

Raspberry Pi Certified Educators annual survey 2017

Oliver Quinlan

Raspberry Pi Foundation Research
No. 3

Raspberry Pi

code club

CoderDojo

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Foreword

Since 2014, the Raspberry Pi Foundation has worked face to face with more than 1500 educators at Picademy events, supporting them to develop computing and digital making opportunities for young people. In 2017 we've also reached thousands more through our new free online training courses. The community of Raspberry Pi–trained educators keeps growing, with people across Europe, North America, and beyond integrating project-based learning into their work, and sharing their successes. Moreover, in order to help them share with and learn from each other, we launched Hello World, a free magazine for the digital making and computing education community.

Our educator community teaches us a lot about the realities of embedding new ways of learning about technology into schools, museums, youth clubs, and other venues for young people. In summer of 2017 we once again ran our annual survey of Picademy-trained Raspberry Pi Certified Educators (RCEs), with in-depth questions about how they approach digital making in the classroom; the resources, support, and networks they use to enable it; and their views on how young people learn. Their feedback on the quality of our training was hugely positive, and we also learned many things about how we can continue to improve our training and other offerings to support the educators in our network in new ways.

Many of the questions in this survey built on our first RCE survey in 2016, and the results are starting to show us how digital making is developing amongst educators over time. Furthermore, we asked new questions about the types of professional development educators value most, the programming languages they use, and their experiences of and suggestions for our online training.

It was really encouraging to see even more educators than last year reporting that they make good use of what they learn at Picademy. On average, each RCE is also reaching more young people than they were last year. Many educators are sharing what they learn from our training and our community, and interestingly, they share with colleagues outside their organisation more often than with those within it. Hence, we see an opportunity to encourage RCEs to share with colleagues in their immediate work environment more frequently in the future.

In addition to the insights this survey gives us into the impact of our programmes and into our community of educators, we hope that its results can help others gain an understanding of educators' approaches to computing and digital making, the successes they are having, and the challenges they are facing.

Oliver Quinlan
Senior Research Manager
The Raspberry Pi Foundation

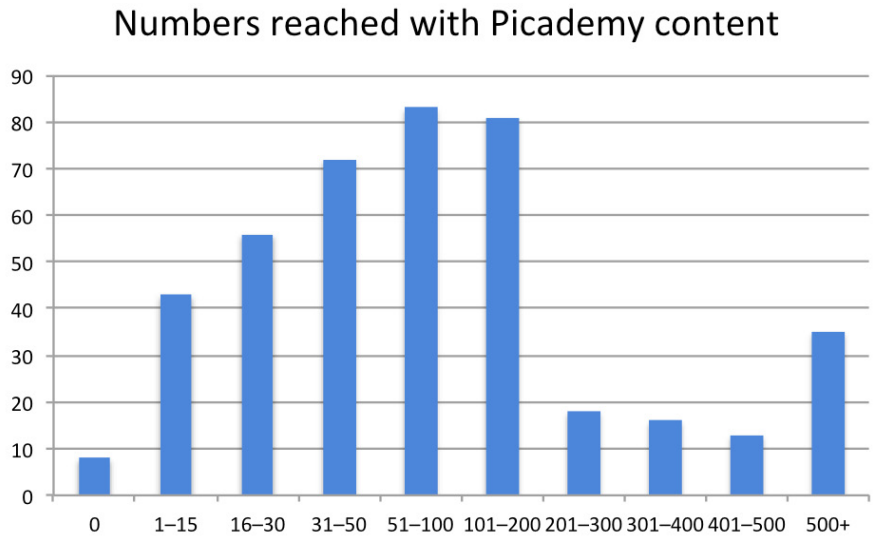


Summary

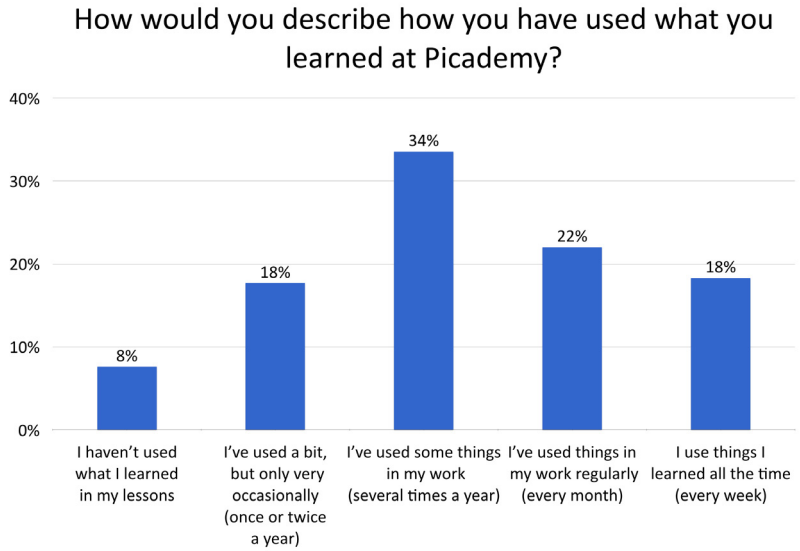
This annual survey was sent to **1091 Raspberry Pi Certified Educators (RCEs)** in the USA and the UK, and **45% of RCEs responded: 40% of the UK cohort and 73% of the US cohort**. The pool of respondents consisted of a wide range of RCEs from each of the different locations and from all three years for which Picademy has been running. US-trained educators are over-represented in the pool compared to UK-trained ones; where responses of the cohorts differ notably, these differences have been noted. (More)

As in 2016, the **general feedback was very positive**. Throughout the survey, RCEs used the long-answer questions to **enthuse about the training**, which clearly gives them a lot of inspiration and helps them to find out about new learning opportunities they can bring to the young people with whom they work.

> *"The Glasgow Picademy was probably the best CPD I have had in 15 years of teaching. Well done to everyone, and thank you."*



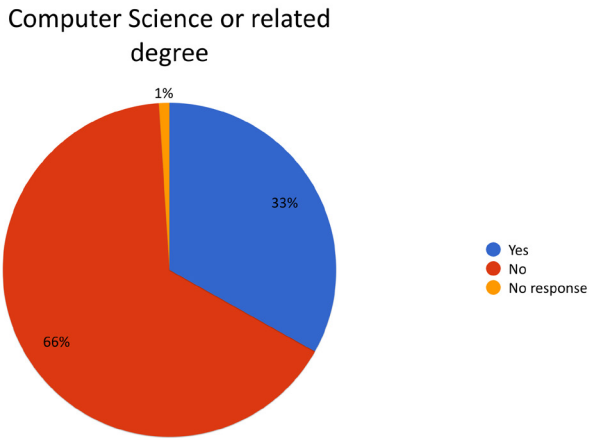
In total, RCEs who responded to the survey **estimate reaching 110 794 children and young people** with what they have learned at Picademy. This is a large increase in estimated reach compared to the 42 364 young people reached by a similar number of respondents in 2016. On average, **each RCE seems to be reaching more young people** than last year, and fewer RCEs are only reaching small groups of students. Estimated reach breaks down to 75 609 people for UK educators and 35 185 for US educators, with the mean for US educators 47% higher than for those trained in the UK. (More)



73% of RCEs have used what they learned at Picademy several times a year or more regularly. 40% have used what they learned at least on a monthly basis or more frequently. **8% reported they have not used what they have learned**. US educators generally reported more frequent usage than UK educators. Overall, a higher percentage of RCEs reported making use of what they learned than last year (92%, compared to 88% in 2016). **(More)**

45% of RCEs work in schools, and the rest are staff members at venues such as **universities (4%), libraries (2%), and museums (0.4%). 79%** of RCEs in schools are in **non-fee-paying schools**, with the proportion of those in fee-paying schools higher in the US cohort than the UK one. **(More)**

A **higher proportion** of RCEs is working with **secondary- than with primary-age children**. The **majority** of RCEs **reported computing as their main subject (47%). 21% were primary teachers** who cover computing as part of their class teaching. 13% of RCEs teach other subjects such as Science, Design and Technology, or Maths as their main subject. **(More)**



33% of RCEs have a degree in computer science or a subject. This percentage is much higher in the UK (38%) than in the US (16%). **(More)**

RCEs reported that **their students are very interested in technology**. They reported them as being **slightly more interested in using technology than in making and programming**. **(More)**

The average RCE takes part in at least one other programme from the Raspberry Pi Foundation. The most popular one is **Code Club (41% of RCEs)**, followed by attending **Raspberry Jam events (29%)**. 23% of RCEs take part in two or more other Foundation programmes.

Many also take part in programmes from other organisations, with 16% of respondents being Google Certified Educators, 9% CAS Master teachers, and 8% CAS hub leaders. (More)

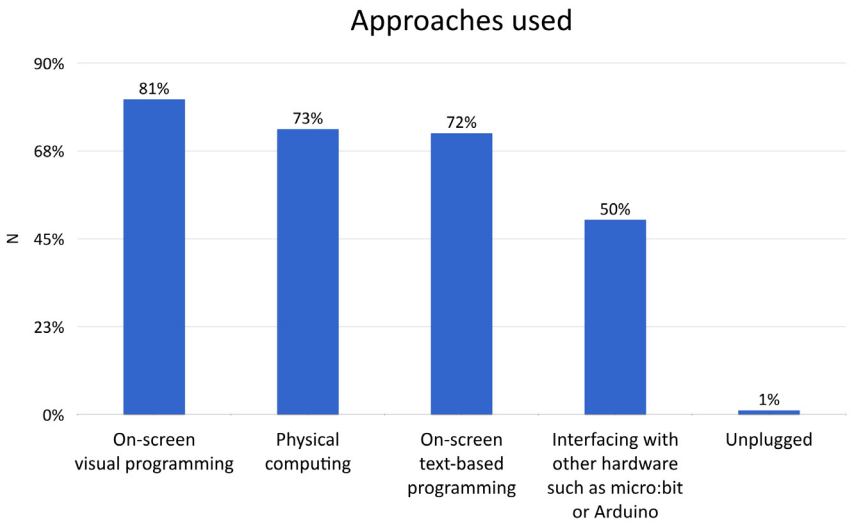
Three quarters of RCEs keep in touch with each other after Picademy. This is mostly **online in public social media spaces (60%)**, and **using private messaging (21%)**, but **nearly a fifth (19%)** of respondents keep in touch by **meeting face-to-face**. (More)

39% of RCEs subscribe to Hello World, and 57% read the magazine. Our publications are the most popular with RCEs, followed by the CAS forums (to which 16% contribute), the TES, and BBC Education. (More)

88% of RCEs feel confident teaching programming, 75% feel confident teaching computational thinking, and 72% teaching basic electronics. 68% are confident teaching visual programming, and 58% feel confident teaching text-based programming. (More)

The most often reported **reason for attending Picademy** was **learning about the Raspberry Pi computer**. Learning about **physical computing** was also an often cited reason. Educators seem to associate our brand strongly with the computer and with physical computing. (More)

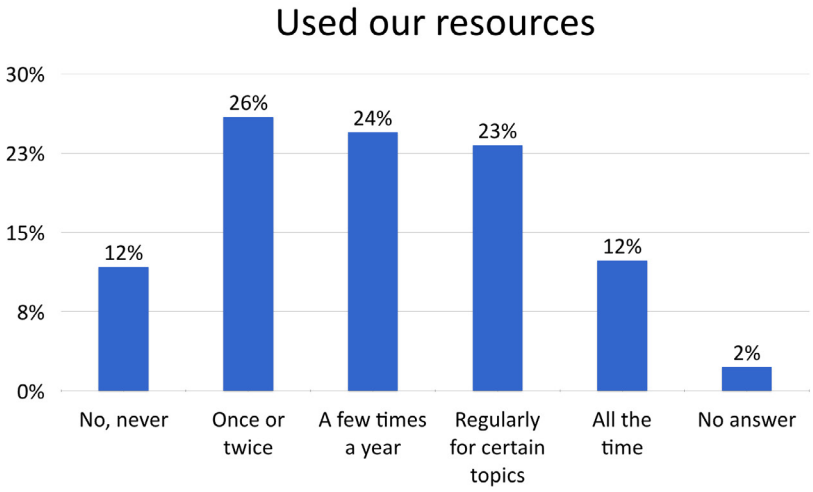
80% of respondents discussed going to Picademy with their manager, but only 36% had their expenses funded by their school or organisation, with 13% having them partially covered. There are many educators in our community who have funded their own CPD, which shows their enthusiasm but also the lack of funding for this kind of CPD in schools. (More)



The most popular teaching approach is on-screen visual programming (81%), with **physical computing** in second place (73%) and **on-screen text-based programming** in third (72%). (More)

59% of RCEs have access to a small number of Raspberry Pi computers, and 27% to a class set. 39% have access to Raspberry Pi add-on boards. Of the equipment from other organisations, the most commonly available is the micro:bit, with 51% of RCEs having access to this device. (More)

Scratch and Python dominate among the programming languages RCEs use, with more than 80% of educators using each of them. HTML/CSS, Java, and JavaScript are also popular, followed by a long tail of other programming languages. IDLE is the most popular editor, followed by Sonic Pi and Notepad++. Many other editors are used by small numbers of RCEs. (More)

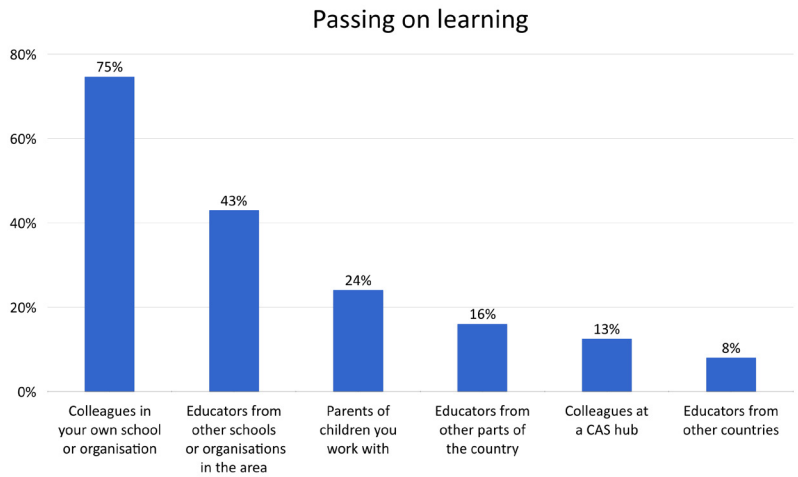


86% of RCEs reported making use of our resources. This is very similar to the usage reported last year. (More)

Project-based learning is used at least some of the time by 71% of RCEs. All RCEs reported that project-based learning can be an effective approach, but 22% think it is only a little achievable or not achievable within their current constraints. (More)

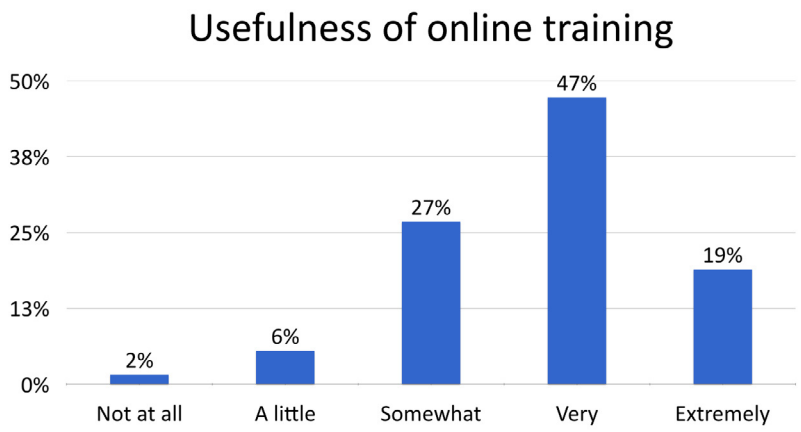
The most strongly felt challenge faced by RCEs is funding for equipment. Following that is the **lack of time to practice skills, to build confidence, and to plan activities**. 50% of educators reported that support from their managers is at least somewhat of a challenge, but it is the lowest-rated ch allenge among the ones about which we asked them. (More)

The highest demand for future initiatives is for those involving face-to-face support, such as local meetups and national conferences. Views on providing more social media support are mixed. The forms of professional development which were reported as most popular are also face-to-face, such as training and networking. Online videos are popular as well. (More)



75% of RCEs have passed on their learning to colleagues in their own organisations, and 43% to those outside. 43% have shared their learning at a CAS hub event or TeachMeet, and 24% have run training in their own school or organisation, with 13% sharing in a staff meeting. **RCEs seem to be more**

focused on sharing their learning in spaces outside their own organisation than inside. They are keen to do more to pass on their learning, particularly in their own organisations, and may just need a little more suggested structure to do so. There has been a big increase in RCEs blogging about their experience at Picademy. (More)



27% of RCEs have taken part in our online training, and they rate it very highly (66% say very or extremely useful). 74% are very or extremely interested in the courses, showing strong enthusiasm for this initiative. They would prefer future courses to be in the summer holidays (44%) or in term time (34%). (More)

RCEs gave us a range of **ideas to reach more educators**. The most frequently suggested were variations of **local meetups and more locally focused face-to-face events**, as well as more direct communications and advertising or marketing. (More)



Introduction

In June 2017 we conducted our second comprehensive annual survey of Raspberry Pi Certified Educators (RCEs). The survey was sent out to 1091 participants in Picademy events, representing all Certified Educators trained up to May 2017. Contact primarily took place via email, but the survey was also promoted in online newsletters and on social media. Educators were incentivised to complete the survey with a lottery to win one of five sets of five Raspberry Pi Zero Ws and accessories. 45% of the 1091 educators completed the survey: 40% of the participants trained in the UK, and 73% of those trained in the USA.

