

**The Financial Times: [Stem education is becoming simplified and commoditised](#)**

By Jonathan Margolis

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Science is messy, it's fraught with mistakes, it's about trying and failing and finally getting there



My New Yorker granddaughter, aged six, is excited about showing me something. “Look, what I made at robot class.” It is a block of balsa wood with a battery and a motor, on whose shaft a wheel is mounted mid-air, a little off-centre.

When she connects the battery, the lopsided wheel ensures it buzzes around the floor haphazardly. She built what she calls a robot bee in an after-school class at Brooklyn Robot Foundry, a children’s centre with two branches in the neighbourhood’s gentrified areas, and two in Manhattan. Within a few blocks of my granddaughter’s branch are two similar enterprises, the League of Young Inventors and the Tiny Scientist.

Pleased as I am to see her tinkering with technology, I have to admit Dalia’s bee is some way off being a robot. And I discover later, dropping into the Brooklyn Robot Foundry, that the designs the children make are mostly given to them to copy.

The children I see at the League of Young Inventors are older and a little more inventive — they were working on aerodynamics (aka model aeroplanes) when I came by.

Yet with both places I visited, I felt the children are only just about doing science; their creations, which are colourful and look great, could be mistaken for craft work.

I have since been looking at other cities, and most have projects and businesses that encourage children to express their inner scientist. In London, for instance, there’s the Institute of Imagination, with its Imagination Lab in Lambeth.

The world is going into overdrive for Stem (Science, Technology, Engineering and Maths) education, and it is becoming prettified, simplified and commoditised. This is about four-fifths admirable and a fifth questionable; I love it that children, like I was, and perhaps Dalia will be, are now considered

mainstream for liking tech rather than traditional middle-class kids' pursuits — music, drama, dance and the rest.

But I worry that what they are doing is only marginally science. I was into soldering electronics kits together, but was strictly a science dilettante. The few boys I was at school with who went on to technology careers would ask how my latest thing worked and why it worked, and I could not answer adequately.

Stem became a thing in the early 1990s in the US, when the National Science Foundation began to worry that the country was lagging behind in science. Since then, Stem has been seen in many countries as the palliative for a perceived skills shortage in technology and engineering.

Some have debunked the idea that there is such a shortage, but the perception remains, and concerned parents across the world have started wanting their children to be professional tech geeks. Good for them, even if tech start-ups have a worse failure rate, at 90 per cent, than even the notoriously volatile restaurant sector's 60 per cent.

While it is great for children to have a friendly respect for tech, I doubt if enterprises such as Brooklyn Robot Foundry will ever turn them into Bill Gates. This week I have been rereading biographies of Steve Jobs and Elon Musk, and their self-starting drive and stellar ability is a factor of far more than being helicoptered into attractive science clubs as children.

I am not saying great technologists are born, not made — but that there are specific conditions that create children who are the real deal; they are very rare, and I fear will remain so.

I wondered if I was being overly dismissive of these consumer-friendly children's science projects, so asked a New York maths teacher I met for her view.

"Yeah," said Julie, "They come home with a robot that works and that's really cool, but to me it isn't science. Science is messy, it's fraught with mistakes, it's about trying and failing and finally getting there. And even then, you don't have a pretty thing to put in your bedroom."

"I believe we steal from kids when we present them with beautiful, prefabricated science. It's a great way to spend an hour but it's more an art project than science."