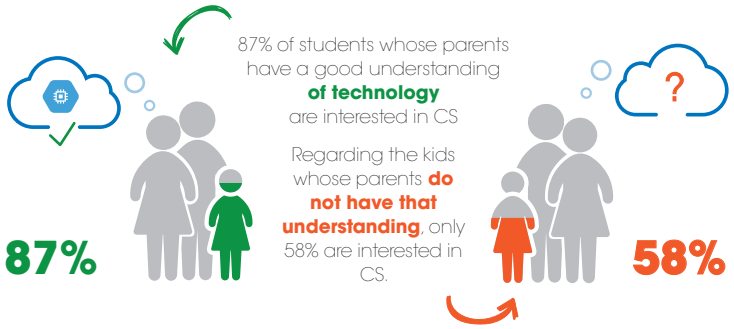


73% of parents consider that CS should be taught at school

32% of parents with children at Primary School do not consider learning CS a priority

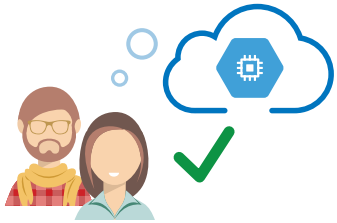
Parents are the main influence for children to study CS

"The key to getting kids interested in CS "



SECONDARY SCHOOL STUDENTS THAT STUDY CS ARE INFLUENCED BY THEIR PARENTS

Families have a **positive perception of CS** because they are



- **a creative subject**
- **important for the future**
- **Increases employability**

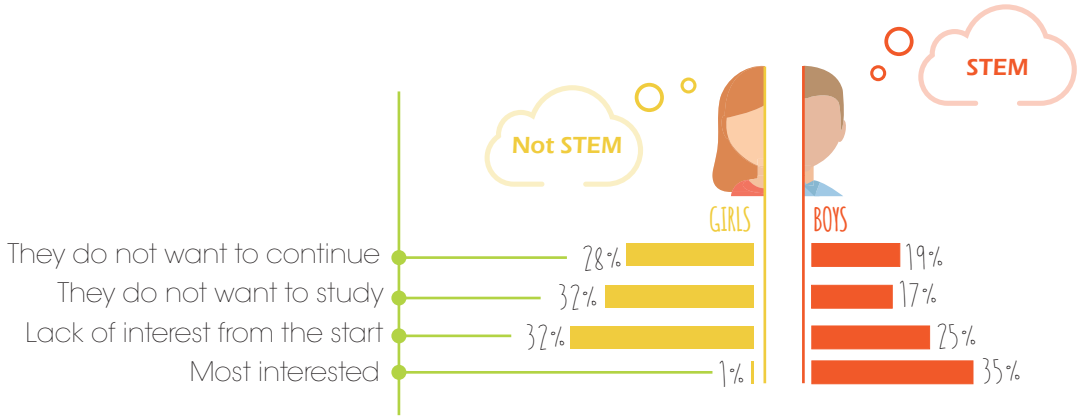
Although some families do not consider it appropriate to teach CS in an early stage

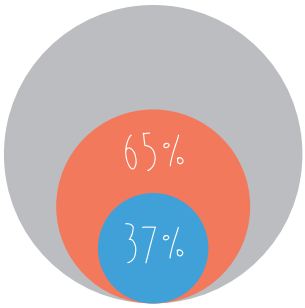
For 3 reasons

- Too complex
- Kids spend too much time with digital devices and the internet
- Concern about Digital safety

CONCLUSIONS

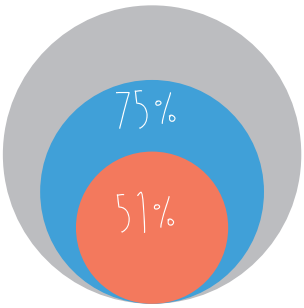
Gender gap: Girls are less interested in studying CS than boys





Girls are more interested than boys in **languages and humanities** (65% vs 37%)

Boys perceive a greater confidence in their capacities to study STEM (Science, Technology, Engineering and Mathematics) from their parents **than** girls (75% vs 51%)



The interest in studying CS in girls and boys increases if they are exposed to CS activities

INCREASES

60% of Secondary School students are interested in learning CS

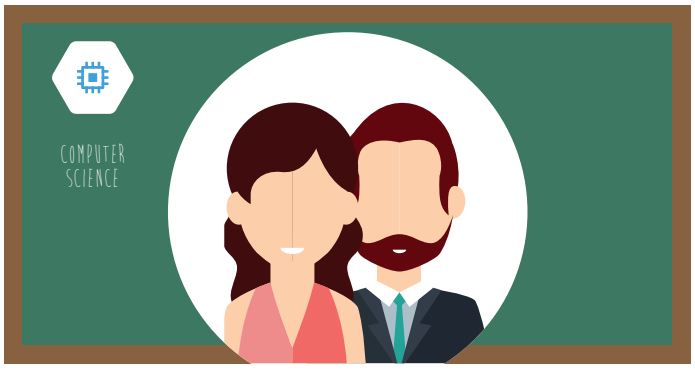
Have participated in CS activities

YES

77% of Secondary School students would like to continue learning CS

NO

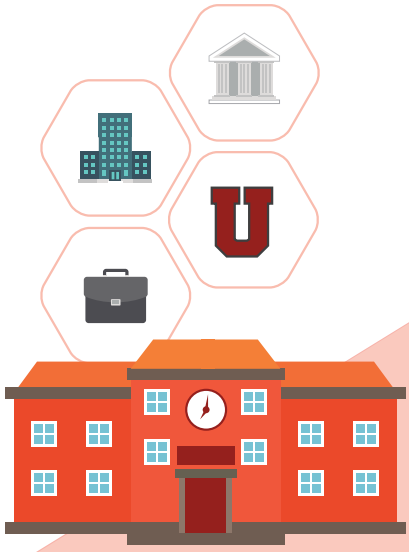
54% of Secondary School students would like to start learning CS