Respondents were asked questions about the organisations they worked for, about their professional role, about how they had used what they learned at Picademy, and about their plans for the future. Many of the questions from the 2016 survey were repeated, some were refined or removed based on the results from last year, and some new questions were added.

> ***"Just a final note to say that none of what I have achieved since Picademy in March would be possible without Picademy. Picademy gave me the confidence to tackle stuff that is way out of my comfort zone. I know how to operate a makerspace and what the makers movement is all about. I have been able to design a curriculum for our maker-space and implement exciting projects. [...] Although I do not want to be a programmer, I want to know enough about Python to be able to teach basic Python and troubleshoot code etcetera. Lastly, Picademy gave me the confidence to be able to teach others what physical computing is all about."***

Survey completions

Complettions	N	%
All	486	45%
UK	369	40%
US	117	7

We had responses from a little under half of the Certified Educators to whom we sent the survey form; the proportion of the US-trained cohort that filled in the survey was much higher than the corresponding proportion of the UK-trained cohort. To better understand the views of practicing educators, survey responses by Raspberry Pi Foundation staff were removed from these numbers and from the analysis.

Just over a third (34%) of those who completed the survey this year also had completed it last year. Last year's survey had 444 responses, which constituted 60% of the RCEs trained at that point.

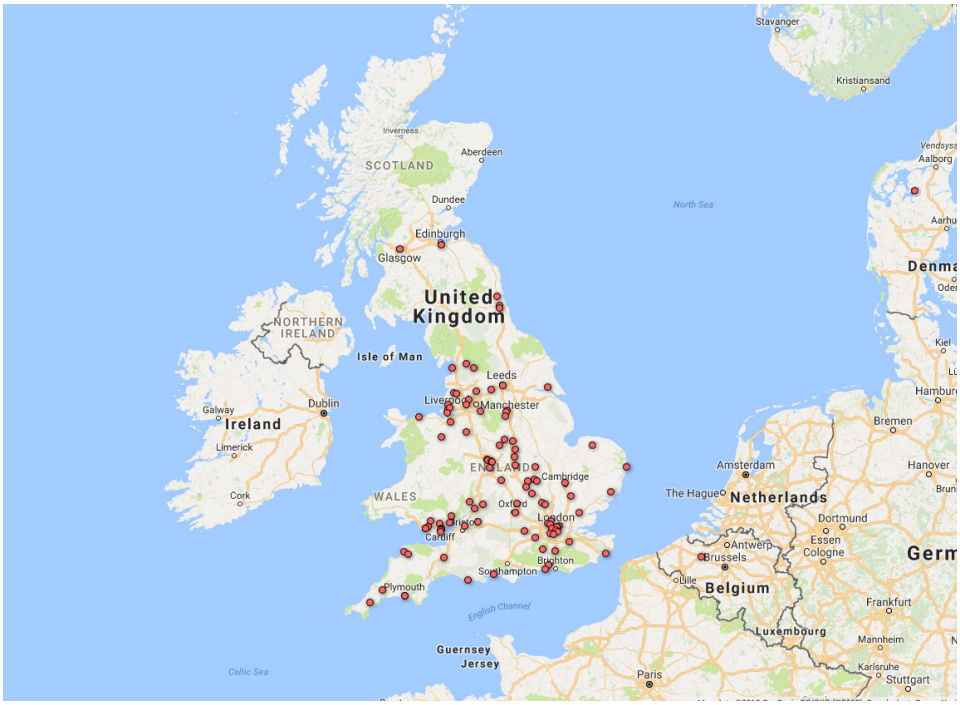
For more, see the Representativeness of the survey section.

About the Certified Educators

Locations

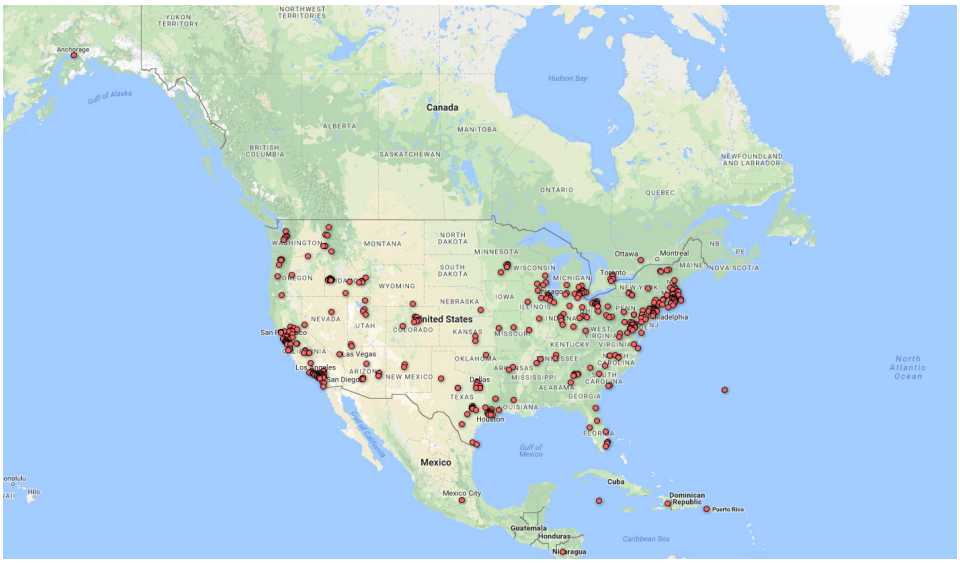
Map data: Google

UK



Locations of all RCEs (not just survey respondents)

USA

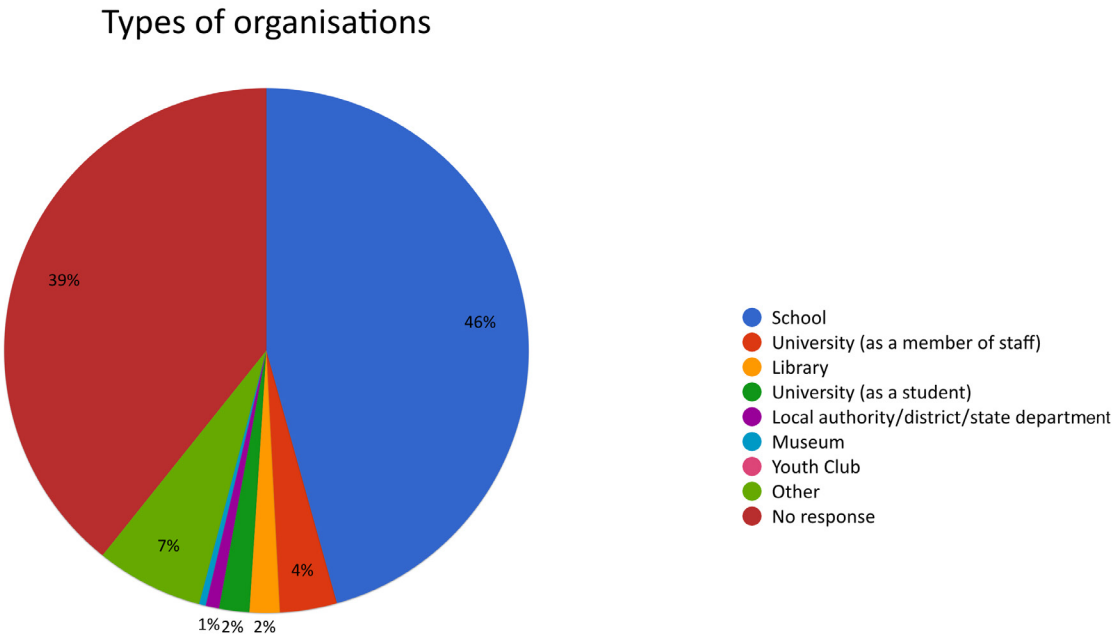


Locations of all RCEs (not just survey respondents)

Organisations

We asked RCEs which type of organisation they work in. Three quarters of Certified Educators who responded to this question work in schools, with the other quarter being members of staff at a range of other education organisations. The 7% that indicated an 'Other' type of organisation cover a wide range of work situations, including working independently. Only 6% of respondents indicated they had changed their place of work in the last year.

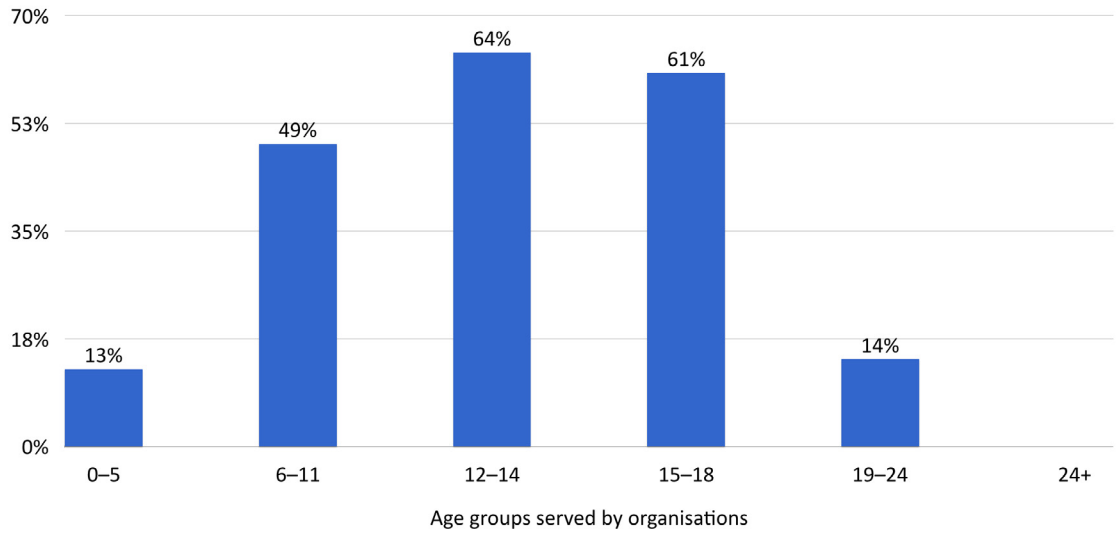
The organisations that RCEs work for serve a range of age groups, but the majority serve 12- to 18-year-olds (the equivalent of secondary school). Of the schools, 79% were state-funded schools and 21% fee-paying schools.



Type of organisation	N	%
School	221	45%
University (as a member of staff)	17	3%
Library	9	2%
University (as a student)	9	2%
Local authority / district / state department	4	1%

Museum	2	0%
Youth Club	0	0%
Other	32	7%
No response	190	39%

Others:
Workforce technology company ; Consultancy; Home ed; SFC; Makerspace; Pirates; STEAM Center; Educational consultancy firm; FE College; FE & HE College; Arts Organisation; education non-profit; Consultancy work; Government agency; Defence School; Correctional Institution; Youth Service; Freelance; Not currently working; Homeschool.



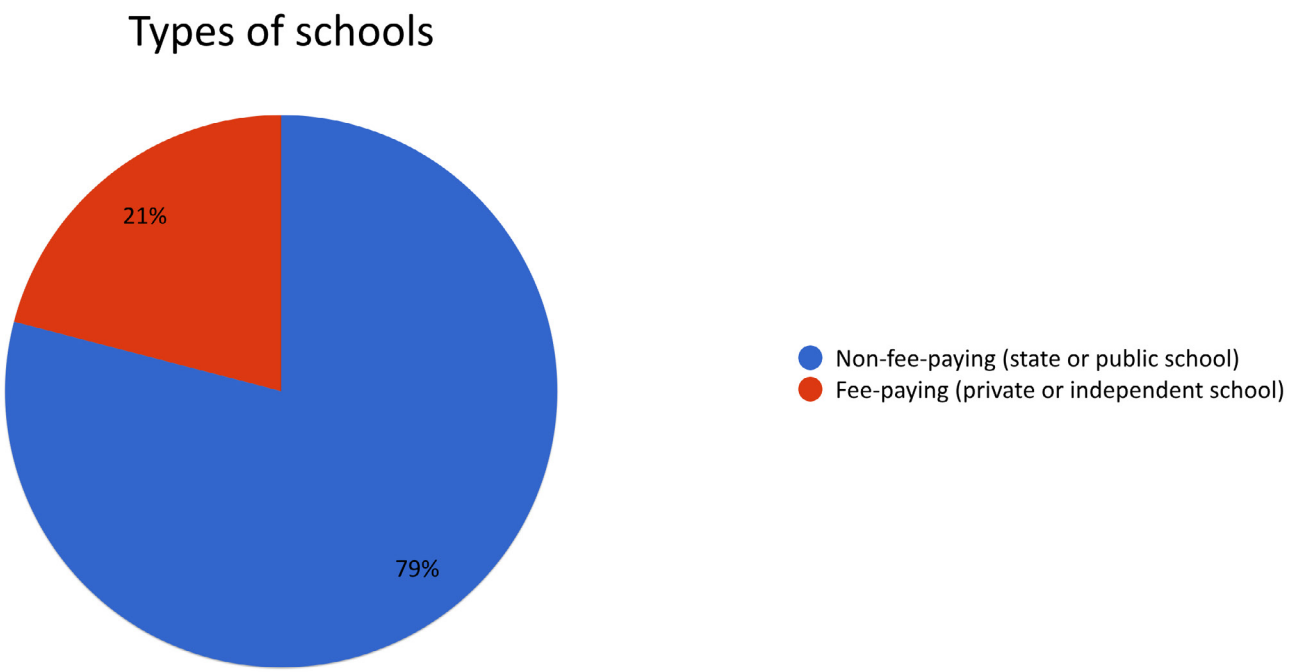
Age groups served by organisations

Age groups served	N	%
0–5	61	13%
6–11	239	49%
12–14	311	64%

15–18	295	61%
19–24	69	14%
24+	0	0%

Educators could choose more than one of these categories.

What type of school do you work at?	N	%	UK%	US%
Non-fee-paying (state or public school)	283	79%	64%	41%
Fee-paying (private or independent school)	75	21%	15%	18%



Job roles

The majority (69%) of RCEs are teachers in schools or colleges. The remaining 31% are spread across a range of roles, with the largest groups being instructional coaches or CPD trainers (8% in total) or initial teacher educators (6%).

Overall, 47% of RCEs are secondary (or equivalent level) Computing teachers. 20% are primary teachers teaching Computing to their own class (14%) or across the school (7%). The rest are secondary teachers of other subjects, such as Science, Design and Technology, and Maths. The balance of subjects among UK and US cohorts is quite different.

