Cracking the UK Tech Literacy Challenge

Crowdsourcing ideas to help build a culture of tech literacy for the nation
#techliteracy
Introduction – building a culture of tech literacy

Earlier this year, BT launched a long-term commitment to help build a culture of tech literacy for the nation by inspiring kids, enabling teachers and equipping schools.

Our first step was to pick up the baton from government on the Barefoot computing programme – up-skilling primary school teachers as they deliver the computer science curriculum for the first time. 12,000 teachers have been reached so far. As we expand the programme beyond England to the whole of the UK, we will reach over 15,000 teachers and 400,000 kids this academic year. Alongside this we commissioned nationwide research with kids, parents and teachers to understand how they feel about tech today.

Building a culture of tech literacy is a shared challenge. Many others are dedicating effort and imagination to making the UK a more tech-enabled society. So it was important to bring together 90 leading players with insight into the challenges, ideas for solutions and aspirations for the future to explore how we can collaborate on this shared agenda.

This report captures headlines from our research and the thinking generated from the event – bringing perspectives from the worlds of tech, education, policy, business, parenting and youth networks. We hope the big ideas created will be useful to anyone working to crack the UK’s tech literacy challenge.

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Cracking the UK's tech literacy challenge is critically important – both for individuals, and for the UK as a whole.

Today we’re facing a tech paradox. Young people are surrounded by tech from a very early age. On one level they’re incredibly tech savvy – there’s hardly a toddler in the country who doesn’t know how to swipe a smartphone screen. It enables them to feed their curiosity in a thousand ways, instantly and effortlessly.

And yet as they grow up, very few of them are curious to understand how the technology that surrounds them works. They’re passive consumers, not active creators. And it doesn’t have to be like this.

Tech is changing how we work, think, learn; how Governments govern; how communities are built and how news is shared. Employers are also struggling to find people with the tech skills they need. So, how we best harness technology will be among the defining issues of the next decade.

At BT our purpose is to use power of communications to make a better world. That’s only possible if people have the right understanding and skills to make that potential a reality. That’s why it’s our ambition to help the nation build a culture of tech literacy.

We want to inspire kids, enable teachers and equip schools. Our first step has been nationwide research to see the challenge from the perspective of teachers, parents and children, as well a significant commitment to pick up the baton from the Government on the Barefoot computing programme.

But we know that achieving a truly tech literate society will need broader foundations. The bringing together of leading players was an opportunity to develop practical solutions to shared challenges.

The fact that #techliteracy trended on Twitter for over two hours during the event signalled just how much the agenda animates people.

Three thoughts have struck me from the conversations:

1. Moving from tech consumers to tech creators: It’s not enough for kids to be simply skilled in using technology. A tech literate society is one where kids can make and create digitally, just as in a literate society we believe young people should be able to write as well as read.

2. To inspire kids, we need to empower their parents. At the same time that kids are facing calls to grow their understanding of technology, parents are worrying about how much time their kids spend on video games and devices. As parents don’t know ‘how much’ is ‘too much’ and whether what they’re doing is setting them up for life by honing creative problem-solving skills or turning their brains to mush.

3. Tech literacy is a civil society issue, not simply about jobs and skills. Kids are negotiating a ‘new digital world order’ as Baroness Kidron put it, but no one is providing a coherent vision on what they need to know and whose responsibility it is to help them.

This report captures a huge range of ideas for cracking the UK’s tech literacy challenge. We’ll take forward a number of ideas that emerged and partner on shared challenges. By capturing our collective thinking, we hope the report will be of wider value. We welcome you to share it with others and to continue the conversation at #techliteracy.
Foreword – Ed Vaizey

Increasingly, nearly every job has a digital element, which is why tech literacy has never been more important. We want the UK to be at the forefront of a world transformed by technology, with every citizen able to adapt, innovate and make the most of its benefits.

Digital skills underpin growth across the whole economy, enabling new technologies and working practices and increasing productivity. However, the benefits extend beyond economic value. Technology is changing the way we live within our society - and if we embrace it, it can help us to gain new skills and lead more rewarding and enriched lives.

The pace of technological change is an issue which all developed nations are grappling with.

It’s essential that our education and training routes are equipping young people with the tech literacy skills they will need in their lives and careers. More than just nurturing ability, we also need to instil confidence, so that every citizen is inspired about digital and the exciting opportunities it can provide.

Addressing the shortage of digital skills has been and continues to be a priority for this Government. However, as this report sets out, we cannot achieve this alone. It’s vital that Governments work in partnership with business and the third sector, so that together we take action to build a culture that recognises and celebrates the importance of digital skills.

If we can achieve this, I truly believe we have the drive and creativity to succeed in making the UK one of the most tech literate nations in the world.
Cracking the UK’s tech literacy challenge – 10 big crowd sourced ideas

**Tech in Schools**

1. **Make it Relevant, Make it Real** – train teachers to show kids how tech literacy connects with real opportunities in the outside world, and get pupils using classroom tech to tackle the real-world problems they face in their daily lives.

2. **‘Tech Transforming Teaching’ Course** – create a short, modular and accessible Continuing Professional Development course for all teachers, designed to provide ready-to-use, curriculum-relevant content which uses tech to transform lessons and learning outcomes in all subjects. Build into the course activities that recognise the need to involve parents in pupils’ learning – building their confidence and understanding too.

3. **‘Pupil-Parent-Teacher’ Portal** – develop an easy-to-use mobile app or digital platform that enables schools and parents to communicate directly with one another and with their kids, aimed at boosting pupils’ performance and tailoring individual learning support.

4. **Clusters for Tech Excellence** – help schools to understand what good looks like in terms of right access to technology by establishing national minimum standards, supported with independent guidance; and narrow the gaps in school connectivity by harnessing schools with established tech teachers and infrastructure to act as hubs for local networks.

**Tech in Work**

5. **Tech Careers Culture** – bring alive the vast mix of careers that tech knowledge can lead to, for both kids and parents, through a multi-stakeholder campaign, drawing on celebrity role models and a range of media.

6. **Employer-Education Curriculum Coalition** – bring major employers together with educationalists to develop a curriculum that will address the tech demands across all industries and equip young people to seize real opportunities in the future employment market.

7. **Year in Tech** – create a ‘year in tech’ open to all 16 year olds modelled on the ‘year in industry’ for pre-university students. This would be designed in partnership with iconic tech employers and educators and give kids exposure to a variety of entrepreneurial and enterprise-based roles with a tech component at a crucial stage in their educational journey.

**Tech in Life**

8. **‘Young Tech Pioneer of the Year’ Awards** – launch a new awards programme, which complements the curriculum and inspires both girls and boys to see how technology can be used to meet real needs, create a new business, provide a service and solve challenges they care about.

9. **Families Together for Tech Literacy** – develop a fun, practical learning experience for younger children to do together with their parents, aimed at building a shared understanding of the potential for everyday tech to make and create.

