

Next Gen. Next Steps.

2011

The *Next Gen.* report shows that the education system is failing to produce the kind of talent being demanded by the UK's £2 billion video games industry, as well as the visual effects sector.

2012

One year on, Michael Gove announces at the Bett conference a consultation to disapply the dull and insufficiently demanding ICT curriculum, and a drive to encourage more creative and rigorous computer science teaching at schools.

2013

Increasingly popular digital making and doing initiatives can help the education system meet the needs of our high-tech creative industries.

In 2011, Nesta published *Next Gen. Transforming the UK into the world's leading talent hub for the video games and visual effects industries*. Led by Ian Livingstone and Alex Hope, this review served as a wake-up call to our failure to recognise computer science as essential knowledge for young people – and the resulting economic risks this poses for UK digital creative industries.

The tipping point

Until the recent reforms undertaken by the Department for Education, little or no computer science or programming was taught at GCSE. A poor curriculum and little or no career articulation meant that we were not offering students the opportunity to learn the principles behind the industries which are driving so much new growth – including visual effects and the video gaming industries. This has also manifested itself in the teaching profession: according to the Department for Education two-thirds of teachers are judged not to have sufficient qualifications to teach even the outmoded ICT curriculum.

Getting with the programme

Only two years after being published, *Next Gen.* has influenced policy, rallied industry and galvanized educators to improve computer science teaching.

In 2012, the Department for Education announced the disapplication of ICT programmes of study in favour of a more rigorous computer science offering. It also launched industry-backed scholarships to encourage graduates to train to become computer science teachers and a Network of Excellence, linked with university departments for the first time, to disseminate the best teaching to schools.

At the same time, key players across the digital creative and education sectors have aligned to form the Next Gen. Skills campaign to improve the supply of those computer programming skills so needed for the future growth of the UK's economy. Next Gen. Skills is an alliance between the biggest names from the UK digital, creative and high-tech industries and the UK's leading skills and educational bodies.

Working with major examination bodies and organisations such as the British Computer Society and the Royal Academy of Engineering, as well as high-tech companies like Google and Microsoft, a new programme of study is in the pipeline: bringing a revised curriculum that ensures computer science is at the heart of computing in schools at every level. This includes a review of GCSEs as well as the case for computer science's inclusion in the English Baccalaureate.

Code, make, share

As programming and computing skills have become more recognised and valued over the last two years, the number of opportunities to take part in practical informal learning activities around making apps, games, gadgets and websites has arguably increased – see example case studies below. With a quiet explosion of cross-curricular school programmes, after school clubs and online products, we have seen the rise of the 'digital maker' – young people using computing skills in creative ways to make and share products they care about. Digital makers are creators, not just consumers of digital technologies.

To encourage and enable a generation of young people to realise their 'digital making' potential, Nesta has teamed up with the Mozilla Foundation and Nominet Trust to launch the Digital Makers programme. As the activities within the Digital Makers programme are developed – including a consortium, campaign, and open call for funding – Nesta has identified several further recommendations that build upon the imperatives of *Next Gen.*

- Learners should be able to develop and apply computer science and other digital skills across the curriculum, at all key stages;
- The Department for Education and schools should address shortfalls to STEM and creative subjects participation by supporting interdisciplinary learning through making, exploring and/or inquiry which ties in 'real-world' applications;
- The digital industries and professional organisations should increase and diversify the range of opportunities available for learners to build their programming and digital skills in formal and informal educational settings.

Through Digital Makers, Nesta continues to work with its partners to realise these aims and support better digital education across the UK – an aim supported by Next Gen. Skills. Most recently, Nesta's *Decoding Learning* report, launched in November 2012, explored the opportunities that digital technologies afford for learning. This report paints a broad picture, with ample insight to help us build an education system where digital technologies are embedded across the curriculum to enable deeper and more effective learning. This is also explored in Nesta's innovation plan, *Plan I*, emphasising the need to redesign education for a digital age.

The transition from an analogue world to a digital world continues apace.