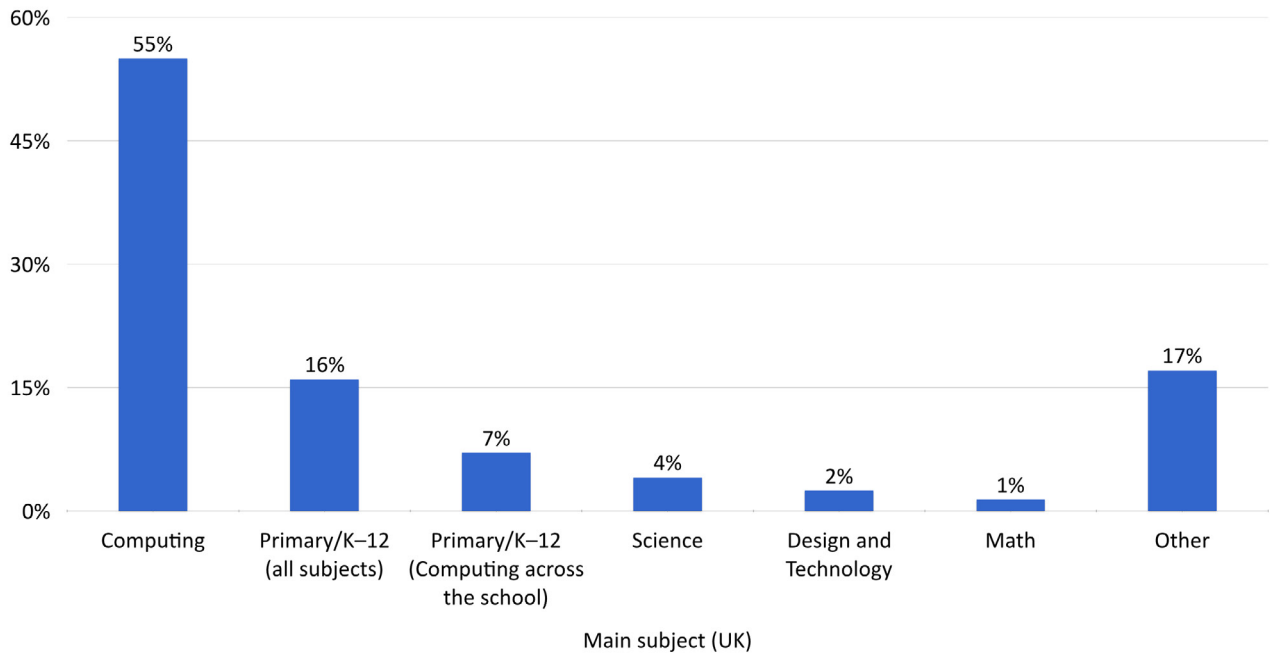
The US cohort has a 34% less high school (or secondary) computing teachers and 12% less K-12 (primary) teachers than the UK cohort. Conversely, it has a much higher proportion of Design and Technology teachers (14% in the US, 2% in the UK). There is also a much higher proportion of US-trained respondents who chose 'Other' (see below), for example people teaching 'STEM' or other subjects including those in the arts.

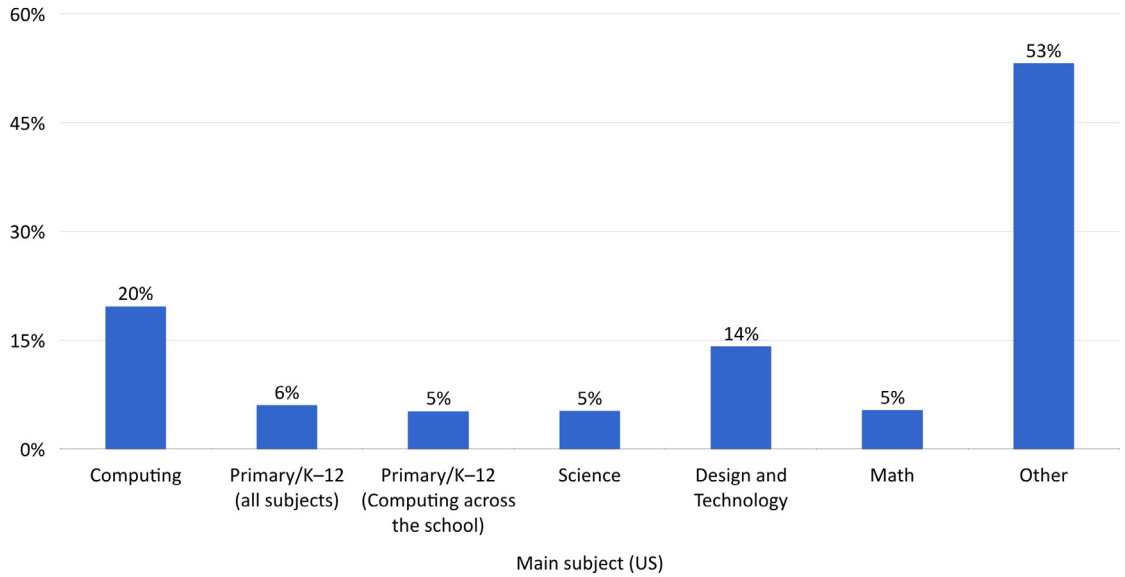
There is also a big difference in the responsibilities that UK and US RCEs hold in their job roles. 23% of RCEs are class teachers with no additional responsibilities. However, 20% of RCEs coordinate a subject, and 28% are heads of department; both of these proportions are considerably higher for UK RCEs than those in the US. 10.8% of all RCEs responded that they have some kind of management responsibility in a school, with a much higher proportion of US educators in these management roles than UK educators. Many more US educators also chose 'Other' in this survey question (48%, compared with 22% in the UK), demonstrating the wider range of responsibilities and job roles among the US cohort. This is likely due, at least in part, to the different educational landscape in the US: without computer science as a formal part of the curriculum, leaders in this area are likely to be in less conventional roles.

Job roles	N	%
School/college teacher	336	69%
Initial teacher educator/education lecturer	28	6%
Instructional Coach/TOSA	23	5%
Librarian	18	4%
INSET/CPD teacher trainer	16	3%

Technical support/network manager or technician	15	3%
Museum staff	5	1%
Youth worker	2	0%
Other	43	9%

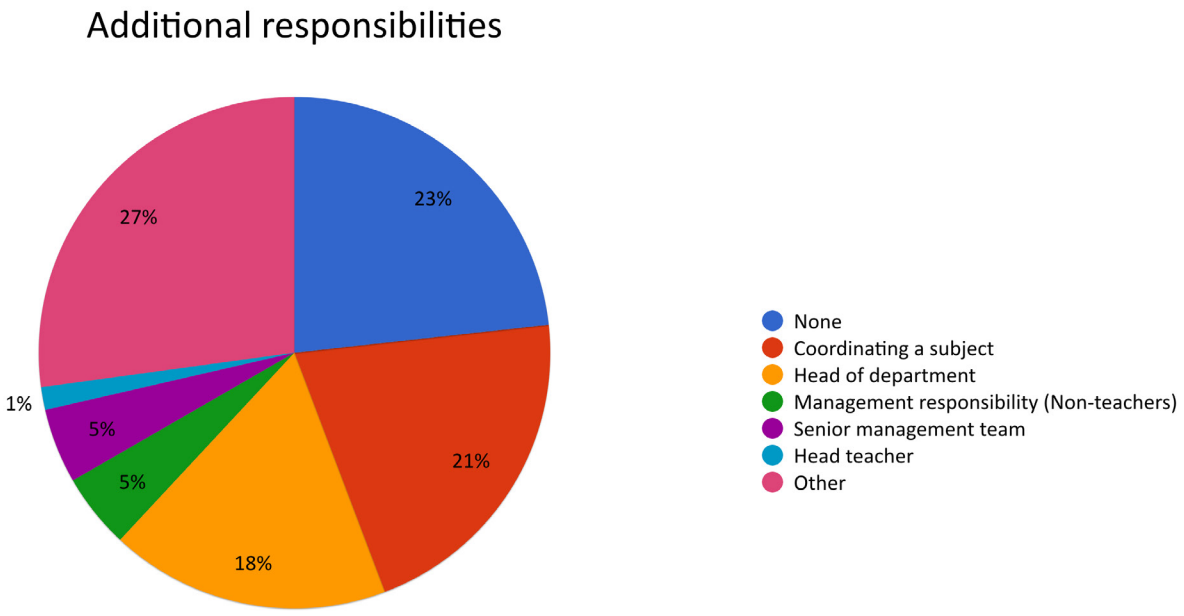
Others:
Director of technology academic program; Pre-K–12 to 1:1 school with one digital technology class; Director; Education Consultant; 1:1 teaching assistant; ICT coordinator and TA; Technical support and instructional coaching; Computing Tutor; Teaching Assistant; Learning Support; District Administrator; Creative Practitioner; CPD; Resources; Projects lead; Informal Educator; University teacher; Community Educator; Administrator; CAS Coordinator; Widening participation worker; Project Support Officer (responsible for Code Club and digital skills/inclusion); Administrator; Developing and delivering digital skills workshops; Mentor/Facilitator; Informal Educator; Content developer. Head of Department; Workshop Leader; Teaching online; Designing video courses; Educator working with practitioners and learners in local authority to develop digital learning; District Administrator





Main subjects	N	%	UK%	US%
Computing	226	47%	55%	20%
Primary/K–12 (all subjects)	67	14%	16%	6%
Primary/K–12 (Computing across the school)	32	7%	7%	5%
Science	26	5%	4%	5%
Design and Technology	25	5%	2%	14%
Math	11	2%	1%	5%
Other	131	27%	17%	53%

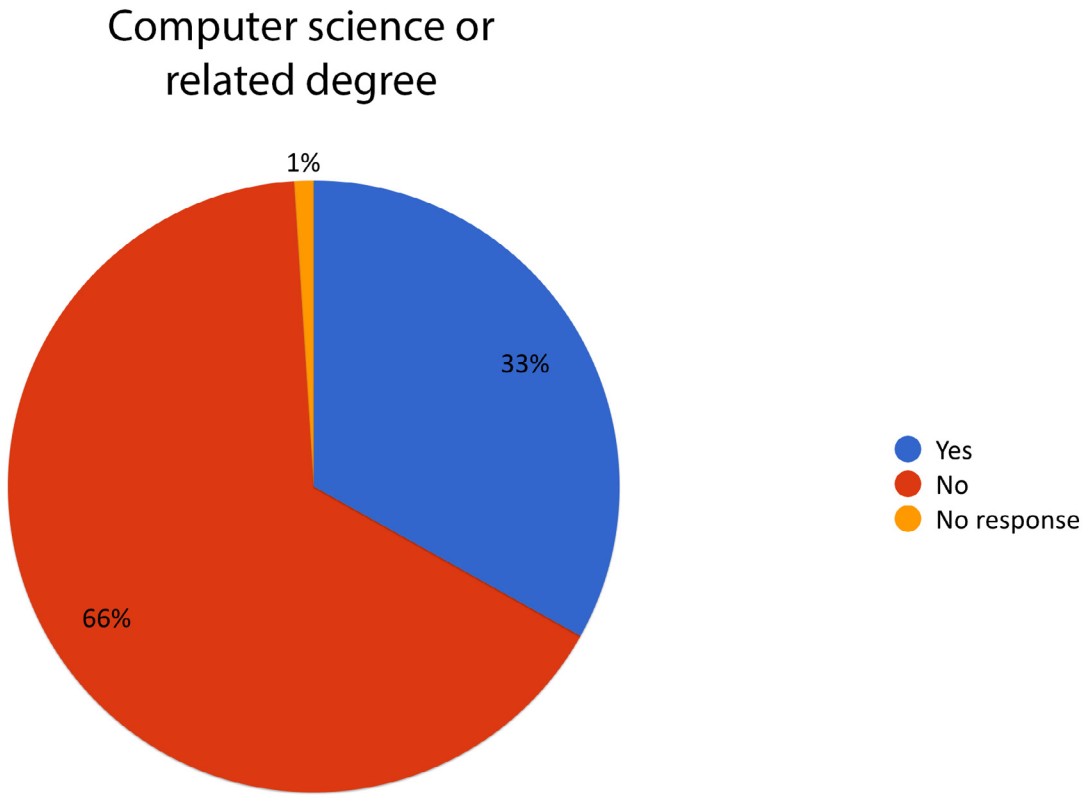
Others:
Independent Living Skills; Smart sensors; Graphic Design; ICT; Electronics; Mathematics; STEM Lab and AP Comp Sci; English; Media; Gifted & Talented K–5; Engineering; ICT; Counselling; Behaviour; Y7 RE; Y7 History; Y7 Citizenship; Y8 Citizenship & Y10 Literacy; STEM; Physical Education; Intellectual property; Electronics; STEM plus art and music; Parent volunteer running a Code Club in a primary school; Literature; STEAM/Maker Ed integration; Business; Enrichment; Chemistry; Manufacturing/Engineering; Creative Digital things & Arts; I support all subjects



Do you have any additional responsibilities?	N	%	UK%	US%
None	113	23%	24%	20%
Coordinating a subject	102	21%	25%	9%
Head of department	86	18%	21%	8%
Management responsibility (Non-teachers)	23	5%	4%	8%
Senior management team	23	5%	4%	7%
Head teacher	7	1%	1%	4%
Other	132	27%	22%	48%

Computer science qualifications

Almost a third (33%) or RCEs have a degree in computer science or a related subject. The picture is very different for the UK and US cohorts, with far fewer US educators holding such a degree. This likely reflects the comparative lack of formal requirements for computer science in the school curriculum in the US compared to the UK and some other European countries. It means that US participants are much less likely to have significant subject knowledge about the computer science aspects of our work.

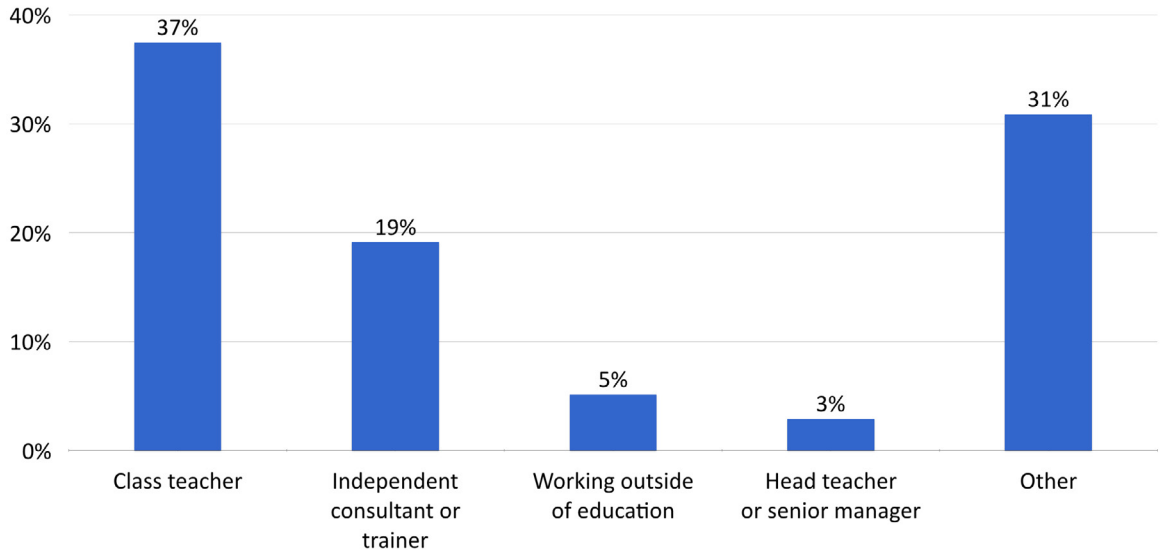


Computer science or related degree?	N	%	UK%	US%
Yes	161	33%	38%	16%
No	320	66%	60%	84%
No response	5	1%	1%	0%

Ambitions

The majority of RCEs who are teachers have the ambition to continue in this role for the next five years. 19% have the ambition to become an independent consultant or trainer. Relatively few aim to become a head teacher or senior manager (3%), or to work outside of education (5%). Ambitions of US educators tend to be focused away from becoming independent consultants or trainers and more towards the 'Other' category, which contained a diverse set of specific ambitions to lead learning both inside and outside of schools. It also included those teachers who indicated they were planning to retire.

As with job roles, US educators are much more likely to choose 'Other' and indicate a diverse range of roles. Some of those choosing 'Other' also expressed either uncertainty about the future or the intention to retire.