10. **Box of Tech Tricks** – following the ‘craft bank’ model, where companies donate materials, deliver a national, industry-led initiative to provide the resources needed for kids to explore, dismantle, fix and rebuild without fear of breaking, designed to reawaken pupils’ natural curiosity through play, trial and error.
Summary and what’s next – Clive Selley

This event started with a bold ambition and a clear brief: to help build a culture of tech literacy by getting it right for the next generation.

Recognising the scale of the vision, experts from the world of tech, education, business and employment were invited to trade thinking and brainstorm solutions to shared challenges with key actors from the world of parenting, government and policy, and youth networks.

This report reflects the start of the conversation and one we wanted to capture and share with all those who contributed. Although each table tackled a different aspect of the UK’s tech literacy challenge, there were six recurring themes.

Concerted effort to make tech literacy a reality. The development of tech skills are too essential to leave to luck and acquiring through osmosis. Society places great emphasis on ensuring young people obtain Maths and English before leaving school, and there was broad agreement that tech skills should receive a similar status.

Creating new language and storytelling. The terms in which kids encounter tech in the classroom are more likely to turn them off than switch them on to the exciting places that learning about it can lead. So we need to build a new way of talking about technology to kids – both the concepts that underpin it and the critical role it plays in society.

Playing to kids’ passion points. To be truly inspired, kids need to see the relevance of tech literacy to the real world: and we can help by creating challenges, projects and competitions that allow them to apply technology to solve problems they really care about. Technology for technology’s sake is a turn-off. Technology to change the world for the better is hugely motivating!

Engaging parents alongside kids. Parents have their kids’ best interests at heart, and have some valid questions about the prominence of technology in kids’ everyday lives. A number of ideas spoke to the power of co-learning. Instead of attempting to blast parents with ‘corrective messaging’ - creating activities that allow them to participate in nurturing kids’ tech literacy.

Investing in teachers. Greater access to technology can enhance learning outcomes across the curriculum, but as recent research has shown, its impact is limited unless teachers have the support and training to be able to get the best from it.

Bringing the outside into schools. Businesses can and should play a bigger role in bringing alive the range of possibilities that technology can lead to – and shape the content of classroom learning to ensure its fit for purpose.

BT will take forward a number of the ideas generated, working in partnership with others as we shape our own contribution to the UK’s tech literacy challenge.

It is my hope that all of us committed to this agenda have found value in coming together for the first time, and now to have made our collective thinking available to others. But this seems too important a conversation to leave here. So we will commit to hosting another event next year to continue this conversation.

In the meantime, we will develop other online channels to continue the collaboration and help build a tech literate nation together. #techliteracy
Working together to build a culture of tech literacy
Crowdsourcing ideas for a more tech literate UK

Jeff Howe and Mark Robinson, editors at Wired Magazine, coined the term “crowdsourcing” in 2005 after observing how tech businesses were using the internet to channel experts’ appetite to solve problems too tough for them to solve alone, in-house.

Over the past decade, crowdsourcing has been widely adopted by organisations far outside Silicon Valley, to tackle all sorts of challenges. Though formats differ, its abiding characteristics have been an open call for contributions, and freely sharing the answer with everyone who contributed.

So harnessing the wisdom of the crowd felt like the right approach to cracking the UK’s tech literacy challenge. Not just because of its origins in the world of tech, but because doing so will require nothing less than a cultural shift – and that means combining the effort and imagination of all the leading players who are already investing and have a stake in the outcome.

This report, therefore, aims to bring together a rich range of expert perspectives on what those solutions could look like – from the UK tech industry and beyond it: the UK education system, government and policy, parenting forums and youth networks. And to capture the very best ideas, we’ve sought to combine the ideas gathered through 10 deep-dive roundtable discussions with insights from proprietary research, online communities, blogs and articles, a delegate survey, and a high level panel discussion.

“The amount of knowledge and talent dispersed among the human race has always outstripped our capacity to harness it. Crowdsourcing corrects that.”

Jeff Howe, Wired magazine

“Earlier this year, BT made a commitment to help build a culture of tech literacy for the nation. We know others are devoting effort to making the UK a more tech-enabled society, so for us it was important to bring together the experts that have the ability to make a difference. Clearly, the appetite to gather round and collaborate on cracking these big questions struck a nerve as the calibre of people that chose to engage demonstrated.”

Liz Williams, Director of Tech Literacy, BT
Inputs to our crowdsourcing event

Nationwide research
BT research on how kids, teachers, and parents think, feel and act in relation to tech provided key insights into the challenge and helped shape big questions for crowdsourcing ideas.

Expert survey
Delegates completed a pre event poll, helping shape the crowdsourcing and ideas at the event. Topics included: how well they’d rate UK on tech literacy compared to other countries, why they felt it mattered and who they thought was responsible for driving solutions.

Digital conversations
Blogs by Minister for Culture Ed Vaizey, Tech Partnership CEO Karen Price and Guardian Sustainable Business generated ideas before the event. Twitter brought together input from inside and beyond the room – with #techliteracy trending for over two hours and being seen 7m times.

Expert panel
Clare Balding hosted a panel of experts representing six different perspectives on the UK’s tech literacy challenge.

Crowdsourcing event

Working groups
Deep-dive discussions tackled 10 big questions spanning the role of tech in school, tech in work and tech in culture. Tables were hosted by a mix of BT senior leaders from across the business and key external experts on issues around tech literacy.
Different faces of the tech literacy challenge

Different perspectives were represented in the room, including in a headline panel discussion hosted by Clare Balding. They discussed the importance of tech literacy and where efforts need to be focused.

Tech and education

Ian Livingstone CBE, Founder of the Livingstone Foundation

“Computer science is the new Latin. It underpins the digital world just as Latin did in the analogue world. Computational thinking is essential for digital citizens of the 21st century. We need to give kids creative digital-making skills – to help them move from being consumers to creators; from being in the passenger seat to the driving seat of technology.”

Parents

Justine Roberts, CEO and founder of Mumsnet

“Digital technologies have transformed family life and parenting. Kids are keen to spend as much time as they can playing video games like Minecraft – and as a parent, I don’t know if it’s the new Lego or dulling my kids’ minds. We need to empower parents: to know what their kids are spending their time doing online, to know how much time online is too much, and to give them the controls to manage this.”

Media and culture

Spencer Kelly, Tech journalist and TV presenter

“One of the most important enablers of tech literacy is its portrayal in the media. It’s important that we don’t just highlight the bad side of tech. This kind of reporting leads to people being afraid of it, and I’d like a media that is itself more tech literate, so it can understand and communicate the positives too.”
Different faces of the tech literacy challenge

**Civil society**
Baroness Beeban Kidron, Founder of iRights

“We’ve spent a couple millennia working out how to treat kids offline. We now need to ensure that the same values are applied online. The challenge, at the moment, is we have this ludicrous circle: kids are saying ‘what can we do online?’ Government is saying it’s up to parents. Parents are saying it’s up to government. And teachers are saying it’s up to parents. This is why tech literacy is about culture, not just jobs, skills and the economy.”

