

Pedagogical aspects  
in teaching  
Computer Science

Stefano Penge  
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# Professional biography

- Classic secondary school
- Master degree in philosophy of science
- 10 years spent doing research in different faculties (CS, Science of Education, Science of Communication, Medicine)
- 20 years spent teaching e-learning and application of cs to didactics to students of different faculties and to teachers
- 30 years of work in the field of design of educational software and learning online application
- Teaching coding in school to 7-11 years old pupils: from 1990 to 2020
- A book series (Didattica::coding) on using coding in school:
  - Lingua, coding e creatività (2017)
  - Dati, cittadinanza e coding (2022),
  - Quadrati, coding e creatività (upcoming)

# Personal Computers and me

- The very first time I met a Personal Computer was not in a school, nor in a University, but while doing civil service: I immediately fell in love with it
- So I decided to buy one and to start to write my software
- So I found that it was a little more complex than this...
- I started to compulsively buy books on languages and programming: BASIC, Pascal, Prolog, C, Logo, Perl, PHP, ...
- Since then, I owned dozens of PC and laptops
- From 2000 on, only Linux

# These lessons will be about...

- Why one has to know at least something about pedagogy if s/he decide to teach CS
- Which are the main topics when teaching programming to younger students in school?
- Why difference (age, gender, disabilities, culture) matters?
- How to manage a lesson on CS in a real classroom with real pupils?

# Lesson structure

- questions from the last lesson
- main course (slide and talk; or group working)
- Q&A
- pause
- a showcase for discussing your LUs (which language, which age, which subject matter, ...)
- reminders for the next lesson

# What about you?

- Please introduce yourself briefly
- Tell us about the first time you meet a computer
- Tell us about the first time you has been taught about CS in general or programming
  - which context (eg. classroom, association, a friend's home, ...)
  - which language?
- Which were your expectations? how did you feel? was it simple and clear from the beginning?
- Which is (not) you preferred language/programming style?

# A little exercise

- Make N groups of **3** components
- Imagine a lesson in which you have to explain recursion and why it is preferable over iteration (even if you don't think so)
- Hints:
  - choose a real life situation in which iteration is not easy or not natural
  - paper-and-pencil first?
  - which could be the misunderstandings? how to avoid them?
  - should you avoid them or leave them come out freely before?
  - ...?