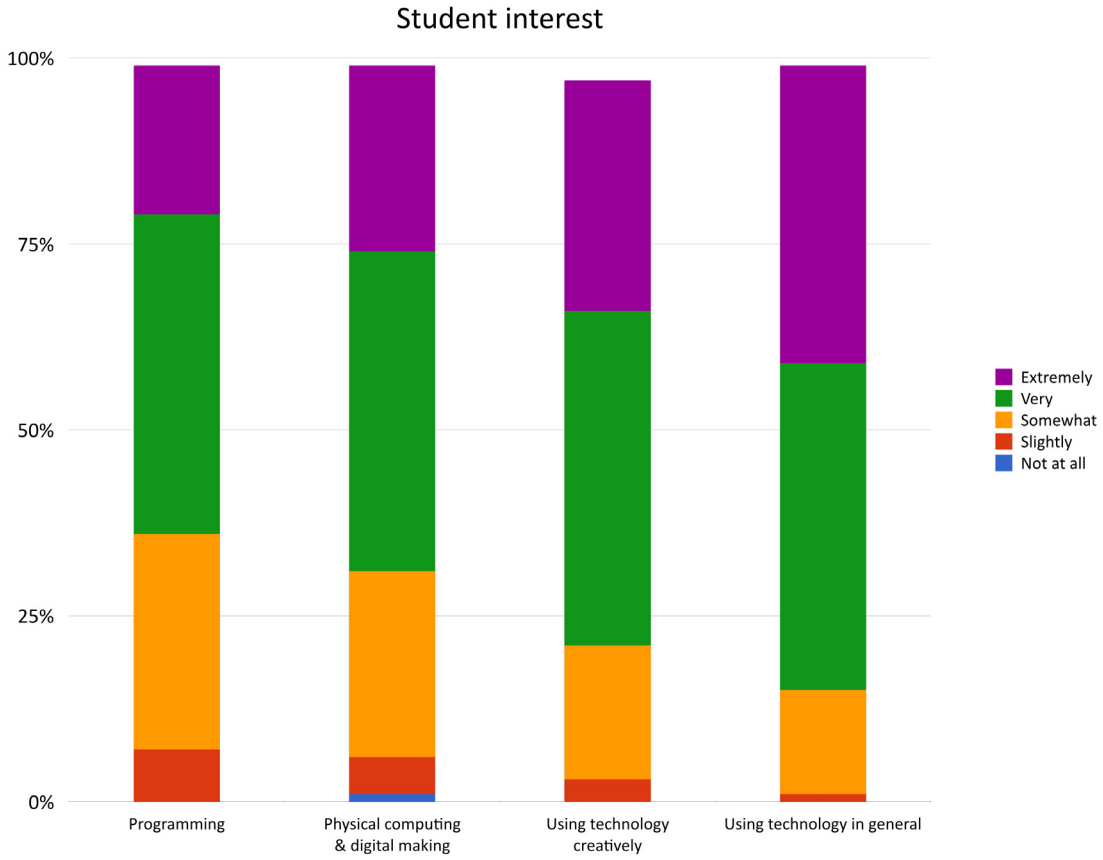
Ambitions in the next 5 years

Ambitions in the next 5 years	N	%	UK%	US%
Class teacher	182	37%	41%	27%
Independent consultant or trainer	93	19%	21%	13%
Working outside of education	25	5%	6%	3%
Head teacher or senior manager	14	3%	3%	3%
Other	150	31%	25%	50%

Others:
Public engagement; Director of Research Centre; Semi-retired, but still involved in education; Education and public health–related policy work; Retired; Head of department; Gifted/Talented Teacher; HLTA or teacher; Superintendent or Associate Superintendent; Employed consultant/manager; Director of Instructional Technology or Administrator; Informal educator; Lecturing; Volunteer; Ambassador for Teaching and Learning (ideally within Computing); Innovation Director; Educational coach/ teacher; Computing lead; Leadership team but not head; University Lecturer

Student interest

We asked educators to tell us how much interest their students show for different aspects of digital making and technology use. They rated students' interest in all of the aspects as strong, but RCEs reported a clear trend of students being more strongly interested in general technology use and using technology creatively, and less strongly interested in more technical aspects such as programming. The same pattern is evident in both the UK and the US, although interest in all areas is rated even higher by US educators.

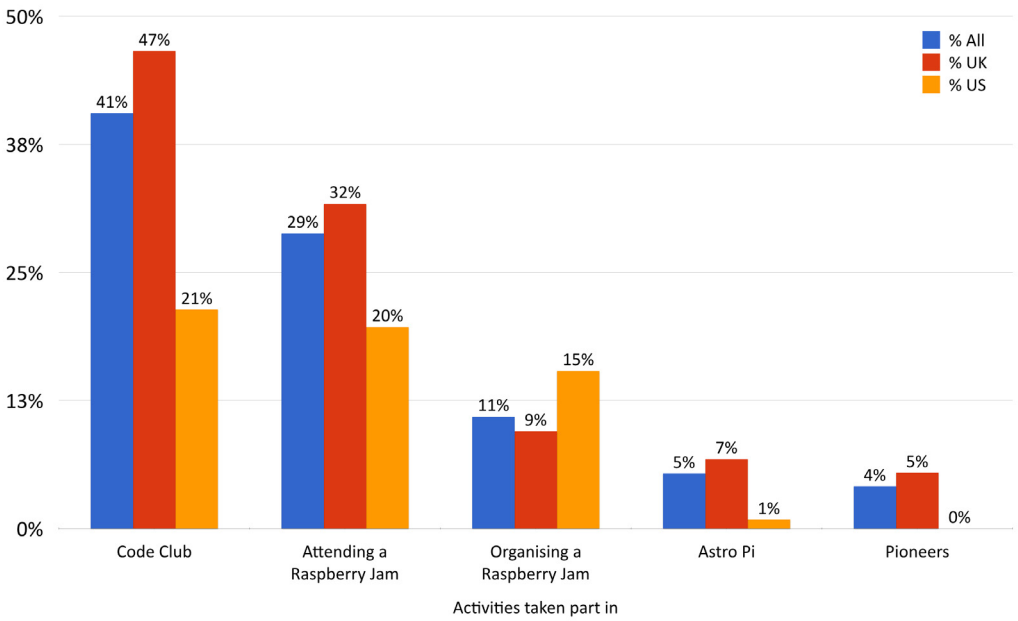


Student Interest	Not at all	Slightly	Somewhat	Very	Extremely
Programming	0%	7%	29%	43%	20%
Physical computing & digital making	1%	5%	25%	43%	25%
Using technology creatively	0%	3%	18%	45%	31%
Using technology in general	0%	1%	14%	44%	40%

Other activities educators take part in

RCEs often take part in other activities that the Foundation provides: the average RCE participates in at least one other activity. The most popular of these is Code Club, with 41% of RCEs taking part. Attending a Raspberry Jam (29%) and even organising a Jam (11%) are also common. Participation in our Astro Pi and Pioneers competitions is much less common, and there is potential to encourage many more RCEs to enter these with their students. 42% of RCEs still do not take part in any other activities, so there is room for encouraging many more of them to do so.

There are some differences in participation between UK-trained and US-trained educators, beyond the Astro Pi and Pioneers competitions which currently run only in Europe or the UK and ROI. US educators are currently much less likely to run a Code Club, and less likely to attend a Raspberry Jam, but a little more likely to organise a Raspberry Jam.



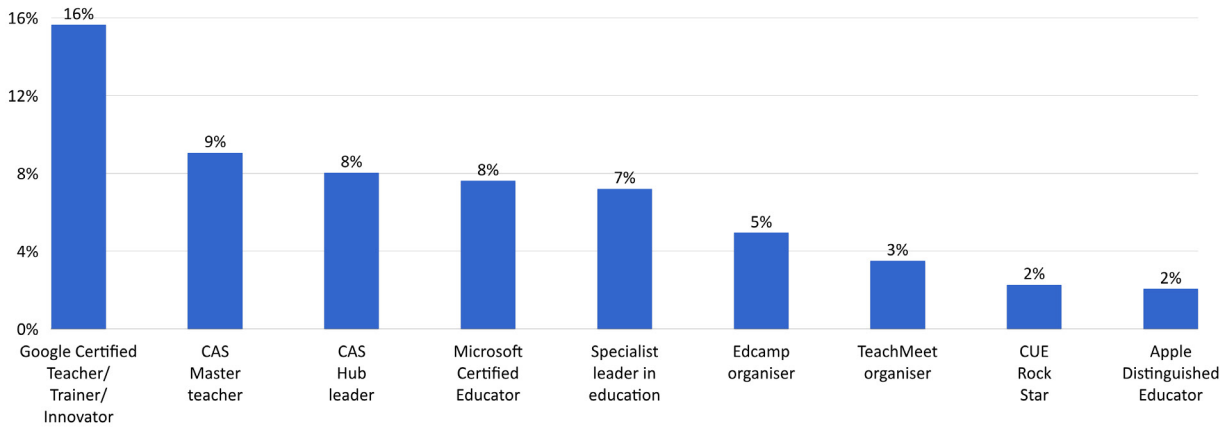
Activities taken part in	N	All %
Code Club	197	41%
Attending a Raspberry Jam	140	29%
Organising a Raspberry Jam	53	11%
Astro Pi	26	5%
Pioneers	20	4%

Respondents could choose more than one option.

Number of activities	N	%
0	202	42%
1	174	36%
2	74	15%
3	31	6%
4	4	1%
5	1	0%

Other programmes

Slightly less than 50% of RCEs reported that they are involved in programmes of other providers. This means RCEs are a little more likely to take part in other Raspberry Pi Foundation programmes than in other organisations' programmes. The most popular of these is Google's suite of certifications, followed by those provided by Computing At School (which are UK-specific).



Other Programmes involved with	N	%
Google Certified Teacher/Trainer /Innovator	76	16%
CAS Master teacher	44	9%
CAS Hub leader	39	8%
Microsoft Certified Educator	37	8%
Specialist leader in education	35	7%
Edcamp Organiser	24	5%
TeachMeet organiser	17	3%
CUE Rock Star	11	2%
Apple Distinguished Educator	10	2%

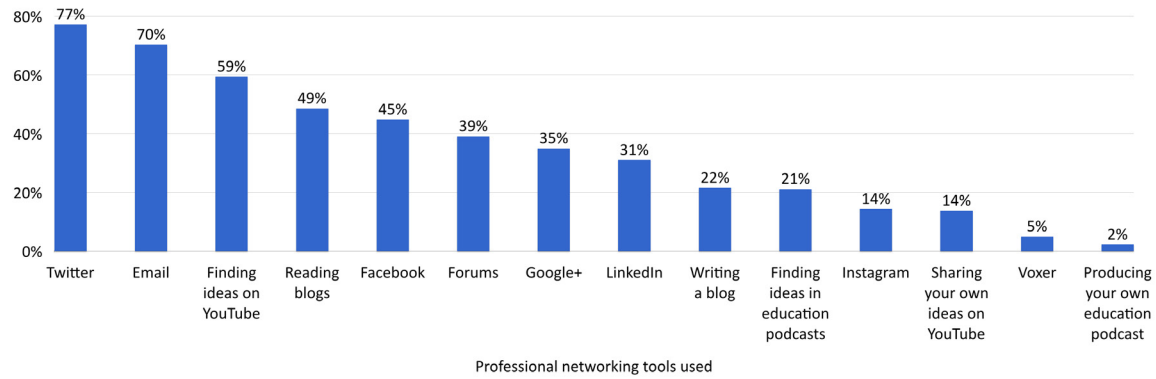
Respondents could choose more than one option.

Number of other programmes	N	%
0	249	51%
1	154	32%
2	51	10%
3	25	5%
4	6	1%
5	1	0%

Professional networking

Large proportions of RCEs use online tools for professional networking. This is notably more common for US RCEs than UK RCEs. Twitter is the most popular tool (77%), followed by email (70%). YouTube is the most frequently used platform for long-form content, above blogs and podcasts. Google+, LinkedIn, and Voxer are much more popular with US-trained educators than UK-trained ones.

Just over a fifth of RCEs write their own blogs (21%), and 14% share their own ideas on YouTube. Content creation options are much more popular among US educators than UK educators. This shows an active community of educators who create and share as well as consume professional content.



Professional networking tools used

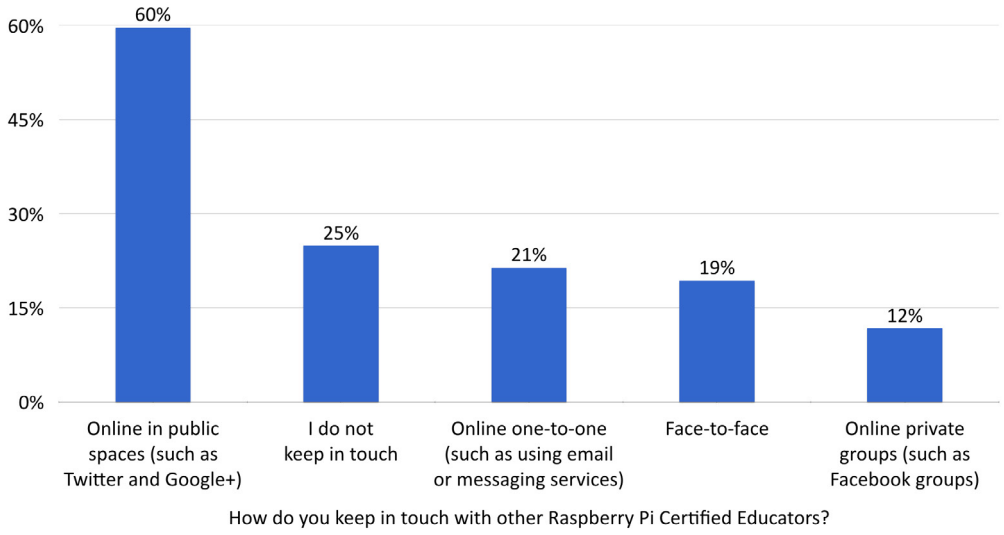
Professional networking tools used	N	%	UK%	US%
Twitter	375	77%	73%	89%
Email	342	70%	67%	79%
Finding ideas on YouTube	289	59%	55%	74%
Reading blogs	236	49%	41%	71%
Facebook	218	45%	40%	60%
Forums	190	39%	38%	41%
Google+	170	35%	28%	57%
LinkedIn	151	31%	28%	42%
Writing a blog	105	22%	16%	38%
Finding ideas in education podcasts	103	21%	16%	38%
Instagram	70	14%	9%	30%
Sharing your own ideas on YouTube	67	14%	10%	26%
Voxer	24	5%	1%	18%
Producing your own education podcast	11	2%	0%	9%

Respondents could choose more than one option.

Keeping in touch

Three quarters of RCEs (75%) keep in touch with each other after Picademy. The most common option for doing this is using online public spaces such as social media (60%). This is followed by online one-to-one conversations such as email or messaging (21%). Nearly a fifth (19%) of RCEs keep in touch by meeting face-to-face. A quarter of RCEs do not keep in touch with others, so there is potential to encourage more of them to do so to share their ideas and support each other.

The proportion of RCEs who reported keeping in touch has increased from 54% to 75% since 2016. In response to the needs expressed in our case studies in the summer, we have created the Raspberry Pi Certified Educators' directory, which helps RCEs to find each other and collaborate.



How do you keep in touch with other Raspberry Pi Certified Educators?