**Youth and enterprise**
Jordan Casey, Founder of TeachWare and KidsCode

“As a young person, my advice would be to make it fun. Make tech relevant. Make it collaborative not something you do in a quiet corner on your own.”

**Tech and business**
Gavin Patterson, BT Group CEO

“Technology today is ‘abstract’ in ways it never has been before. Most of it comes in sealed black boxes, or lives in the Cloud. Even the most curious find it much harder to take a screwdriver to that – to see how it works. We need to re-kindle that curiosity, and create opportunities for experimentation. Then we’ll be well on the way to tech literacy.”
The idea of tech literacy

Tech literacy is the ability to access and use everyday technology, be confident with the fundamentals of how it works, and embrace its impact in shaping society.

Through the discussion, a broad, multifaceted notion of tech literacy emerged as an issue that matters at the level of individuals, the economy and for society as a whole.

“Tech literacy is about how to become a creator not a consumer of tech: about how data is used; about how to negotiate emotionally complex situations generated by life online.”
Baroness Beeban Kidron, iRights

“Tech literacy is about creating digitally confident and capable citizens.”
Dr Tom Crick, Cardiff Metropolitan University

“Tech Skills are too important to assume people will pick them up by osmosis. Our education system should give tech the same status as English or Maths.”
Liz Williams, BT

“The confidence and knowledge to make things and solve problems with digital technologies.”
Philip Colligan, Raspberry Pi Foundation

“It’s the ability to make and create with technology. not just consume it.”
Sylvia Lowe, Nesta

“Being tech literate is about being able to understand the big ideas behind technology and people being capable of using technology to improve their life chances.”
Bill Mitchell, BCS

“Preparing everyone to fulfil their potential personally and in the workplace. Tech literacy is essential in every career.”
Paul Fletcher, BCS

“Cookery is a good analogy with tech literacy. We get kids to understand cooking and nutrition because they need to have it as an essential skill – not because we need everyone to go on to be a chef!”
Miles Berry, Roehampton University
The idea of tech literacy

Tech literacy is an idea which connects up hotspots, challenges and opportunities relating to the role of tech in society. People described a variety of areas that tech literacy should be seen to encompass.
A culture of tech literacy

A vision emerged of what, at a cultural level, a more tech literate UK could look like.

“Everyone would have a basic understanding of tech, just as they have a grasp of the 3Rs.”

Tech literacy is seen to be as important as learning to read and write.

“People would understand the pervasiveness of tech and the way it can solve big human problems – that it is purposeful and useful.”

Technology is used to develop new solutions to some of society’s biggest challenges.

“100% of families would have access to technology. This should be a right.”

No one is left behind by lack of access to technology and the connectivity that it enables.

The way technology underpins every aspect of life is widely understood.

Everyone has a basic understanding of the big ideas and concepts behind how technology works and about the way technology shapes society.

Technology makes society closer, fairer and less unequal.

Everyone can stay safe online and knows how to protect their data.

“It’s a nation where technology enables social mobility.”

Society has the right structures in place to ensure everyone becomes tech literate – it’s not just left to luck.

“Everyone needs to have basic tech literacy – so it’s too important to assume people will pick these skills up by osmosis.”

A tech literate 10 year old would be a ‘creator’ not just consumer of technology – they’d be able to use computational thinking to solve problems.

“Kids are able to negotiate a new digital landscape and be safe, active, fully capable digital citizens.”

Everyone has the basic skills to meet the tech demands of future jobs – whether they’re ‘tech jobs’ or not.

“Technology is used to develop new solutions to some of society’s biggest challenges.”

The way technology underpins every aspect of life is widely understood.

“Everyone has a basic understanding of the big ideas and concepts behind how technology works and about the way technology shapes society.”

Kids are able to negotiate a new digital landscape and be safe, active, fully capable digital citizens.

“Everyone has tech literacy in the UK is not just about creating more specialists to fill jobs in the tech sector, it’s about creating a culture that’s tech savvy, tech enabled and able to compete in the global economy.”

Power by technology, entrepreneurs and businesses can compete more effectively in a global economy.

“A tech literate 10 year old would be a ‘creator’ not just consumer of technology – they’d be able to use computational thinking to solve problems.”

Young people can create, not simply consume technology.

“Tech literacy in the UK is not just about creating more specialists to fill jobs in the tech sector, it’s about creating a culture that’s tech savvy, tech enabled and able to compete in the global economy.”

“Everyone can stay safe online and knows how to protect their data.”

“Everyone needs to have basic tech literacy – so it’s too important to assume people will pick these skills up by osmosis.”

“Everyone has a basic understanding of the big ideas and concepts behind how technology works and about the way technology shapes society.”
In summing up what’s needed of the new culture, one participant drew a parallel with society’s relationship with music:

“Music is a great analogy for a tech literate culture. Everyone is exposed to music, whether they love or hate it; everyone will engage to a level they want to; some will pursue careers, and those careers can reach different levels of success. Society can relate to music, its worth, value and what it offers. We need to do the same with tech.”

How important is tech literacy for the UK?

Over half of our delegates took part in a poll ahead of the event. This offered a valuable snapshot of how experts think and feel about where the nation currently is on tech literacy. Startlingly, these results show the extent to which people think that we’ve got a long way to go to create a tech literate UK.

What our delegates said:

Out of 10, how important is tech literacy for the UK?

9

Out of 10, how well do you think the UK is doing?

5
Thinking about the tech literacy challenge as a whole, we asked our experts to consider five key actors – and to rate how much responsibility each has in building a culture of tech literacy, compared to what each is currently contributing.
Starting with the next generation
Getting tech literacy right means starting with the next generation

Helping to build a culture of tech literacy for the nation is a big ambition.

Our efforts are focused on a critical starting point: getting it right for the next generation.

That’s because we can’t hope to create a more tech literate society unless the next generation grow up tech literate: confident with the fundamentals of technology and able to embrace its impact in shaping society.

To understand what it will take to help make a generation of kids more tech literate, BT commissioned, nationwide research from kids research specialists The Pineapple Lounge. The study focused on kids and those who influence them the most – their parents and teachers.

“Algorithm just SOUNDS boring”
Boy, 12, Cardiff

“What is ‘computational thinking.’ stuff like that just sounds dull and complicated”
Girl, 12, Manchester

“My mum just doesn’t get it, it’s easier to not talk about what I do in ICT than spend hours explaining it”
Girl, 14, Birmingham

“I’d like to take devices apart and see how they work... Why isn’t it more like science?”
Girl, 14, Birmingham

“Yeah I’m the expert in my house, my mum knows nothing... yeah I will go to her if my Xbox breaks or my iPhone freezes though”
Boy, 7, Manchester

“I just spend a lot of time in my ICT lessons waiting for the teacher to get round to me so I can ask her a question... sometimes that can be the whole lesson”
Boy, 12, Wales

“In year 7 I wanted to know how a phone works so I got my phone and started programming. My friends couldn’t understand why I would do this, but to me I enjoy it. I don’t just want to be the person who uses it, I want to be somebody that creates it for all of us”
Boy, 14, Glasgow
What kids think about tech

The research with kids, parents and teachers revealed five headline insights into the barriers and opportunities to inspiring the next generation with tech literacy. These insights helped inform the questions that our experts tackled through the crowdsourcing discussions.