I'm encouraged by the explosion in interest from all quarters in addressing the UK's huge computer science deficit.

This new mind set will help transform digital users into digital makers.

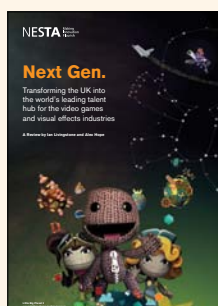
Ian Livingstone

Apps For Good	Mozilla Webmaker	Digital Makers
An award-winning programme from CDI Europe that teaches young people how to build mobile apps to solve real life problems. Over the course of the programme, students work together to identify issues they want to tackle and how best to solve them using mobile and web applications. By the end, they gain an understanding of the technology market, covering product development, design and marketing in a practical way. Currently run in 100 schools across the UK, Apps for Good is supported by tech and business professionals who volunteer their expert skills and mentor students.	Best known for its Firefox web browser, Mozilla has developed Webmaker, a programme which seeks to help people everywhere make, learn and play together using the open building blocks of the web. Webmaker brings together a collection of tools (such as X-Ray Goggles, which help makers see code under webpages and remix them instantly) and projects (like making an animated comic) along with a global community of all ages and skill levels, who connect at meet-ups and hackjams everywhere.	Digital Makers is a new programme that aims to mobilise a generation of young people to create rather than simply consume technology. Launched by Nesta, Mozilla and the Nominet Trust, Digital Makers is made up of a consortium of passionate organisations and individuals and a nationwide youth-focussed campaign. The programme has also launched a fund to support innovators who want to increase young people's participation in digital making.

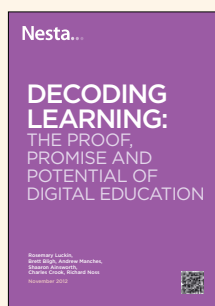
Cracking the system

Next Gen. made a series of recommendations and since publication many have started to be addressed and implemented. Here is the status of three of the top recommendations:

Recommendation	Status
1. Bring computer science into the National Curriculum as an essential discipline.	New ICT curriculum with computing at core promised by 2014.
2. Sign up the best teachers to teach computer science through Initial Teacher Training bursaries and 'Golden Hellos.'	Government and industry support for a new generation of teachers and a Network of Excellence to support them.
3. Include computer science in the English Baccalaureate.	Case for computer science in the E-Bacc under consideration.



Next Gen.



Decoding Learning



Plan I



Download. Enjoy. Use.

Hear more about *Next Gen.*, innovations in education and how to get coding in these sessions at Bett:

Programme or be programmed: Supporting students to learn programming skills Nesta's Digital Makers team	Wednesday 30th January, 13.30 Learn Live Microsoft Theatre (D270)
Education, technology and impact: How can we get fewer failures and more successes? Geoff Mulgan, Nesta	Thursday 31st January, 12.30 Bett Arena
The case for creative computing in schools Ian Livingstone	Friday 1st February, 16.30 Bett Arena

If you would like to be kept up to date about Nesta's education programmes, please email education@nesta.org.uk to join our mailing list.

About Nesta

Nesta is the UK's innovation foundation. We help people and organisations bring great ideas to life. We do this by providing investments and grants and mobilising research, networks and skills.

We are an independent charity and our work is enabled by an endowment from the National Lottery.

www.nesta.org.uk

About Next Gen. Skills

Next Gen. Skills is funded and led by games and interactive entertainment trade body UKIE (including major international companies with UK interests such as Microsoft, Sony, Nintendo, EA, Activision and SEGA, plus leading UK creative development studios such as Blitz Games Studios, PlayGen and The Creative Assembly). Other supporters include Google, TalkTalk, Facebook, the British Screen Advisory Council, Guardian Media Group, the Design Council, Intellect, IPA, British Computer Society, Abertay University, Creative Skillset, GuildHE, e-Skills UK, the Education Foundation, Nesta and UK Screen (representing some of the world's leading visual effects businesses, including Oscar winners Double Negative and Framestore).

www.nextgenskills.com