How do you keep in touch with other Raspberry Pi Certified Educators?	N	%
Online in public spaces (such as Twitter and Google+)	249	51%
I do not keep in touch	154	32%
Online one-to-one (such as using email or messaging services)	51	10%
Face-to-face	25	5%
Online private groups (such as Facebook groups)	6	1%

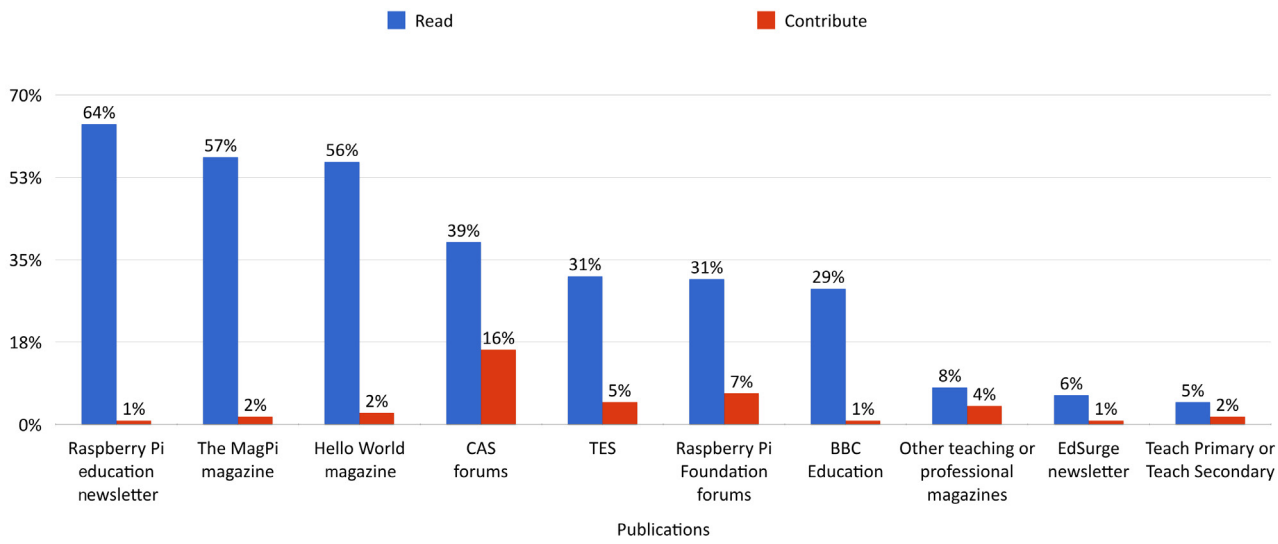
Educators could choose more than one of these categories.

Publications

We asked RCEs about the publications they read or to which they contribute. Our publications aimed at educators are the most commonly read, with the top three being our email newsletter (64%), The MagPi magazine (57%), and Hello World (56%). CAS forums, the TES, our own forums, and BBC Education are also popular, with 30–40% of RCEs reading these.

By far the most popular for contributions are the CAS forums: 16% of RCE contribute to them. Contributions to other publications are relatively low, and this is an area we could encourage more engagement in, particularly through Hello World magazine, as only 2% of RCEs currently contribute to it.

39% of RCEs subscribe to Hello World, and 20% to The MagPi. These figures are lower than those who reported reading the magazine, so we could do more to convert readers to subscribers, particularly to the free Hello World.



Publications	Read	Contribute
Raspberry Pi education newsletter	64%	1%
The MagPi magazine	57%	2%
Hello World magazine	56%	2%
CAS forums	39%	16%
TES	31%	5%

Raspberry Pi Foundation forums	31%	7%
BBC Education	29%	1%
Other teaching or professional magazines (such as those linked to museums or youth work)	8%	4%
EdSurge newsletter	6%	1%
Teach Primary or Teach Secondary	5%	2%

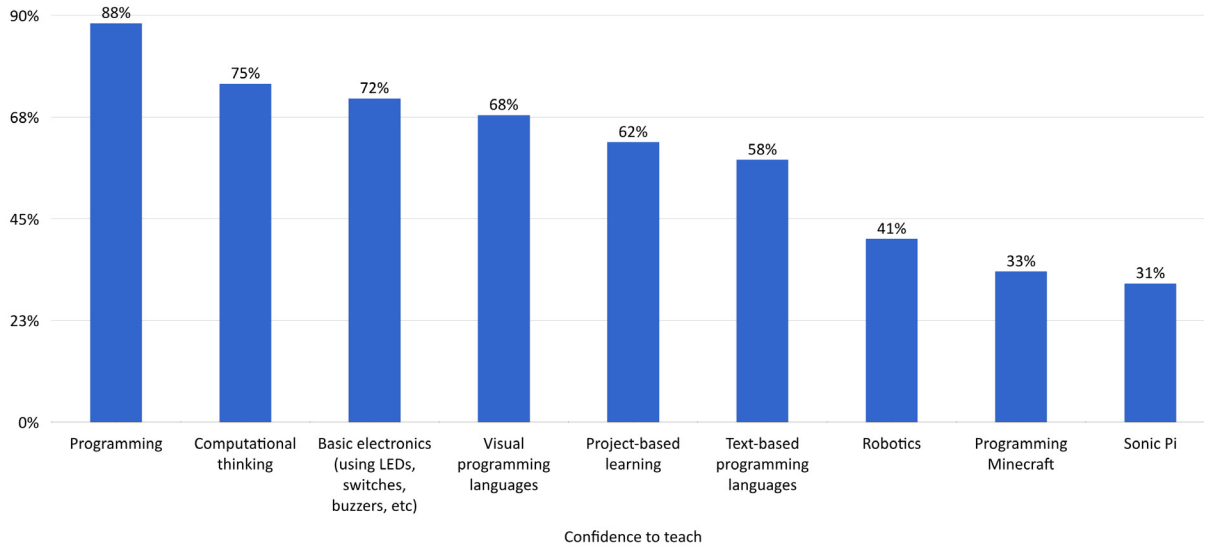
Respondents could choose more than one option.

Subscriptions	N	%
Subscribe to Hello World	192	40%
Subscribe to MagPi	95	20%

Educators could choose more than one of these categories.

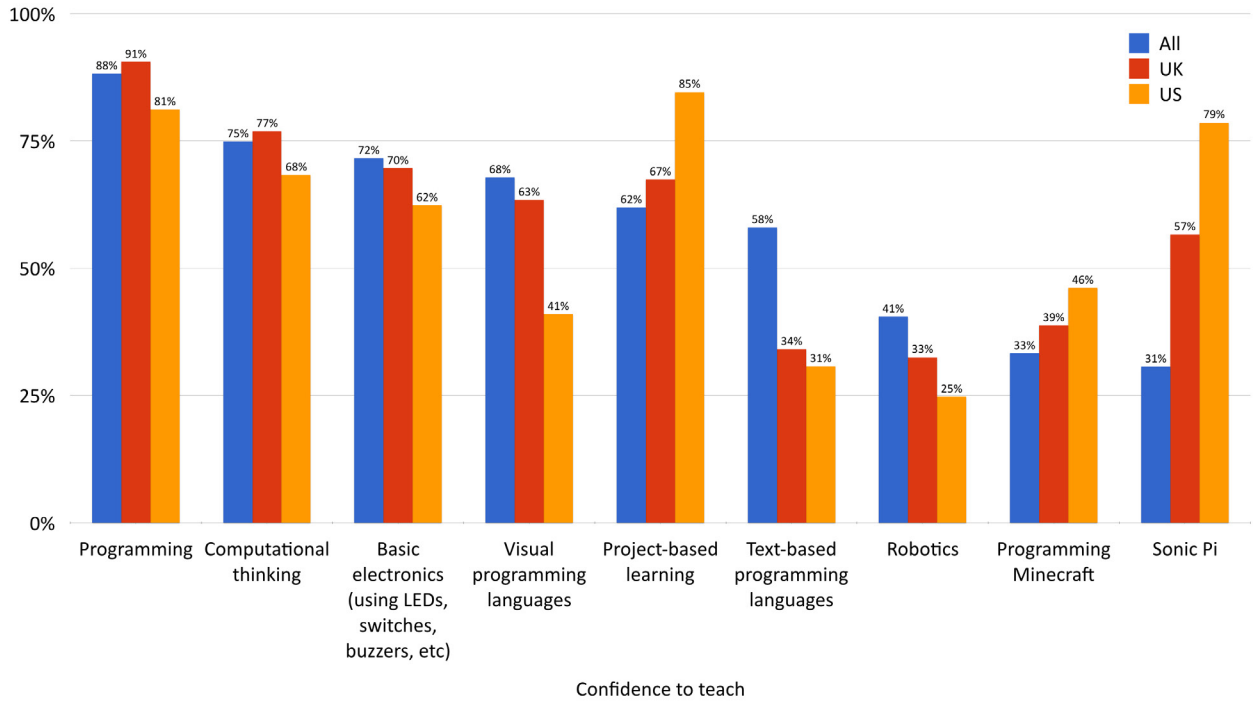
Confidence to teach content

Last year we asked RCEs about their perceived competence in various skills and their confidence to teach these skills. We found that the responses correlated very closely, so this year we only asked about whether they feel confident to teach skills. Unsurprisingly, more RCEs feel confident to teach the more general topics we asked about, and fewer reported feeling confident to teach the more specialist or complex topics.



Subscriptions	N	% all
Programming	429	88%
Computational thinking	364	75%
Basic electronics (using LEDs, switches, buzzers, etc)	330	72%
Visual programming languages	282	68%
Project-based learning	348	62%
Text-based programming languages	162	58%
Robotics	149	41%
Programming Minecraft	197	33%
Sonic Pi	301	31%

Educators could choose more than one of these categories.



Responses by UK-trained and US-trained cohorts are similar in many of these areas. The main differences are found relating to teaching project-based learning programming Minecraft and Sonic Pi, in which the US educators reported feeling more confident, and relating to teaching visual programming languages, in which UK-trained educators reported having more confidence.

Digital makers

The majority (71%) of RCEs do some digital making at home in their own time, showing their interest in and exploration of the subject.

Do digital making at home	N	%
Yes	347	71%
No	133	27%
No response	6	1%

Reasons for going to Picademy

Respondents were asked an open-ended question about their reasons for choosing to go to Picademy. Their answers were categorised according to the themes that were most frequently mentioned overall. The most common reason was to learn about using the Raspberry Pi computer, showing the importance people place on the computer itself when thinking about our work. This was followed by very general statements about learning new things and learning computing. Learning about physical computing was a little more common as a response than learning about programming. Other themes such as 'ideas for how to teach', recommendations from others, and the kudos of the certification were mentioned relatively rarely. Learning computational thinking was the least common theme identified, although a number of RCEs did emphasize this as their reason for attending.

Some RCEs answered that the main reason they chose this course was to set aside dedicated time for learning. This was relatively rare, but it is interesting to see this described as the value of a face-to-face course.

Reasons for going to Picademy	%
Raspberry Pi computer mentioned	40%
Learn new things generally	20%
Learn computing	15%
Learn physical computing specificially	11%
Learn programming	9%
Networking	7%
Ideas for how to teach	5%
Recommended by someone	4%
Prepare to train others	3%
The kudos of the certification	2%
Pedagogy ideas	1%

To start a Code Club	1%
To make time for learning	1%
Learn computational thinking	0%

These thematic categories were derived from free-text responses; some responses expressed ideas relating to more than one theme and were therefore assigned to more than one category.

Some example responses

"To work out how to use a Raspberry Pi as I struggled to get started once I got it out of the box! Also to get some ideas of how I could get pupils interested in digital making and physical computing."

"To deepen my understanding of digital making in order to provide my students with experiences that they would probably not get anywhere else."

"To be able to teach physical computing in my school. At the moment there is no enthusiasm for computing because there is nothing hands on."

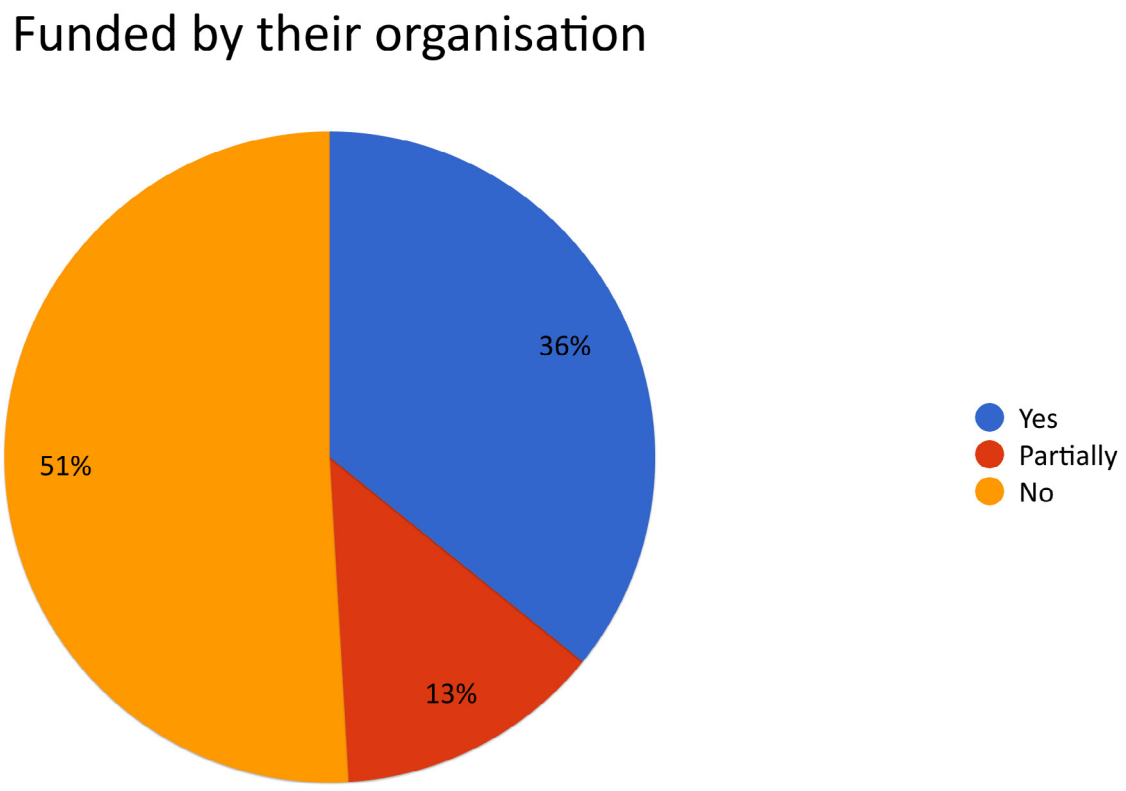
"Wanted to learn more and be part of the community. And meet Carrie Anne, too!"

"To develop my understanding of computer science and the pedagogy behind it."

"To force myself to find the time to get started."

Support from their school or organisation

More than three quarters of RCEs (80%) discussed going to Picademy with their manager, formally involving the organisation with this CPD course. However, only 36% of RCEs had the travel and accommodation expenses associated with Picademy covered by their organisation, and 13% had them partially covered. Just over half (51%) of the respondents did not have the expenses refunded by their organisation. This shows notable personal commitment to their own professional development, but it also indicates that organisation are often unable or unwilling to cover costs associated with this professional development course. However, this proportion is a little smaller than in 2016, when 58% of RCEs reported funding their own expenses.



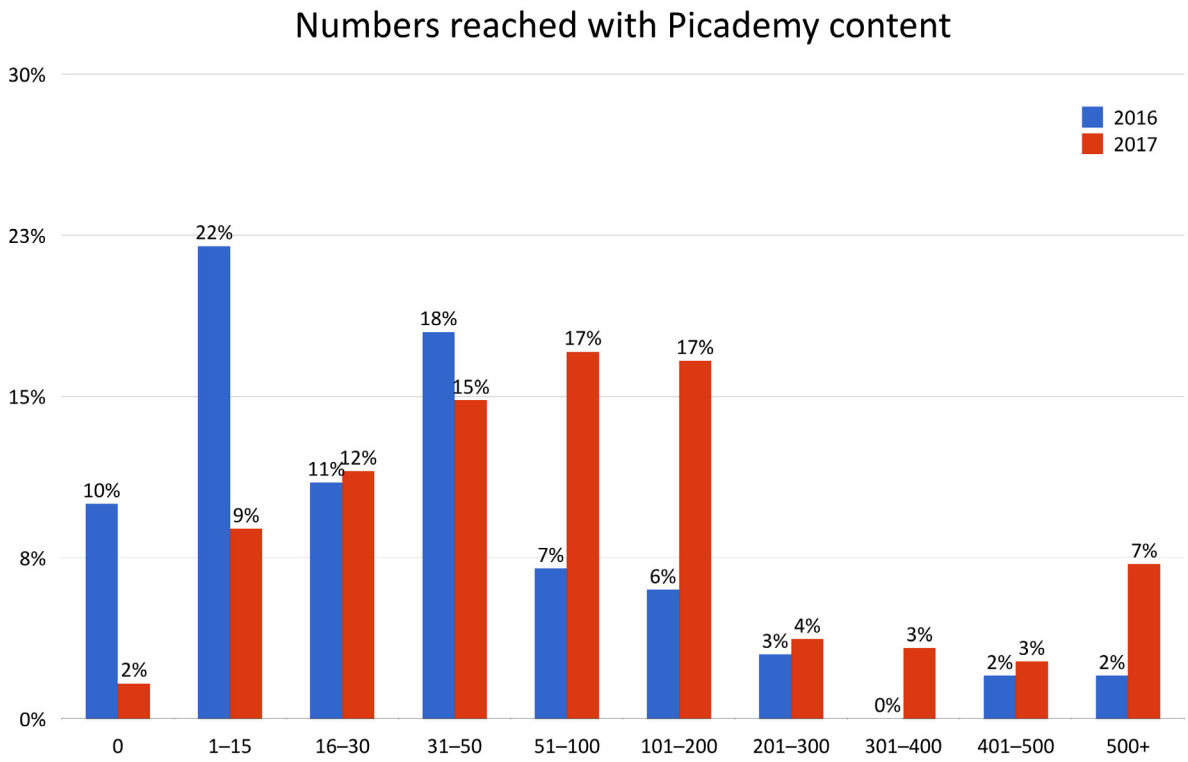
Discussed with their manager	N	%
Yes	391	80%
No	91	19%
No response	4	1%

Funded by their organisation	N	%
Yes	173	36%
Partially	64	13%
No	246	51%
No response	3	1%

Numbers of students reached

RCEs reported reaching an estimated total of 110 794 students with the content they have learned at Picademy; this is a mean reach of 264 students per educator. However, this mean is distorted by a relatively small number of RCEs who reported very large reach. These educators most likely were reporting the numbers of students reached by large-scale initiatives they had been involved in within a region or through a non-school organisation, rather than the number of learners they had reached face-to-face.

