

"I am worried about how we educate kids for a future we don't know about"

Interview by [Caroline Smrstik Gentner](#)
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Children's book author and illustrator Linda Liukas explains why encouraging children to be scientists, artists and dreamers, tinkerers and creators is an investment in the future of society.

Caroline Smrstik Gentner: *Children today didn't know a world without computers, while those teaching them still remember life before the internet. Does this create a disconnect in the classroom?*

Linda Liukas: It's been said that everything that happens in technology before you turn 30 is natural, exciting and fun, and then everything that happens after 30 is suspicious and weird. So, yes, to some extent, I am worried about how we educate kids for a future we don't know about.

This is the last generation of kids that will remember the computer defined by the keyboard, the screen, and the mouse. When I go to a kindergarten class and ask, "How many of you have had a discussion with the computer?" I'd say 60 percent of the kids raise their hands. For them it's a very natural idea that voice interface is going to be the future of computing.

CSG: *In this light, how should teachers – of any age – be introducing pupils to computer science?*

LL: Much of the discussion around learning technology skills and computer science skills is dominated by big companies that want to ensure they have a future workforce. I worry that only having this narrative of supplying large, powerful companies with a custom-trained workforce distorts the purpose of school. We need to get away from associating technology with big companies, and go back to the roots of computer science. What are the fundamental ideas that we need to be teaching beyond only how to use a computer as a tool?

That's one of the reasons why I think we should be looking at the history of computer science, at people who have thought about what it means to grow up in this age – and not just listening to the mantra of "learn to code in order to get a well-paying job."

To reach all kinds of students, we need to start early and engage teachers directly in disseminating a more holistic understanding of computer science. We can't rely on partnerships between schools and companies or technical universities, because then computer science stays in its niche. We need scientists, artists and dreamers, tinkerers and creators in computer science. Those are the future engineers I'm looking forward to meeting.

"I like the idea that there is now a little army of kids around the world who are seeing computer science in a different way."

CSG: *You say so many problems are computer problems. What do you mean exactly by that?*

LL: When we think about the big, confusing problems in the world – climate change, micro pollution, an ageing population, all the SDGs (UN Sustainable Development Goals) – we can't solve them with the human brain alone. We need computers to be our sidekicks, to do what we humans are not so good at doing.

We need to recognize which problems computers need to solve and which situations still need human touch and intuition.

If we let today's engineers define those problems and how to use the computers, they're going to do it in a way that makes sense for them. But these engineers – I'm thinking mostly of young Californian males in their 20s who have very limited problems in their lives and very market-oriented ideas of what to do – are not representative of people all over the world who live with the effects of non-sustainable development. I like the idea that there is now a little army of kids around the world who are seeing computer science in a different way.

CSG: *Is this why you've become so active in encouraging girls to code? Your "Hello Ruby" books, with their red-headed girl hero, obviously appeal to girls.*

LL: Ruby is who she is because I imagined the kind of person I would have liked to read about when I was a kid. The first Ruby book came out five years ago, and the kids who started reading it then are now perhaps nine-year-olds.

When I'm visiting schools with the books, little boys come up to me and say: Ruby is my favorite. And I think, yes! This is the kind of feminism I stand behind that says boys can grow up thinking that a girl can be their role model. I was sent a wonderful picture from the Bronx. They had a science fair where they dressed up as the characters of the book, and a little boy had dressed up as Ruby.

In Finland, where I'm from, we've topped the PISA studies for many years in a row, but one of the uglier truths that we don't often talk about is that the difference between the girls and boys is growing all the time. This means the girls are going to be fine, because they're studious and do well. Maybe the next Ruby book should have a boy hero to speak to that group of children who get left behind and are at a disadvantage.

"Societies change when we invest in the teachers and their development."

CSG: *What can be done to get away from these entrenched ideas – like technology is for boys, only tech companies can foster innovation, a computer is just a household appliance we use – and push more toward your vision?*

LL: Investing in teachers is the number one thing I'm spending time on right now. Societies change

when we invest in the teachers and their development. We need more teaching around a broad view of computer science, and this has to happen in the schools, because that's the way we reach all the children, not only the children who come from advantageous backgrounds.

It's not only teaching coding, it's not only teaching how computers work and it's not only teaching how computers are changing the culture, it's all those three things. And then it's also understanding the local culture: What kind of citizens do we want to raise? The answer for a country like Switzerland might be very different than for Finland, or China.

Linda Liukas is a [children's book author](#) and illustrator and an edtech advocate. Her [Hello Ruby](#) books teach children programming in a whimsical world of technology, and have been translated into 25 languages. She is also the founder of [Rails Girls](#), a global movement to teach young women technology, now with clubs in over 270 cities.

Linda Liukas was one of the keynote speakers at the [2019 Zurich Campus Seminar](#). This inspirational event for teachers, entitled "A Digital Transformation in Schools," examined ways to shape the future of education and presented exciting model projects as part of [Spotlight Switzerland](#).

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