Mixed messages: kids are getting conflicting messages about their use of technology
- Parents are encouraging kids to limit the time they spend using tech
- Teachers are telling kids they need to know how to code
- Brands are showing off their products, but not their industry

Device paradox: the slicker tech gets, the more it erodes kids’ curiosity of how it works
- Older, analogue devices used to require more human interaction and ‘tinkering’
- Slick ‘one button for all’ devices are so easy to use that they render the tech that powers it ‘invisible’

Language barrier: dull, complex language is a turn off for everyone
- Many kids don’t see the world of tech as dynamic and exciting – because the words that describe it are just so dull
- Reactions to hearing the associated words – like coding, programming, algorithms – are boredom, alienation and ‘nerdy’ from a child and parent perspective

Decoding tech: too much focus on coding and programming
- Coding is seen as hard, especially for younger kids, jarring with their perception of how good they are with tech
- Teachers find the sound of it scary, removed from what they consider to be important or relevant
- Parents think computer science means coding and not related to exciting careers for their children

More human: all kids get excited about tech when they see its application in the real world
- Kids want to learn about technology when it’s centred around human needs – making life easier, solving societal problems in the real world
- Girls, on the whole, respond especially well to this potential for ‘real-world impact’
Experts’ views on young people’s tech literacy today

Proportion of delegates who agree with the following statements:

- Young people lack skills to create even the most basic technology (website, apps, software): 90%
- Tech knowledge would give young people a competitive advantage: 90%
- Young people lag behind world’s most technologically advanced nations: 75%
- Tech skills key to ensuring kids can protect their data, stay safe online: 70%
- Kids will be left behind in a tech-enabled society and become disempowered: 75%

4

Average number of countries delegates think are ahead of UK in being tech literate (the most frequently cited were South Korea, Singapore, India and China)
Focusing on three areas

- School
- Work
- Life
Three focus areas for building a culture of tech literacy

There are three spaces to play to help build a culture of tech literacy for the next generation. Our national research identified priority issues in each of the three areas. These led to the following 10 big questions.

**Tech in school**
How computing lessons, together with the access to and use of tech across the school, can inspire kids with the confidence and understanding to become truly tech literate.

1. How do we help teachers to bring alive the real world relevance of classroom computing for kids?
2. How can tech be an enabler to more effective teaching and learning beyond computing lessons?
3. Over and above classroom teaching, how can technology be applied to schools to improve school life?
4. How do we help schools to access the right technology and the support they need to get the best from it?

**Tech in work**
How kids can be excited by the role of tech in future careers, and the economy can benefit from a skilled and empowered workforce.

5. How do we show parents and kids that tech is relevant to all careers?
6. How can employers play a role in ensuring the future workforce has the right tech competencies?
7. How do we build a pipeline of tech literate young people to put the UK in the vanguard of the digital economy?

**Tech in life**
How the messages and behaviours of our society when it comes to tech can reinforce the importance and excitement that tech holds for the next generation.

8. How do we inspire girls to embrace tech and digital skills and sustain their engagement as they grow up?
9. How do we help parents to see that developing tech skills is as valuable for kids as numeracy and literacy?
10. How do we inspire curiosity among kids about how the technology around them actually works?
UK’s progress on tech in school, work and life

Our experts scored how well the UK was doing against each of these questions. The score represents the average ranking they gave.

Only one topic – bringing alive the real-world relevance of classroom computing – scored above the half-way mark of 5 (though BT’s own school research found pupils were much less positive). Meanwhile, the areas focused on involving and engaging parents stood out as particular challenges.

How the UK is doing out of 10:

1. Making the relevance of classroom computer science obvious and exciting for kids
2. Using tech to make all lessons in the curriculum better and more interesting
3. Harnessing new technologies to enhance school life beyond the classroom
4. Helping schools access the right technology and the support they need to get the best from it
5. Helping parents to see how tech skills give kids access to exciting future careers
6. Employers helping to ensure the future workforce has the right tech competencies
7. Building a pipeline of tech specialists to make the UK a leader in the digital economy
8. Inspiring girls to embrace tech and digital skills
9. Helping parents to see tech skills is as valuable for kids as numeracy and literacy
10. Inspiring curiosity among kids about how everyday technology actually works
Crowdsourcing ideas on the 10 big questions

At the event, we made cracking these issues the focus of the crowdsourcing – and the guiding topics for the deep-dive roundtable discussions:

- Each table was given a specific problem
- Tables brought together technologists, educationalists, policymakers, parenting experts, industry influencers
- During one hour of intense creative problem-solving, they were asked to brainstorm a handful of tangible solutions
- Conversations were carefully structured and hosted by senior leaders in BT and independent topic experts
- Table hosts reported back their solutions to the auditorium
Tech in school
Tech in school

The challenge

Last year marked the beginning of a transformation across the UK school system, as England became the first country in the OECD to put computing on the curriculum and to teach kids as young as 5 years old to code. These skills are an important part of the answer to how the UK will prepare the next generations for work and life after school – but they’re not the complete solution.

BT’s research suggests that kids don’t understand how the tech skills they’re taught in computing class will help them in their ‘real’ life, or how tech skills are relevant to achieving their ambitions. At the same time, many teachers don’t feel confident about teaching the new curriculum because they lack tech skills themselves, have limited knowledge about industry, often aren’t equipped with modern devices, and can feel students have the upper hand in using tech devices. The result is that many kids aren’t fully engaged, and aren’t acquiring the tech skills and confidence they’ll need for the future.

The facts

- 75% of primary school teachers felt unconfident and underprepared to teach the new computing syllabus (UK Digital Skills Taskforce, 2014)
- 54% of secondary teachers believe their students know more about ICT and computing than they do (MyKindaCrowd survey for Computer Weekly, 2014)
- 71% of 5-15 year-olds have a tablet computer at home, so schools are often behind homes in the tech devices on offer to kids (Ofcom, October 2014)
- Inconsistent access to tech and variable levels of connectivity
- No national minimum school standards for what ‘good’ looks like on connectivity and access to tech

The questions

Our expert roundtable participants were invited to consider the following questions, with a particular focus on how business, civil society, the education system and government can work together to create meaningful solutions:

1. How do we help teachers to bring alive the real world relevance of classroom computing for kids?
2. How can tech be an enabler to more effective teaching and learning beyond computing lessons?
3. Over and above classroom teaching, how can technology be applied to schools to improve school life?
4. How do we help schools to access the right technology and the support they need to get the best from it?
Tech in school – 1. Making it relevant to the real world

Summary

Three themes emerged from our discussion:

Getting the language right
Helping kids to see the relevance of classroom computing has to start with the language we use to describe it. Often, techie terms obscure links with the real world more than they illuminate them. Collecting a wide range of definitions on what it means to be tech literate could help highlight its relevance in the context of education, the economy and wider society.