There was quite a range of responses to this question. The two peaks midway through the graph are likely primary teachers using what they learned with their own class (or the year group they work with) and secondary teachers using their learning with all of the young people they teach. These scenarios are the most prevalent.



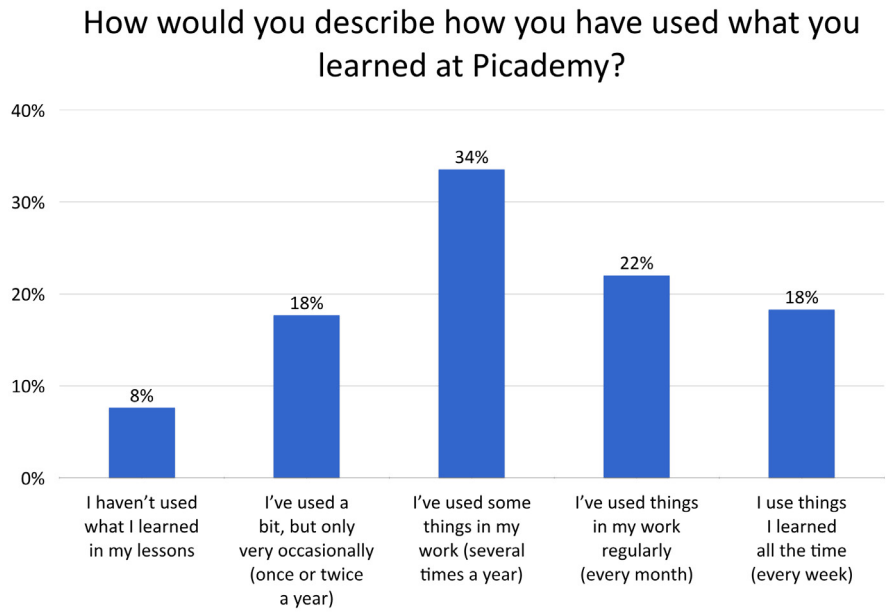
Last year RCEs who answered the survey estimated reaching a total of 42 364 people, compared to 110 794 people this year. The distribution shows that last year we had many more educators who reported only reaching small groups of students, or even none at all. This year's responding educators appear to have grown their reach, as many more estimated reaching larger numbers of students.

The total reach breaks down into 75 609 people reached by UK-trained educators and 35 185 by US-trained educators. On average, US educators reported a greater reach per person than UK educators: the mean reported reach of US educators 47% was higher than of that of educators trained in the UK. This finding correlates with the reported data about job roles, as the US cohort contains more administrative-level educators and people working in organizations like libraries, who will come into regular contact with more young people than school teachers do, although the type of contact will be different.

These 2017 figures are only for the 486 RCEs (45% of those trained) who answered our survey, therefore the total number of young people reached by all RCEs will be much higher. The 2016 figure is the sum total of only the 444 (60% of those trained at the time) responses from that year. We have seen a 161% increase in estimated reach compared to a 9% increase in survey responses, which appears to show that we are now reaching many more young people per RCE than last year.

How RCEs have used what they learned

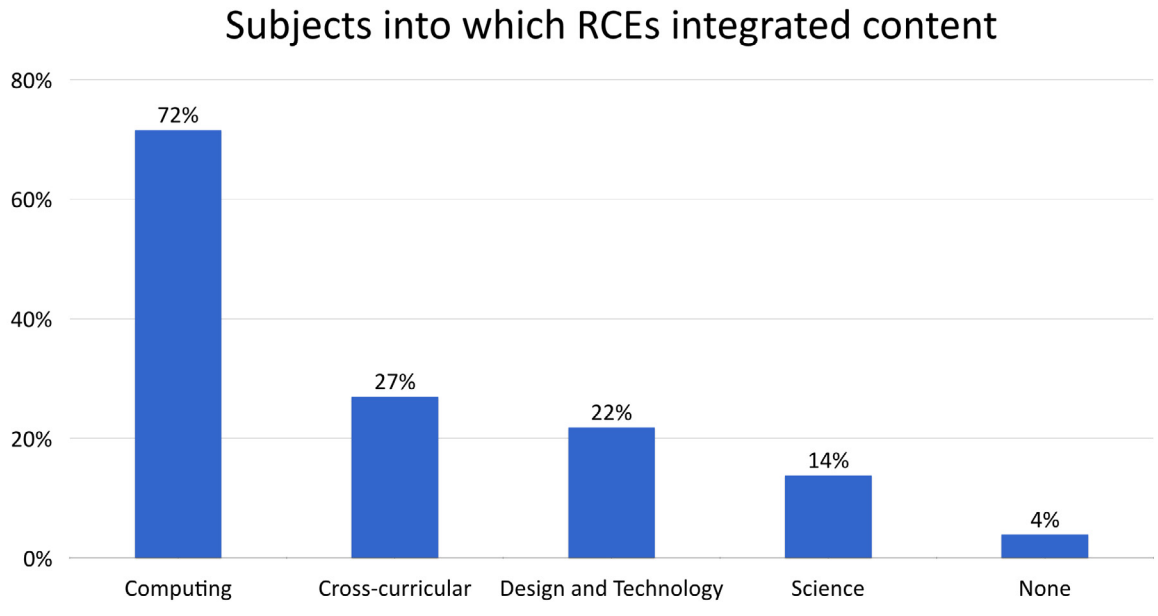
How much educators have used what they learned varies, but 74% of respondents reported doing so with some regularity. The distribution is skewed towards more regular use, and this trend is stronger for US-trained respondents than UK-trained respondents. A smaller proportion of RCEs than last year reported they have not used what they learned (8% compared to 12%). We can always continue to encourage RCEs to make use of and maintain their Picademy learning, but we seem to be seeing progress in this area.



How would you describe how you have used what you learned at Picademy?	N	%	UK%	US%
I haven't used what I learned in my lessons	37	8%	8%	5%
I've used a bit, but only very occasionally (once or twice a year)	86	18%	17%	19%
I've used some things in my work (several times a year)	163	34%	35%	30%
I've used things in my work regularly (every month)	107	22%	22%	21%
I use things I learned all the time (every week)	89	18%	17%	24%

Subjects into which RCEs integrated Picademy content

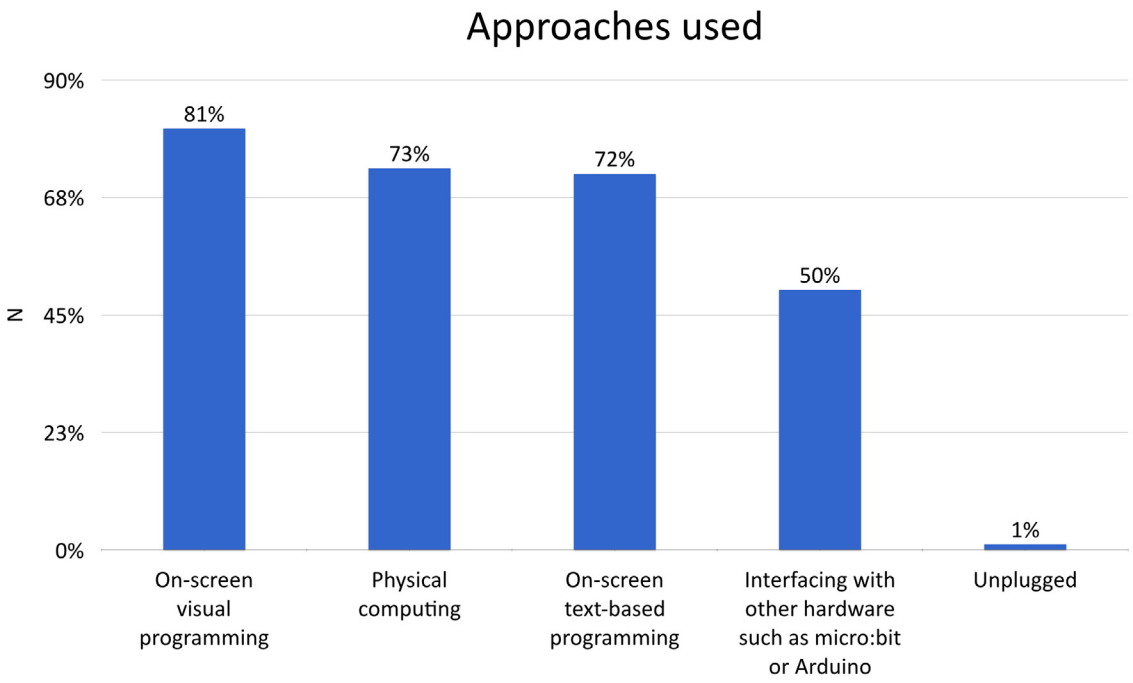
Computing is unsurprisingly the most commonly cited, with 72% of RCEs using Picademy content in this subject. Respondents also reported integrating what they learned into other subjects, with 27% using the content in cross-curricular work, 22% in Design and Technology, and 14% in Science.



Subjects into which RCEs integrated content	N	%
Computing	348	72%
Cross-curricular	131	27%
Design and Technology	106	22%
Science	67	14%
None	19	4%

Approaches used

On-screen programming (both visual and text-based) and physical computing are approaches used by the majority of RCEs. On-screen visual programming is the most popular (81% used), followed by physical computing (73%), then on-screen text-based programming (72%). Half of RCEs use other (i.e. non–Raspberry Pi) hardware (50%), and very few use unplugged approaches.



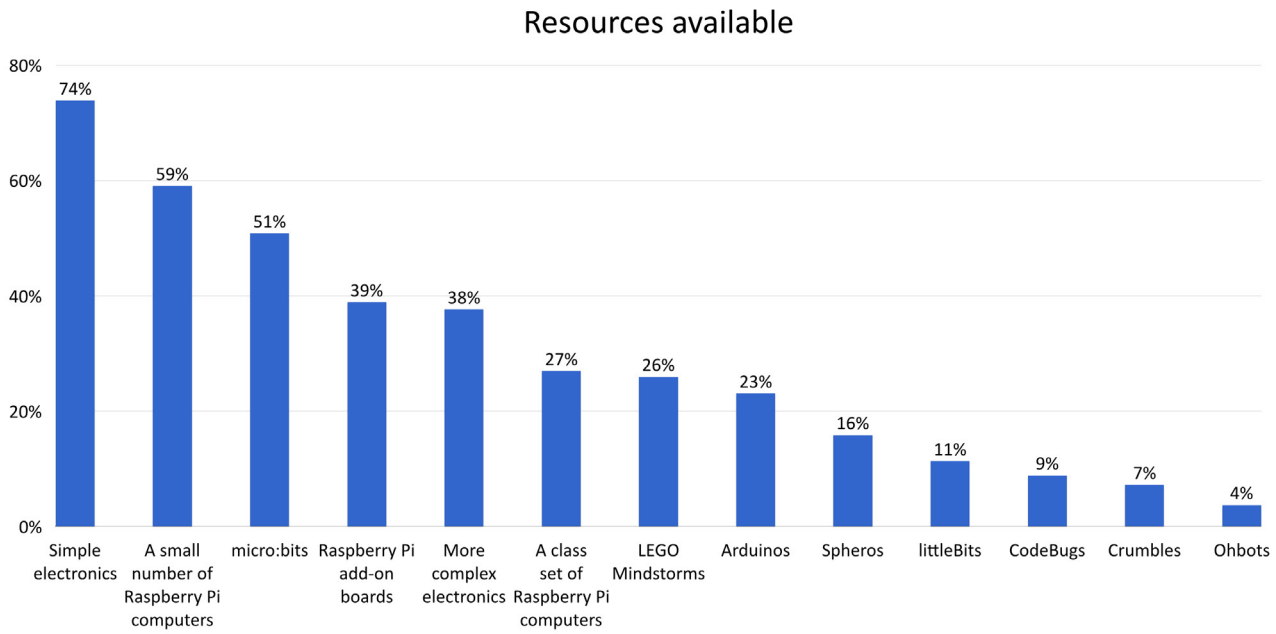
Approaches used	N	%
On-screen visual programming	392	81%
Physical computing	355	73%
On-screen text-based programming	350	72%
Interfacing with other hardware such as micro:bit or Arduino	242	50%
Unplugged	5	1%

Hardware resources

Simple electronics are the most commonly available hardware resources, perhaps due to their low cost and relative ease of use. Next in the ranking of available hardware is a small number of Raspberry Pi computers, but it is notable that only 59% of RCEs have access to these, especially since using the Raspberry Pi was one of the most commonly reported reasons for attending Picademy. Only 27% of respondents have access to a class set of Raspberry Pis. Among hardware from other providers, micro:bits are the most popular, with over half of RCEs (50.82%) having access to them.

There is quite a difference between the resources available to UK and US cohorts. In the US, a much higher proportion of RCEs has access to small numbers of Raspberry Pis as well as add-on boards, although a slightly smaller proportion has class sets. Arduinos, Spheros, and LittleBits are also much more commonly available for US RCEs, while micro:bits, CodeBugs, and Crumbles are more common in the UK. This is likely due to varying availability of different hardware in different countries. Overall, US educators have more access to some non–Raspberry Pi hardware than those in the UK cohort.

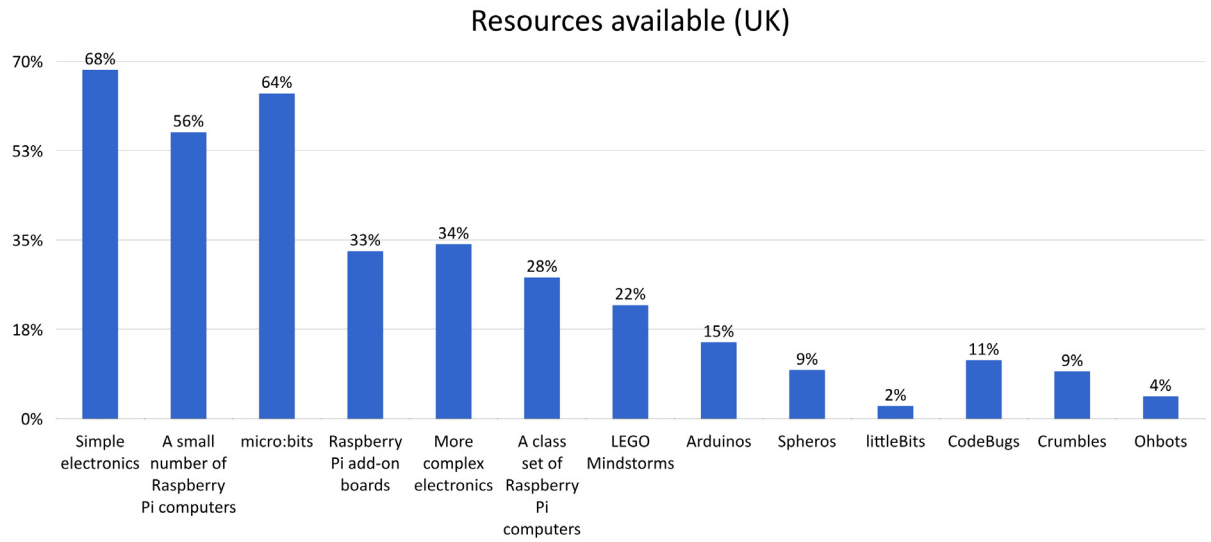
Compared to the 2016 survey, a slightly higher percentage of educators reported having access to some of the hardware resources, but there is no marked difference.

