THE FACTS ON EDUCATION

12 reasons to learn coding at school

Should we be talking about *coding* or *programming* in schools?

The idea of teaching coding in school has generated unprecedented interest around the globe, with studies indicating that it is critically important, both educationally and socially, for students to learn how to code or program starting in Kindergarten. According to numerous research projects, the reason behind this is not simply to create a pool of skilled programmers to meet the needs of the job market; in fact, learning to code also enables children to use digital technology to develop their creativity. Furthermore, it helps students in our technology-based society to move from the role of 'consumer' to that of a 'creator.' In addition, students learn to develop algorithmic thinking which enables them to better understand, interpret, and assess the impact of such thinking on their lives. Some will even go on to take part in developing and guiding the use of algorithms in the world of the future. Coding also trains children to become independent citizens in a world where technology is ubiquitous. Finally, learning to code helps students better understand one aspect of the digital world in which we live and, in some ways, become better prepared for it. In short, this is why coding in school is important. Learning some coding basics at school now appears to be necessary to function in an increasingly digital world.

The first thing to understand is that, for many years, there was no debate about the meaning of the verb "to program," which means telling a machine, software program or Web page what to do – a feat that is accomplished invisibly by the mobile phones, computers and social media we use every day. Back then, only programmers knew how to program. However, with the growing popularity of digital technology in society as a whole and in schools, many individuals—some novices and some self-taught – began coding and calling themselves *coders*.

1. **The first distinction** to make between *coding* and *programming* is that, generally speaking, coders have no formal training in computer science. Coders are usually novices who learned coding on their own, or in elementary or high school. Job postings do not advertise for *coders*, they advertise for *programmers*.

2. **The second distinction** that can be drawn between these terms is that coding is more closely associated with games and school (elementary or high school). Coding is fun; one often learns to do it at school or independently; one can code without being a real programmer; and one usually learns to code using applications designed for beginners, like Scratch Jr, Scratch, Swift Playground or Code Studio.

Coding is thus the term more often used in schools. It appears less formal and more fun than programming, which could be seen as a more advanced, formal stage of this activity.

For online resources and references please visit:
www.edcan.ca/facts-on-education

About the Author
Dr. Thierry Karsenti, Full Professor,
Université de Montréal

The Facts on Education Series is produced with a generous sponsorship from the Canadian School Boards Association and the Desjardins Foundation.

Desjardins Foundation

ACCES CSBA

CHAIRE de recherche du Canada sur les technologies de l'information et de la communication (TIC) en éducation

Université de Montréal

EdCan RESEARCH

THE FACTS ON EDUCATION

12 reasons to learn coding at school

Learning how to code: what are the key benefits for students?

Research shows that teaching computer coding starting in Kindergarten generates many benefits for students. **Here are 12 key benefits of learning to code at school:**

1. Increased academic motivation
2. Acquisition of mathematical skills
3. Ability to problem solve
4. Acquisition of computer skills
5. Development of autonomy
6. Teamwork, collaboration, and mutual assistance
7. Development of critical thinking
8. Improved self-esteem and sense of competence
9. Development of creativity
10. Ability to find information
11. Increased resilience in the face of challenges
12. Enhanced reasoning, organization, and planning skills

For online resources and references please visit:
www.edcan.ca/facts-on-education

About the Author
Dr. Thierry Karsenti, Full Professor,
Université de Montréal

The Facts on Education Series is produced with a generous sponsorship from the Canadian School Boards Association and the Desjardins Foundation.

Desjardins Foundation

CHAIRE de recherche du Canada sur les technologies de l'information et de la communication (TIC) en éducation

Université de Montréal

EdCan RESEARCH