Connecting to real world concerns
The table felt careers advice was one way to tackle the ‘relevance question’ – and is still a big problem for many schools – but it could never be the complete answer. Ultimately, we live in a computational world, and so the bigger opportunity is to enable teachers to show kids that tech knowledge is not just about the world of work, but about how the world works today. Our two thoughts on this:

• Start by giving pupils creative opportunities to use computational thinking across the curriculum to help solve the real problems that they care about.
• Enable teachers to show pupils that technology plays a wider societal role: not only nurturing high value digital skills for the economy, but widening participation among excluded groups, promoting democracy through more open government, and helping young people to become more capable citizens in a digital world.

Engaging teachers: WIIFM
Teachers are time-poor and constantly juggling competing priorities. So building greater engagement around the computing curriculum, the table felt, has to start with WIIFM – What’s in it for me? We identified three aspects to this:

• Ready to use resources that enable teachers to make links between elements of the new computing curriculum and other subjects. These would help pupils to apply “theoretical wonders”, such as computational thinking, to the world we live in, such as making sense of processes in nature, artificial intelligence, and automation.
• Rewards that recognise teachers’ efforts. Create real behaviour change by incentivising teachers to make teaching tech a priority. Secure backing from inspection bodies to incorporate in inspection metrics. Find ways to drive bottom-up recognition by the school leadership.
• Role of the next generation of teachers. Working with teacher training colleges to embed tech literacy among future teachers.
How do we help teachers to bring alive the real world relevance of classroom computing for kids?

**Top solutions**

**Find a new language**
Build a new narrative to change public perceptions. This would dramatise why computing is important, using language that people understand.

**Give tech greater status in schools**
Engage with inspection bodies to introduce school inspection changes (top-down policy work) in order to make this important in schools.

**Tap into kids’ passions**
Connect computational thinking with issues kids care about.

**Solve real world problems**
Run a national schools challenge that involves computational thinking in the context of an exciting and relevant real world problem.

“The biggest challenge is to enable teachers to show kids that tech knowledge is not just about the world of work, but about how the world works today.”

Dr Tom Crick
Tech in school – 2. Enabling more effective learning

Summary
Three themes came through during the conversation:

Teaching kids to think critically
Several strands of the discussion pivoted on the idea that tech literacy isn’t just about ‘the tech’ — it’s also about tech thinking: both using tech effectively, and ‘thinking like a computer’ to solve complex problems. That’s relevant to all subjects, and could revolutionise what is taught and how we test. The table believed we will allow the internet into the exam room one day. And this will require a shift where we stop testing content and start testing thinking.

Encouraging learning beyond the classroom
The internet has revolutionised learning — not just beyond computing lessons, but beyond the classroom. As one participant observed, “Children are inquisitive and want to learn. They don’t just learn in school anymore. They can learn via YouTube and we can help by giving kids a framework to do this in – with parental controls.” Another example of this in practice is the Khan Academy which lets young people learn in their own time.

Professional development for teachers
Since tech is already an enabler of learning, investment should be allocated to delivering professional development for teachers — combining greater access to technology with the support and training to get the best from it.

“We will allow the internet into the exam room one day. We’ll have to let it in one day. It will require a shift where we stop testing content and start testing thinking.”

Lord Knight
How can tech be an enabler to more effective teaching and learning beyond computing lessons?

Top solutions

**Medium is the message**
Bring alive for teachers the range of ways schools can use technology to enhance teaching.

**Rebalancing perceptions of tech at school**
Present the positive case for technology as a step towards rebalancing negative perceptions.

**Learn by doing**
Tackle the preconception that tech knowledge is only valuable if you want to pursue a tech career. Show teachers and parents that tech literacy is part of what it means for pupils to have a rounded and relevant education – a building block, like English and Maths.

**Build confidence in parents**
Replace parents’ anxieties about tech with strong positives – it’s not simply enough to tell them not to worry about tech. We need to be proactive in building their confidence and understanding about why what their kids are learning about tech really matters.

**Capacity building for teachers**
Tech is already an enabler for kids’ learning outside of school. To be more effective, we need to invest in professional development for teachers.

“We already think tech is an enabler for teaching. For it to be more effective than it is now, we need to invest in professional development for teachers.”

Danny Longbottom

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**The big idea**

‘Tech Transforming Teaching’ Course
Create a short, modular and accessible Continuing Professional Development course for all teachers, designed to provide ready-to-use, curriculum-relevant content which uses tech to transform lessons and learning outcomes in all subjects. Build into the course activities that recognise the need to involve parents in pupils’ learning – building their confidence and understanding too.
Tech in school – 3. Applying tech to improve school life

Summary

Two big thoughts emerged from our table discussion:

Enhancing educational performance

New technology platforms offer opportunities to tackle underachievement through more real-time, qualitative reporting on children’s performance. This allows for earlier interventions and more targeted support.

- Some examples included: ‘The bubble’ – an open platform that was said to have improved reading and writing attainment by 55% – while another participant cited a school in San Francisco, which is using a data-driven approach to identify underperforming pupils in a particular class, and to change teacher behaviour towards them.

Widening participation in school life among pupils and parents

Technology can be harnessed to make pupils feel empowered at school, engage parents in pupils’ learning, and improve student wellbeing. Some specific suggestions included:

- Empowering young people by reviving student democracy – for instance through creating vibrant online student magazines; allowing kids to vote on specific issues, such as the school council (a controversial idea included ‘rate my teacher’); and facilitating volunteering. City Year’s ‘Step up to Serve’ initiative was cited as one example where tech is being harnessed to stimulate positive student activism.

- Engaging parents – an online parent’s portal could enable parents to see more of their kids’ work online and support their progress. An example of this is ‘Firefly’, a learning platform and parent portal created by two school friends from London, which allows students and teachers to organise their homework, and create and access resources from anywhere.

- Improving wellbeing – for example, creating an app for kids, parents and teachers that could help tackle issues around mental and physical health at school.

Overall, the biggest issue the table felt needed to be addressed was about “equity”: there are great examples out there of technology closing gaps in educational attainment, and involving parents in pupils’ learning – but they aren’t consistently available, there is little consensus around what ‘good’ looks like, and how to access the right solutions at an affordable price.
Over and above classroom teaching, how can technology be applied in schools to improve school life?

Top solutions

**Parent-pupil-teacher portals**
There are a number of apps and digital platforms out there that help to bring pupils, parents and teachers closer together – enabling parents to follow and support their child’s progress and make communication between teachers/school and parents easier. Build awareness of these solutions among schools and create greater consistency with guidance on what ‘good’ looks like.

**Tech awards for teachers**
Teachers could be incentivised to harness tech in and beyond the classroom by creating a new prize – for example, top tech teachers, or the best new apps, systems or initiatives. This could be a teacher equivalent of BT Young Scientist model in Ireland.

**Engage school leaders, unblock bureaucracy**
Remove barriers to creating a school-wide culture change that could enable the most technologically savvy teachers to expand their work by engaging teacher leadership and removing bureaucracy and process.