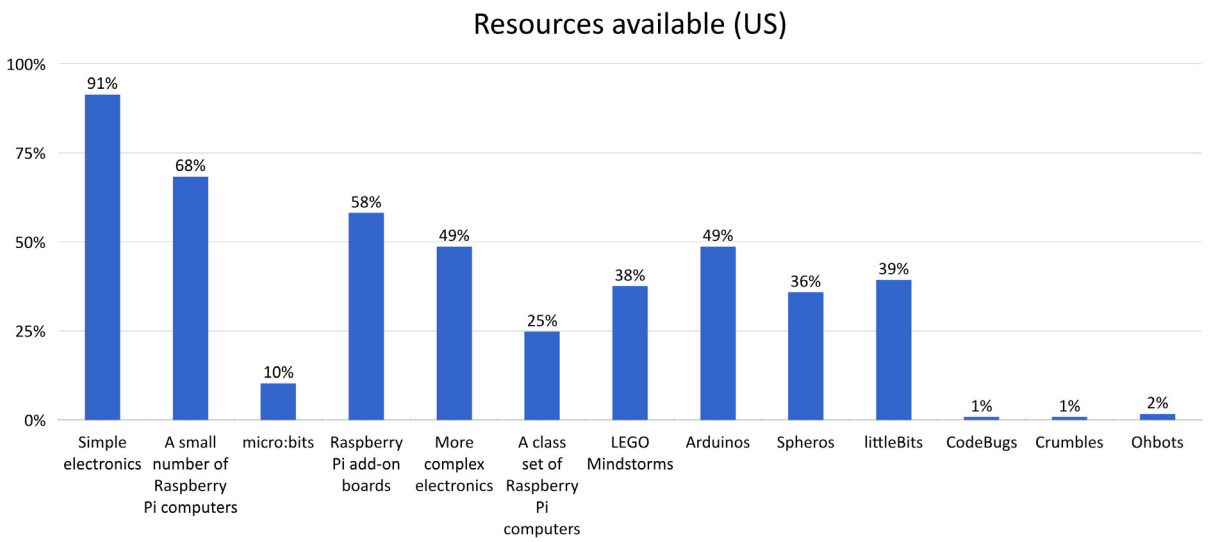


Resources available	N	%
Simple electronics	359	74%
A small number of Raspberry Pi computers	287	59%
micro:bits	247	51%
Raspberry Pi add-on boards	189	39%
More complex electronics	183	38%
A class set of Raspberry Pi computers	131	27%
LEGO Mindstorms	126	26%
Arduinos	112	23%

Spheros	77	16%
littleBits	55	11%
CodeBugs	43	9%
Crumbles	35	7%
Ohbots	18	4%

Respondents could choose more than one option.

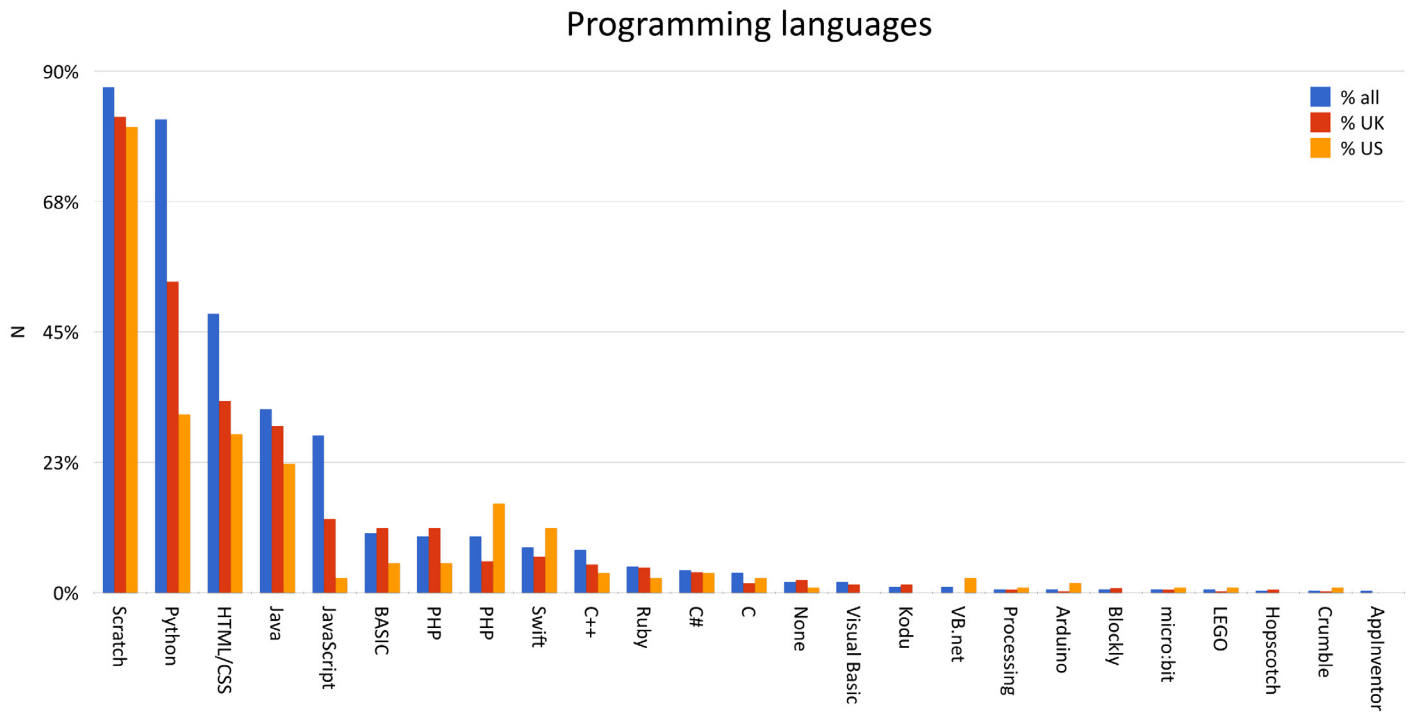




Programming languages

Scratch and Python dominate the work of RCEs both in the US and the UK. HTML/CSS is used by a third of UK-trained RCEs, and more than a quarter of those trained in the US. There is a long tail of many other programming languages in use, with BASIC and PHP notably more popular among UK respondents, and Swift and C++ more so among the US cohort. The Python-associated IDLE editors are the editor software tools RCEs use most frequently in their lessons. Sonic Pi is also popular (in this survey, it was represented as an editor rather than a language, although it could be described as both). Apple's XCode is more popular in the US; Mu is more popular in the UK.

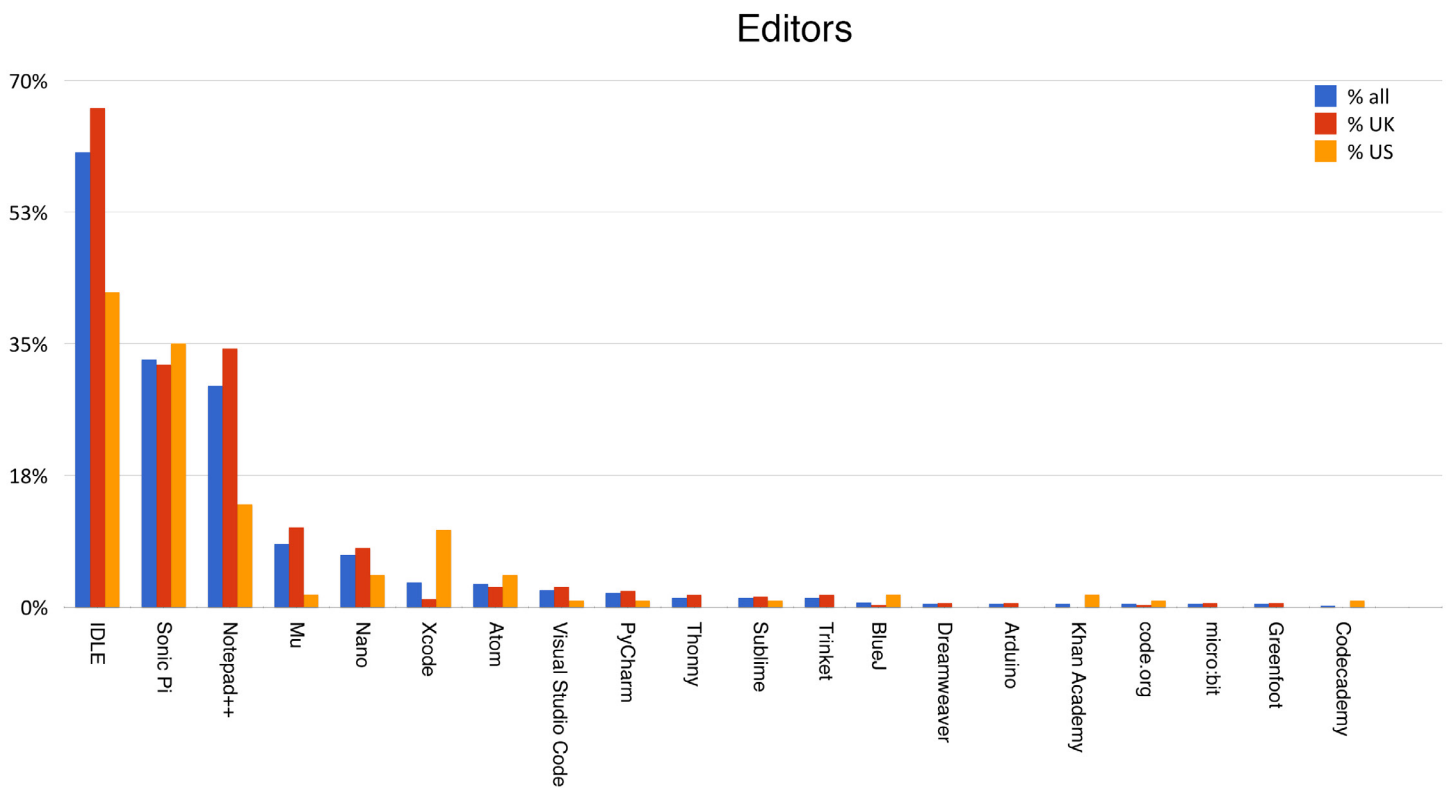
It is hard to say whether the reported popularity of Scratch and Python is a result of our training focusing on these languages, or a demonstration that we are supporting the languages people were most likely to use anyway. The editors we use in our training are also the ones most commonly used by RCEs. An exception is Notepad++, which may show some demand for a more fully featured editor.



Programming languages	% All	UK %	US %
Scratch	87%	82%	80%
Python	82%	54%	31%
HTML/CSS	48%	33%	27%
Java	32%	29%	22%
JavaScript	27%	13%	3%
BASIC	10%	11%	5%
PHP	10%	11%	5%
PHP	10%	5%	15%
Swift	8%	6%	11%
C++	7%	5%	3%
Ruby	5%	4%	3%
C#	4%	3%	3%
C	3%	2%	3%
None	2%	2%	1%
Visual Basic	2%	1%	0%
Kodu	1%	1%	0%
VB.net	1%	0%	3%
Processing	1%	1%	1%

Arduino	1%	0%	2%
Blockly	1%	1%	0%
micro:bit	1%	1%	1%
LEGO	1%	0%	1%
Hopscotch	0%	1%	0%
Crumble	0%	0%	1%
AppInventor	0%	0%	0%
Objective C	0%	0%	0%

Respondents could choose more than one option.



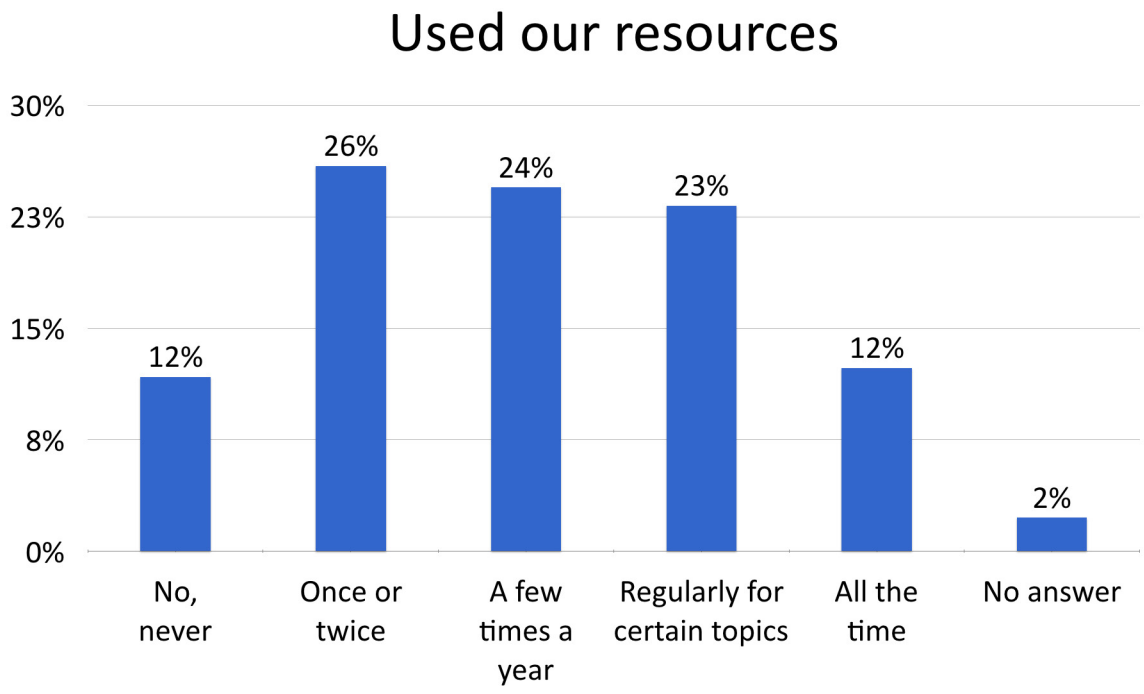
Editors	% All	UK %	US %
IDLE	60%	66%	42%
Sonic Pi	33%	32%	35%
Notepad++	29%	34%	14%
Mu	8%	11%	2%
Nano	7%	8%	4%
Xcode	3%	1%	10%
Atom	3%	3%	4%
Visual Studio Code	2%	3%	1%
PyCharm	2%	2%	1%
Sublime	1%	1%	1%
Thonny	1%	2%	0%
Trinket	1%	1%	0%
BlueJ	1%	0%	2%
Dreamweaver	0%	1%	0%
Arduino	0%	1%	0%
Khan Academy	0%	0%	2%

code.org	0%	0%	1%
micro:bit	0%	1%	0%
Greenfoot	0%	1%	0%
Codecademy	0%	0%	1%

Respondents could choose more than one option.

Use of our resources

86% of RCEs surveyed use our resources at times. There is a reasonable spread of usage frequencies, with most respondents using them once or twice or a few times a year, or regularly for certain topics. The extremes are less common. Although most RCEs make use of our resources, there is plenty of room for progress in terms of how often they do so. The responses are similar in proportion to those from the 2016 survey, apart from 'All the time', which has dropped from 22% to 12%. However, in this year's survey we introduced the new answer option 'Regularly for certain topics', which was chosen by 23% of respondents and may better describe how they use our resources than 'All the time'.