TRAINING

Teacher CS training is essential in order to boost CS education

RECOMMENDATIONS



Establish a consensus framework among key stakeholders regarding the roadmap to follow in order to introduce CS into the educational curriculum of both Primary and Secondary School.

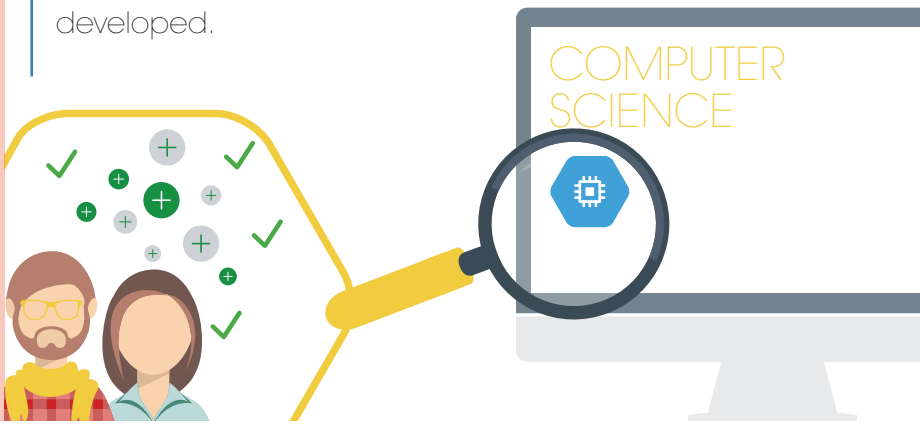
Encourage and support the professional development of current and future teachers in the field of CS, designing itineraries and specific content for both the continuous and initial training of teachers.

Articulate **collaborative mechanisms** that enable CS professionals to participate in a productive manner in the education and training of students and teachers respectively.

Count with the **participation of professionals associations, universities, companies and other organizations in the ICT industry** in promoting and supporting the study of CS.

Disseminate among parents the real **benefits of learning CS** for children, focusing mainly on the skills and competences that are developed.

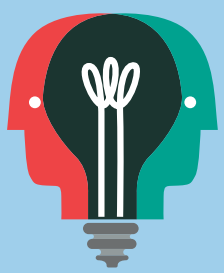
Improve the understanding and awareness of CS is essential to boost the study of CS.

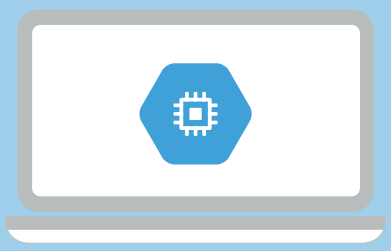


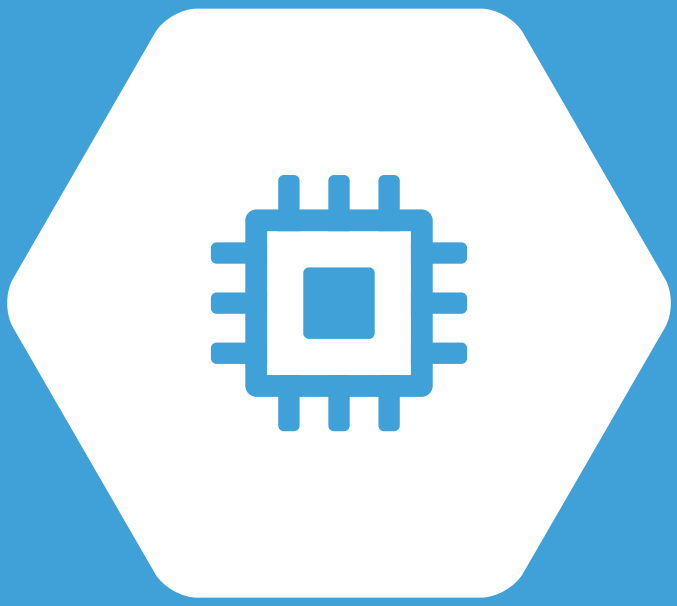
Promote CS activities among young students, bringing practical uses and showing CS as a **creative and collaborative subject**.

Address the existing gender gap, increasing the participation of girls in CS activities, breaking existing stereotypes and developing class activities to connect with their interests and motivations.

The strategy of **integrating CS in formal education** should be built on the experience of non-formal educational initiatives in order to **evaluate the effectiveness of different teaching approaches and methodologies** applied, as well as content design.







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Read the full report:

http://www.fecyt.es/publicacion/educacion-de-las-ciencias-de-la-computacion-en-espana

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