"Technology can boost kids’ and parents’ ability and desire to participate in school life. Whether that might be reviving a sense of school democracy through digital voting mechanics or new apps that make it easier for parents to their child’s progress. We need to show all schools how they can exploit available technologies to improve engagement with pupils and parents – ultimately lifting learning outcomes and kids’ well-being."

Lisa Harrington
Tech in school – 4. Helping school access the right tech and support

Johnny McQuoid
Managing Director, Customer Service, Openreach

On table 4, we discussed the question: How do we help schools to access the right technology and support they need to get the best from it?

Summary
We focused on the challenge of providing ubiquitous connectivity and six themes bubbled up from our conversation:

A non-negotiable
Until you get connectivity into the classroom, we will struggle to crack tech literacy – it’s the precondition for teachers to be able to teach tech.

A clear vision for ‘good’
What ‘good’ looks like for connected schools requires definition – you’d be pushed to find a coherent vision, and without this, there’s a risk that schools could be placing their focus and budgets in the wrong places. We need to establish minimum national standards and provide independent guidance.

Training teachers
But it’s not just about the technology – we need to invest in CPD for teachers to enable them to get the best out of technology.

Tech brings advantages for all subjects
And it’s not just about teaching tech or computing – access to technology can enhance learning outcomes in other subjects, such as improving basic literacy.

Clustering schools
School clusters could be used to share infrastructure between schools with limited access or resources.

Bring your own device
Kids – even in disadvantaged areas – often have devices that are much more up to date than what they find at school – with the right technical infrastructure, could there be a way to allow kids to bring their own tech into the classroom?
How do we help schools to access the right technology and support they need to get the best from it?

Top solutions

**Map the gap**
Close the connectivity gaps that make teaching tech a struggle, by understanding where they are through clear data analysis.

**Define what 'good' looks like for access to tech**
Define what national minimum standards are required for tech and connectivity to effectively teach the curriculum. Develop independent guidance that makes the options easy and accessible for schools.

**Bring your own device**
Creating the right technical infrastructure to enable kids to bring in their own devices, rather than having to rely on old clunky software and hardware.

**Tech-based CPD for teachers**
Relevant professional development for teachers as they train to teach and through experience in the workplace.

**Sharing out infrastructure**
Harness school clusters as platforms to 'share out' access to infrastructure and the best facilities with neighbouring schools. Similarly, utilise local business infrastructure for the benefit of the schools.

“Helping teachers to understand and effectively use technology could massively enhance learning outcomes while saving schools time and money.”

Johnny McQuoid
Tech in work
Tech in work

The challenge
Tech skills are an essential part of the modern workplace. Yet a gap is opening up between employers’ needs and skills availability. Young people are familiar with using technology, but they often lack the ability to create – and don’t always understand the full range of career prospects associated with tech skills. At the same time, there are no common attainment standards for young people that enable employers to recognise levels of ability.

This is a pressing problem with many dimensions – including parents’ misconceptions of tech careers, a tech industry that sometimes struggles to display its character beyond its products, and issues around connecting classroom learning with tangible opportunities in the world of work.

The facts
- The UK generates more GDP from the internet than any other country (Boston Consulting Group)
- The nation’s tech economy could grow by £12bn and generate 46,000 new jobs in the next ten years (Oxford Economics, 2014)
- The sector will require nearly 300,000 recruits at higher skills levels by 2020 but nearly 20% of vacancies are already difficult to fill due to skills shortages (CBI, 2014)
- And only 4% of 15 year-olds want careers in engineering and computing (OECD, 2012)

The questions
Our expert roundtable participants were invited to consider the following questions, with a particular focus on how business, civil society, the education system and government can work together to create meaningful solutions:

5 How do we show parents and kids that tech is relevant to all careers?
6 How can employers play a role in ensuring the future workforce has the right tech competencies?
7 How do we build a pipeline of tech literate young people to put the UK in the vanguard of the digital economy?
Tech in work – 5. Changing parents’ attitudes to tech careers

Summary

Our table concluded that we need to get a simple message out: tech is now pervading all careers, not just tech careers – if you’re a doctor, you may need to know about biotech; if you’re a delivery driver, you’ll be using tech to make sure you arrive on time.

So the question is: how do you get people to see those career stories? We had three overarching thoughts on this:

Open parents’ minds to potential career paths
The careers that kids are likely to take in the future are not necessarily ones that parents are likely to know about. An understanding of tech underpins many of these roles, and will broaden and enhance their career options. Showcasing tech in the context of exciting, cool, sexy industries like the creative sector or elite sport could play a role here – for example, how data analytics are powering sport performance (from football to the Tour de France).

Get people out there to schools
We need to mobilise people with whom kids have a natural affinity to talk about what they’re doing. For example, deploying young apprentices as ambassadors. As well as face-to-face opportunities, we could also use technology to beam in aspirational role models – extending the reach and impact.

Schools need to reflect new realities
Schools subliminally encourage kids to think of tech as separate to, rather than an integral part of, modern life by confining technology to the ICT suite and placing an emphasis on work generated by hand.

On table 5, we discussed the question: How do we show parents and kids that tech is relevant to all careers?
How do we show parents and kids that tech is relevant to all careers?

Top solutions

Creative career stories
Select a broader range of career stories to showcase the role of tech in all careers today – and think imaginatively about how we bring them to life (e.g. through creative content and innovative tech platforms).

School to reflect real life
Demonstrate how tech pervades every aspect of work by encouraging schools and teachers to embed the use of tech into every aspect of school (homework, coursework and exams), so that tech skills become second nature to all pupils – helping them to ‘think’ with tech.

Bring parents into the tent
Run tech clubs that are inter or intra-generational to stimulate co-learning and reduce the fear of parents about what is required to use code or other computer languages.

“Tech is pervading all careers now. It’s not just about tech careers per se. We have to get people to see those career stories.”

Liz Williams

The big idea

Tech Careers Culture
Bring alive the vast mix of careers that tech knowledge can lead to, for both kids and parents, through a multi-stakeholder campaign, drawing on celebrity role models and a range of media.
Tech in work – 6. Involving employers in skills development

Summary

As a guiding principle, our table believed it was important to understand which skills will be in demand in the future – and employers could play a vital role in helping to define that. It was felt that the tech skills needed, fall into two core categories:

- Basic tech literacy – which no pupil should leave school without
- Specialist tech skills such as big data, use of tech for creative and complex problem solving

Employers could also do more to help young people grasp how tech knowledge can lead to careers in all sorts of areas. Getting companies to talk about their digital needs would help.

Alongside building future tech capacity, the table pointed out that cohorts that have somehow missed out on digital skills also need upskilling – as with digital traineeships for school leavers. As one participant put it: “The only thing that currently has currency is old-fashioned qualifications.” So could similar programmes for older people or people already in the workforce be developed? Could companies run their own tests, and provide conversion courses for non-tech people.

