

The learning to code and digital making movement

The idea that young people should learn computer code skills has become a mainstream educational concern. Computer programming and 'digital making' initiatives have spread around the world, pushed by private sector promoters and governmental priorities about work and digital citizenship.

CODING AND MAKING CAMPAIGNS

Before 2011, the idea that young people should learn to code was the marginal concern of computing educators. Around that time, in the UK, the [Computing At School](#) advocacy group published a white paper, the [Royal Society](#) launched a report on computer science in schools, and the innovation think tank [Nesta](#) produced a series of recommendations on computing in schools aimed at supporting the digital industries.

Initiatives supporting young people to learn to code and become digital makers have spread around the world, pushed by commercial promoters and government priorities

Led by the videogames entrepreneur Ian Livingstone, Nesta's recommendations were given a boost by a high profile speech by Google chief executive Eric Schmidt in 2011. A subsequent lobbying campaign led by Nesta

with support from Microsoft and Google finally led to the scrapping of the school subject ICT in 2014 and its replacement with computing in the English National Curriculum.

In the intervening period, the [Hour of Code](#) campaign was set up in the US by Silicon Valley venture capitalists, Nesta established its [Make Things Do Stuff](#) campaign to promote digital making in the UK, and the UK government launched [Year of Code](#), led by venture capital firm Index Ventures.

The computing curriculum has become a government-approved market opportunity for diverse corporate and startup providers, supported by digital entrepreneurs, think tanks and venture capital firms

Successful coding and making initiatives have spread around the world. The online [Codecademy](#) has provided free tutorials to over 20 million users worldwide, and a [Computer Science for All](#) initiative has been set up in New York with over \$80million funding from private and governmental sources. The UK's [Code Club](#) has placed volunteer programmers in over 4000 primary schools, helped by partnerships with Nesta, the government Cabinet Office, Google and Samsung.



Commercial companies including Microsoft and Google are also now providing classroom resources and training materials for teachers to support the new UK computing subject. And finally, the BBC is distributing a million [micro:bit](#) devices to support school children to write code.

The computing curriculum has become a government-approved market opportunity for diverse corporate, public sector and startup providers, brokered by digital entrepreneurs, think tanks and venture capital firms.

DIGITAL LABOUR

Programming and making have been established by promoters as the key to the digital economy.

Nesta's lobbying campaign was driven by the concerns of the creative industries and governmental priorities for economic growth. Its figurehead, the videogames entrepreneur Ian Livingstone, has announced he is establishing two new academy schools to focus on the creative application of digital technologies.

The learning to code movement is transforming young people into entrepreneurial digital workers, and schools into startup technology hubs

The [Livingstone Academies](#) aim to specialize in computing skills, featuring specialist design studios and on-site business hubs for start-up technology businesses.

Young computer programmers and digital makers are being positioned as the digital labour of the future. They are being trained in ways of working, thinking and production that will enable them to contribute to economic development, with schools transformed into hubs for new startup technology businesses.

DIGITAL CITIZENSHIP

Learning to code and digital making are becoming valued as new qualities of citizenship. The [Future Makers](#) project in Glasgow, run by programming initiative CoderDojo, has aimed to provide young people with the digital skills to participate actively in the city's new smart services.

By learning how to code, young people are taught to be responsible citizens who might voluntarily participate in the co-production of people-powered, digital public services

Nesta has promoted the idea that young coders and digital makers can participate in the development of new 'civic apps' and other digital services to improve people's lives. In Nesta's view, learning to code and digital making are part of both a talent pipeline for digital industry, and key to new forms of participatory citizenship and 'people-powered public services.'

These initiatives propose that knowing how to code will enable young people to become responsible citizens. They are being taught to see their role not just as consumers of government services but as co-producers who might voluntarily offer their technical skills to the development of new digital public services.

The learning to code and digital making movement has become part of government aspirations concerned both with economic growth, and with the digital transformation of the relationship between government itself and its citizens. Through the efforts of digital entrepreneurs, think tanks and their relationships with industry, learning to code and digital making have moved from the margins to the mainstream of [education policy](#) and practice.