The final area we explored was reaching parents – which was agreed to be very important. It was felt that businesses should use every channel available to reach them, including customer channels and schools partnerships – while not forgetting to harness their own employees.

“Businesses should help design the curriculum and appropriate qualifications to make sure they are relevant and robust for the economy kids will enter.”

Karen Price
How can employers play a role in ensuring the future workforce has the right tech competencies?

**Top solutions**

**Modular, easily updatable qualifications**
All companies should work closely with educators to design a fit for purpose curriculum. This would be modular, enabling the education system to keep pace with the evolving demands of employers.

**Business needs to educate teachers on the changing workplace**
Most teachers lack experience of business and so understandably find it hard to imagine what work-specific skills are now essential. Offering programmes like teacher / workplace shadowing during summer holidays could help teachers to stay up to date with changing technology.

**Bring the outside world into schools, earlier**
Expose kids to the world of work earlier in the education system – for example, at primary school – before they rule out career options. Get schools out to exciting workplaces and bring exciting people working in various tech contexts into schools.

**Creative resources for schools by employers**
Real life, project-based resources that include engaging challenges and problems to solve. They should be relevant to the curriculum, include a clear link to the real world and be cross-curricular – bringing together a range of subject disciplines.

**A single, digital employer-school platform**
Employers want to support schools, but schools are not always set up to work with business and there can be a culture clash and mutual incomprehension. A platform could support interaction between schools and employers. Schools could have a named Business Coordinator to help.

**A “UCAS for work experience”**
This would enable students, schools and businesses to line up their requirements and make the most of workplace opportunities.
Tech in work – 7. Building a skills pipeline for a digital economy

Summary
This is a huge question and for our table, there is no single solution; it’s about the continuum. Five themes emerged in our conversation:

Blurring of school and work
Get employers into school (creative initiatives); get kids into employers (work experience). This would help young people to understand and be inspired by the kinds of jobs they can go on to do with tech. Employers, too, would have the opportunity to support and encourage young people, to build the tech skills they know their business needs to thrive in the future.

Special focus on 14–16 year olds
Building a pipeline of tech specialists requires the UK to ‘pull through’ bright kids from an early age – especially when they’re selecting subjects for further study. But 16 year olds, our table felt, were particularly important – and giving them first-hand experience could act as a powerful incentive to pursue careers in tech. One popular idea was to create a “year in tech” for 16 year olds – following the model of the Duke of Edinburgh Awards which conventionally is for pre-university students.

Changing parent attitudes to the apprentice model
Learning out there in industry is vital. We felt the UK needs a richer vocational offer. Specialist tech apprentices could be a key part of the solution, but we suspect many parents didn’t get apprenticeships. Parents who have been to university typically push kids towards Higher Education. Could we integrate apprenticeships with sixth form more effectively?

Promoting a culture of tech enterprise
Some of the most impressive tech innovations are coming out of the creative sector. We talked about how we could harness that entrepreneurial spirit around tech in other sectors.

Our table saw synergies between these ideas: exposure to potential careers helps build inspiration
Kids need inspiration to want to build tech skills in school. Then they need opportunities and encouragement to explore tech jobs (apprenticeships), and they need opportunities to build tech skills at work and independently. This might be professional development at work or a course akin to open university.
How do we build a pipeline of tech literate young people to put the UK in the vanguard of the digital economy?

Top solutions

**Tech apprentices**
Provide more kids the opportunity to experience tech in the workplace. We need more apprenticeship opportunities and more encouragement of kids to pursue them in tech jobs.

**Access to entrepreneurs**
Expose kids to start-ups in tech to inspire them to be more entrepreneurially minded, and perhaps follow a tech career path.

**Upskilling existing staff**
Professional development and upskilling in the workplace.

**Online learning**
Open University-type courses for individuals of all ages to build tech skills and tech knowledge.

**Build work into school**
Target one school year (age 16) and build into the curriculum a series of short, sharp apprenticeships in tech jobs.

“It’s about blurring school and work. We need to get employers into schools and kids into employers to build inspiration, give them exposure to potential role models, and an understanding of the kinds of specialist careers people can pursue.”

Andrea Young

**The big idea**

**Year in Tech**

Create an immersive, year-long learning experience for 16 year-olds. Complementing the core curriculum in a similar manner to the Duke of Edinburgh Awards model, the scheme would condense intensive tech skills development, industry placements and extra-curricular activity into an engaging programme for which students could gain extra academic credits.
Tech in life

The challenge

Young people are exposed to a wide range of preconceptions, which can have implications for the uptake of tech skills among already underrepresented groups. Girls’ view of tech is a particular crunch point. Many girls have already discounted themselves from pursuing a career in tech by Year 8, often feeling that it ‘isn’t for them’ or that they ‘can’t do it’. BT’s research also found that coding, which often involves getting things wrong first time, jarred with girls’ natural perfectionist tendencies.

Parents’ attitudes towards tech can also be somewhat conflicted – and studies show they have a greater influence on kids’ career choices than any other factor. Many parents feel nervous about their own abilities with tech, and worry that careers in tech are restrictive or isolating.

At the same time, experts fear that the closed nature of new devices and software has hampered the curiosity that’s needed to become a maker of tech, rather than just a passive consumer.

The facts

- At secondary school only 14% of girls say they would be interested in pursuing a tech-related career (Institution of Engineering and Technology, 2015)
- At A-level, there’s been an 83% drop in the number of girls studying computing over the last 17 years (Office of National Statistics, 2013)
- Women make up less than 16% of the UK tech industry (Mortimer Sprinks, 2014)
- Studies show that increasing the number of women working in information technology could generate an extra £2.6 billion each year (CEBR, 2014)
- Parents often see computing as synonymous with ‘coding’ – which they see as a narrow, anti-social skill with little career value (European Commission, 2015)
- Parents frequently fear the negative implications of tech – including exposure to explicit content and online threats (European Commission, 2015)

The questions

Our expert roundtable participants were invited to consider the following questions, with a particular focus on how business, civil society, the education system and government can work together to create meaningful solutions:

8 How do we inspire girls to embrace tech and digital skills and sustain their engagement as they grow up?

9 How do we help parents to see that developing tech skills is as valuable for kids as numeracy and literacy?

10 How do we inspire curiosity among kids about how the technology around them actually works?
Tech in life – 8. Inspiring girls to get involved

Summary
We were particularly struck by the statistics signalling that we’re going in the wrong direction. To really move the dial, our table felt four things needed to happen:

Four years old, not fourteen years old
In contrast to some of the other opinions aired on the day, our table believed we need to start earlier rather than later – engaging kids when they are 4 years old. By 16, young people have already formed strong views of what they would like not to pursue.

Inspiring girls begins with parents
Parents have a role to play in ‘gendering’ subjects, skills and jobs – it struck our table that this seems as big a challenge as ever. Only 14% of girls say they would be interested in pursuing a tech related career. We need to encourage parents to keep an open mind. Yet this runs deeper than career options - deeply held cultural values shape what options parents consider acceptable. This reinforces the idea of acting culturally to crack the UK’s tech literacy challenge. As was observed on the table: “as an engineer in the US you are admired, in the UK you are not – so we need to shift the culture”.

Changing the terms of the debate
We heard from BT’s research with kids that tech terminology generally turns young people off technology. However, we felt this was a particular problem for girls: coding is not cool. As we think about how to communicate tech literacy, we need to find a language that avoids perpetuating ‘masculine ownership of it’ and plays to the appeal of solving human problems girls’ care about.

Role of role models
One member of the table shared a piece of research indicating that girls worry that tech roles will be isolated, they don’t see them as roles associated with team work. To change this message, we need messengers with whom girls are able to build an affinity – and we need to demonstrate positive experiences that challenge these perceptions.
How do we inspire girls to embrace tech and digital skills and sustain their engagement as they grow up?

Top solutions

**Girls at work**
Take girls into tech businesses, so they can see that there’s lots of interaction and team work going on. Tech needn’t be geeky and stuck in the ICT room.

**Rolling out role models**
We need to recruit and deploy young people to change perceptions among their near-peers. These would be people just a step ahead of the school students, who are aspirational but realistic role models (students don’t know who Bill Gates is). Zoella wouldn’t be where she is today if not for tech.

**Jobs for girls**
Showcase tech careers and careers with tech as a great way to make money and be successful. Challenge pigeon-holing through creative content that shows that tech is embedded in everything.

**Tech mentors**
Build a network of ‘tech ambassadors’ to provide one to one support, listening and guidance to kids and teachers.

**Inspiring teachers**
Teachers provide hugely influential role models for kids, especially during early school years. Incorporating tech into everyday lessons is key. Where schools lack teachers who instinctively ‘get’ tech, schools could arrange for inspiring tech literate teachers from neighbouring schools to take some classes. Or introduce tech role models besides the teachers.

“We’re going in the wrong direction when it comes to engaging girls in tech. We have to go back to early age – get girls before they’re 16. Go to 4 year olds. We need to get parents to be more open minded, help teachers to embrace technology, and give kids role models they have an affinity with.”

Emer Timmons
Tech in life – 9. Helping parents see the value of tech skills

Summary

This question sparked a lot of debate that we didn’t feel was playing out in real world. Four thoughts seemed to bubble up during the course of the conversation:

Make tech less extraordinary

Our culture loves to present the people behind technology as in some way extreme. Techies are today’s ‘mad scientists’ – genius coders like Mark Zuckerberg to whom few kids can relate. If we want every parent to value tech skills, we need to make tech skills carry more everyday value. For example, knowledge that’s relevant to scenarios in the family home.

Tech for life

Related to making tech more ‘ordinary’, we discussed broadening parents’ understanding of what tech literacy encompasses – essential knowledge that kids need to be able to negotiate growing up in a digital world. We could make this easy by setting out key tech skills that kids need at different stages. Several members of the table voiced concerns that parents were worrying about the wrong things. Some anxieties, for example over e-safety, had eclipsed understanding of other the issues, such as data privacy. We need to educate parents on a wider set of relevant issues. Working to shift media coverage of tech stories from the tech and business pages to the lifestyle pages would add to this.

Schools as a catalyst

Schools could be a key channel to reach parents and reinforce the importance of tech learning for their kids. Yet many parents don’t know what their kids are up to at school around tech, and when they do – don’t ask why. Parents will instinctively nurture kids’ interest in tech if they see them enjoying it – so we need to create opportunities for kids to show off what they’ve learned.

Doing as well seeing

The most effective way for parents to see the benefits of kids learning about tech is to learn alongside them. An idea for this would be for schools or others to run competitions and projects that promote fun opportunities for co-making and co-learning.
How do we help parents to see that developing tech skills is as valuable for kids as numeracy and literacy?

Top solutions

**Real heroes**
Role modelling, with particular focus on “real people” not geeks or celebrities, could drive significant change. The idea would be to develop creative content that brings alive how tech has enabled everyday people, in everyday jobs, to achieve their goals and ambitions. Kids could be tasked with asking parents about the role of tech in their jobs.

**Platforms for co-learning**
Develop fun, practical activities for kids and parents to do together. These would be designed to develop and apply a shared understanding of how everyday tech works to make and create things, or address issues kids are likely to face in the digital world.

**Changing the media narrative**
Proactive media campaigns designed to engage lifestyle, family and parenting media around the importance and relevance of developing tech literacy.

**Tech means business**
Bring together a colourful and diverse mix of big businesses to challenge the narrow view that tech skills only lead to careers in programming.

“The stories we encounter about tech in culture tend to focus on the extremes. We need to show how tech is relevant to everyday life. About the ordinary not just the extraordinary.”

Andy Haworth

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**The big idea**

**Families Together for Tech Literacy**
Develop a fun, practical learning experience for younger children to do together with their parents, aimed at building a shared understanding of the potential for everyday tech to make and create.
Tech in life – 10. Inspiring curiosity in how tech works

Summary

The collective view was that there's no shortage of initiatives and resources, either in schools or affiliated with them, that are seeking to inspire kids to be more curious about tech. The real problem is that levels of awareness, availability and utilisation of these resources vary greatly between schools. But it's also about the why: helping kids to see why tech matters, how tech skills allow you to make sense of the world, and to change it.

We concluded that the best way to inspire curiosity is to do two things:

- Create safe, appropriate environments where curiosity is actively encouraged through play, trial and error and access to physical and virtual tech kit – where they can explore how things work without a fear of consequences if things get broken.

- Invite kids to solve problems that they care about and that relate to everyday technology. For example, giving kids permission to make new things from broken old laptops and mobile phones.

“The best way to inspire curiosity is to ask kids to solve problems they care about.”

Clare Sutcliffe
How do we inspire curiosity among kids about how the technology around them actually works?

Top solutions

Building new from old
Provide schools with access to older, broken and unused ‘kit’ (PCs, laptops, other devices) that they can take apart, fix, break and rebuild – this could be modelled on ‘CraftBank’. Kit could be across physical and/or virtual domains including a combination of both. Activities could be used to re-engage the ‘engineer’ curiosity widely perceived to be dormant in the UK.

Digital making venues
Draw inspiration from MakeSpace, a community workshop in Cambridge for making and fixing things, meeting people, working on projects and sharing skills. Introduce ‘MakeSpace’ areas and facilities (physical and/or virtual including a combination of both) across all schools nationally.

Challenge-led learning
Introduce more dynamic and relevant challenges into tech school lessons and activities. Provide the kids with specific, but relevant non-tech problems personal to their geography or profile (e.g. transport, agricultural, environmental) with the challenge of using tech to deliver any number of solutions. Use tech to increase their awareness of its potential to resolve local, national or international problems that have close relevance to the kids.

Competing on connectivity
Get kids to understand the potential data and connectivity unlocks by setting up a local, national, international schools-based competition drawing on the ‘Internet of Things’ model. Let kids’ imagination be the only limitation to the problems they choose to tackle and their solutions they develop.
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Cracking the UK's Tech Literacy Challenge
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