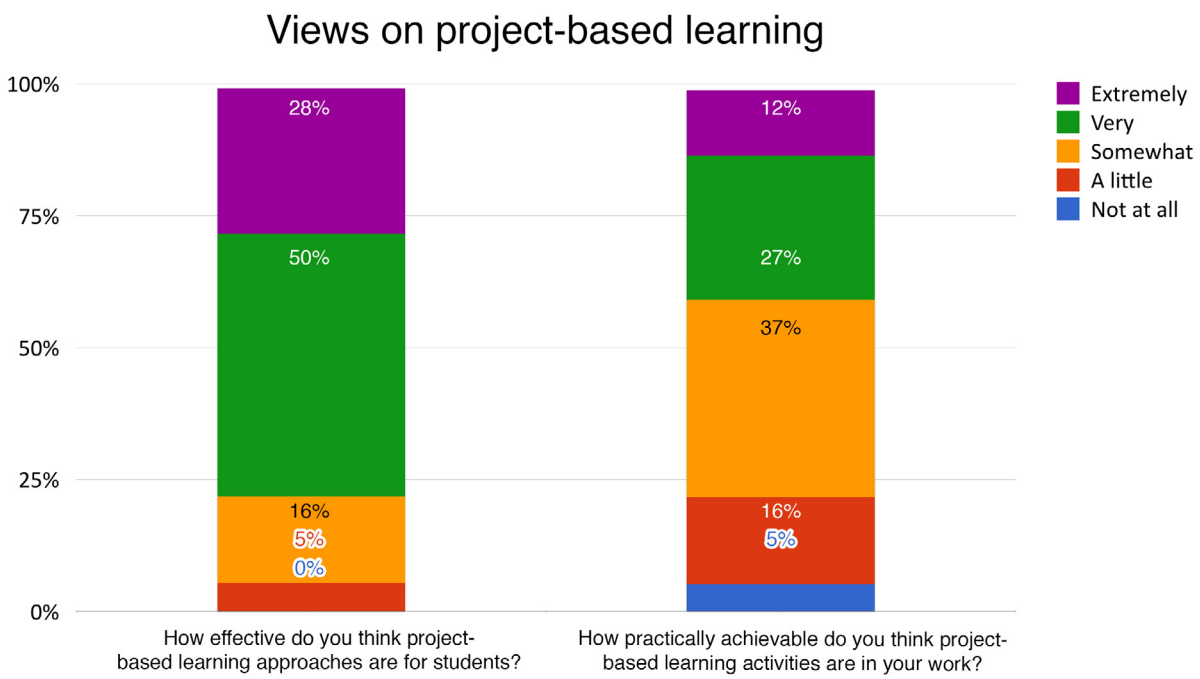


Used our resources	N	%
No, never	57	12%
Once or twice	126	26%
A few times a year	119	24%
Regularly for certain topics	113	23%
All the time	60	12%
No answer	11	2%

Project-based learning

We asked RCEs about their views on project-based learning (PBL): this approach is taken at Picademy, but it is something that would be new and innovative in many schools. 71% of RCEs reported taking a PBL approach at least sometimes, with 23% of them doing so regularly. This answer was more common among the US cohort, with 37% of US-trained RCEs using PBL regularly, compared to 19% in the UK. PBL has had a lot of attention in the US, and it may be that as a result, educators are more primed to take this approach on board at Picademy. Other possible explanations include that they can access other support in addition to what we provide, or that their school context is more conducive to this approach. There are still 28% of RCEs who have not taken a PBL approach, so more support for them may be needed.

Generally, RCEs were very positive about the effectiveness of PBL, with none of them thinking it is ineffective. However, there is a difference between how effective they think it is and how practically achievable it is in their work. 5% said they think PBL was not at all achievable, and 17% think it is only a little achievable. It seems that while there is little persuasion necessary regarding the effectiveness of PBL, more support is needed on how to put it into practice.



Have you taken a project-based learning approach?	N	%	UK%	US%
No, never	137	28%	32%	15%
Yes, on some occasions	233	48%	48%	47%
Yes, regularly	111	23%	19%	37%

Best things

We asked RCEs about the best thing they had done since Picademy, and we received a wide range of responses. Some examples are:

> *"Tackled an MIT computer science course."*

> *"Taken a team to Pi Wars."*

> *"Tried to give the learners more room for creative, play-based learning."*

“Started a Code Club and had 150 kids out of 600 at our school go through Scratch 1 and beyond.“

“Taken more risks, tried more projects, connected with amazing educators.”

“Made a motion sensor–activated camera with kids at the library.”

“As a result of Picademy, we were able to get Raspberry Pi, Arduinos, and other tools in use in all of our middle schools. Because of the enthusiasm, all middle school students will learn coding for a semester and also create items of interest in our makerspace.”

“Bringing physical computing as an aid to family bonding.”

“Gained confidence to just jump into projects with the kids.”

“My students have won the SciChallenge European contest programming sensors.”

“Started to explore physical computing in class, led me to Crumble and robotics.”

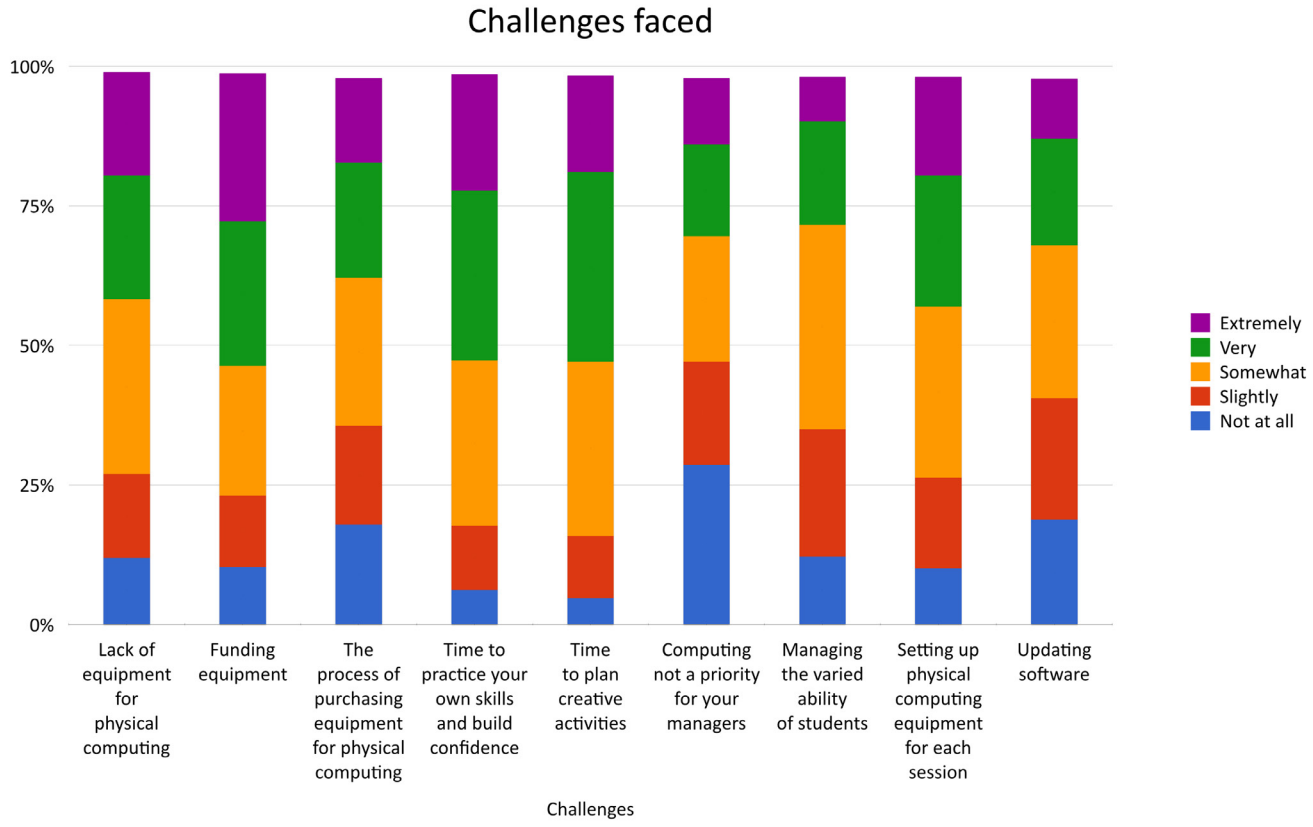
“Secured a $5000 grant to have students build and program on Raspberry Pi a vertical hydroponics farm for our school. It will align to 7th grade plant life science and home economics use of herbs and spices.”

“I have made a network of people with the same goal to move technology forward.”

Challenges faced

We asked about common challenges that came up in last year's survey. Funding equipment is the greatest challenge. The second biggest challenge is lack of time to practice skills and build confidence, closely followed by lack of time to plan creative activities. Lack of equipment and setting up physical equipment are the next biggest challenges. Encouragingly, computing not being a priority for managers is the lowest-rated challenge, although 50% of educators did say it was at least somewhat of a challenge.

This suggests educators would benefit from more support or initiatives to help them get access to equipment for the activities covered in Picademy. They would also benefit from structured opportunities to help them to practice what they have learned. Our online training courses do provide such opportunities, and they had only been running a short time when this survey was sent out. Continuing to develop and promote these courses could help to address this challenge.



Example responses for other challenges

"The issue I've had is I felt I needed a follow-up quite soon. It was not really long enough for me to confidently use what I learnt. It was truly inspirational, and it's been enormously frustrating to be unable to use it."

"I lack hardware!"

"The main challenge is finding time to consolidate my own learning and develop lesson plans suitable for the age group of the children"

"Obviously the biggest challenge is getting the equipment, but time to become confident with all the different skills is hard too."

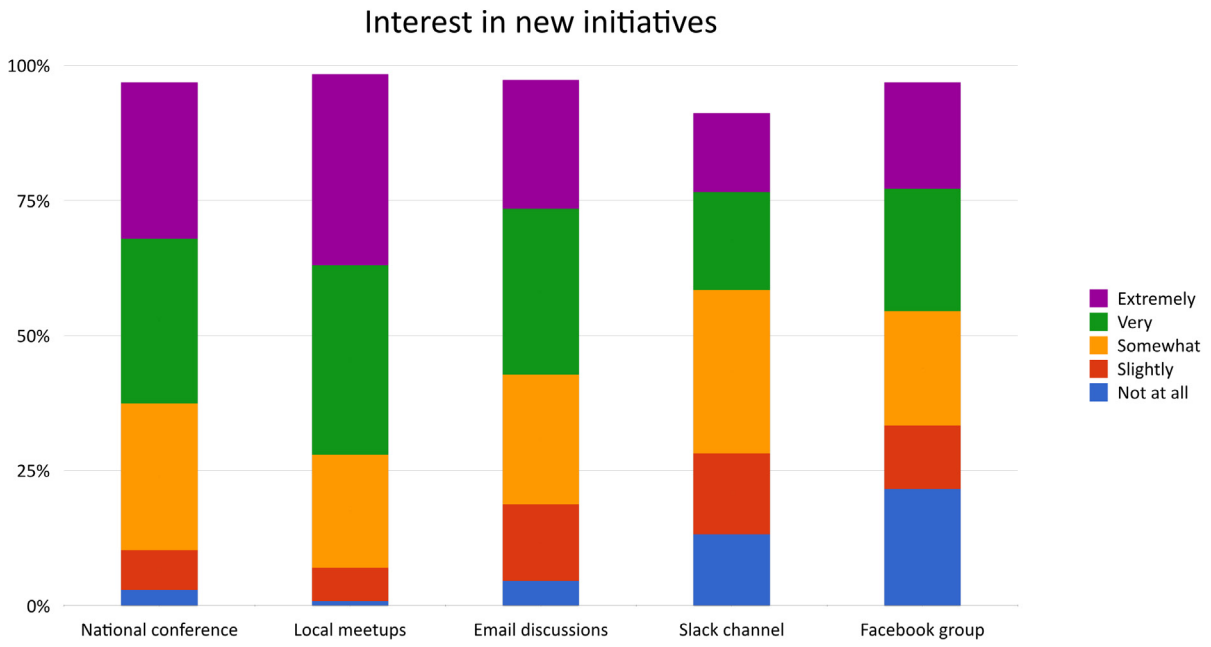
"When it doesn't work and I can't figure out why."

"Software updates: updates are easy to do from a technical point of view, but doing so for multiple class sets at a time has been tricky."

"It's only finding the time to do everything. Lots of creative ideas, very little design time!"

Interest in new initiatives

We asked respondents how interested they would be in some other forms of support. The strongest demand is for face-to-face initiatives, particularly local meetups, which have very strong support (70% of RCEs either very or extremely interested). There are quite polarised opinions on Facebook groups: similar proportions of respondents said that they are not at all interested or that they are extremely interested. Email discussions have strong support, with 55% of RCEs being very or extremely interested.

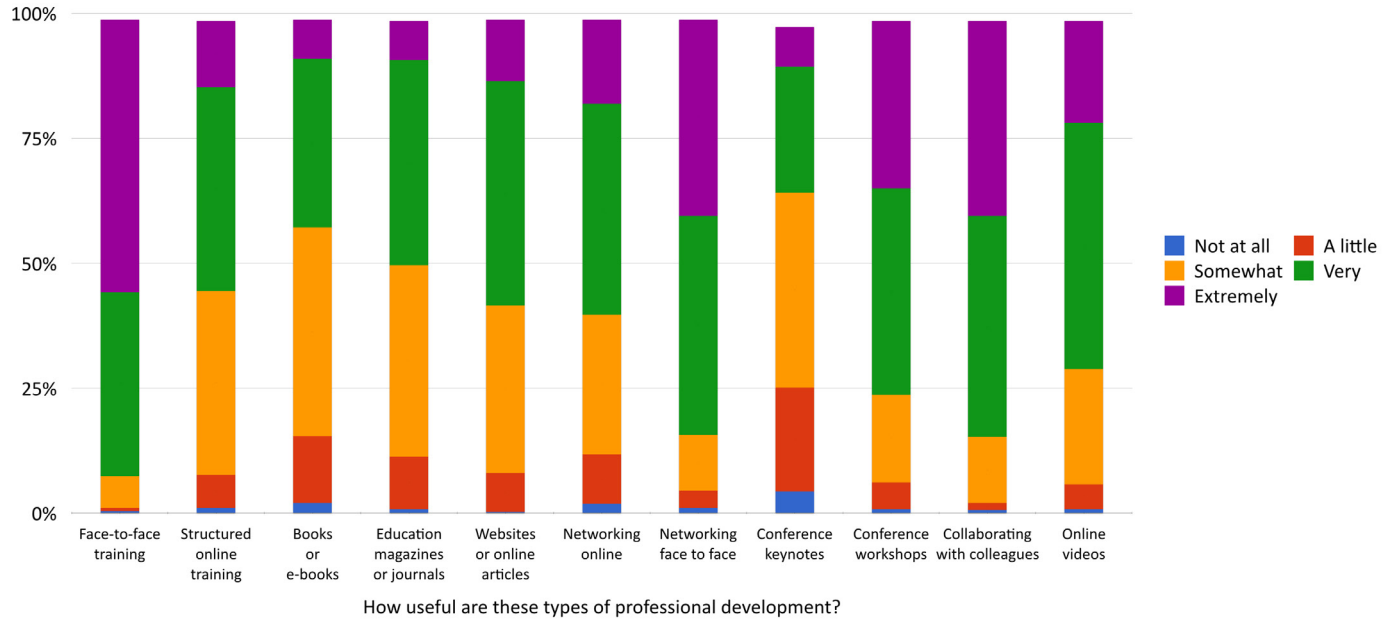


Interest in new initiatives	Not at all	Slightly	Somewhat	Very	Extremely
National conference	3%	7%	27%	30%	29%
Local meetups	1%	6%	21%	35%	35%
Email discussions	5%	14%	24%	31%	24%
Slack channel	13%	15%	30%	18%	15%
Facebook group	22%	12%	21%	23%	20%

Usefulness of different types of professional development

We asked respondents how useful they found different types of professional development. RCEs were generally positive about all of the options, showing their appetite for professional development in general. The most popular types are face-to-face activities, such as collaborating with colleagues, face-to-face training, and networking face-to-face. It's worth noting that online videos have a lot of support, and more so than magazines, books and e-books, and online articles. The least popular type by some margin is conference keynotes, followed by books and e-books. All other options had at least 50% of RCEs very or extremely interested.

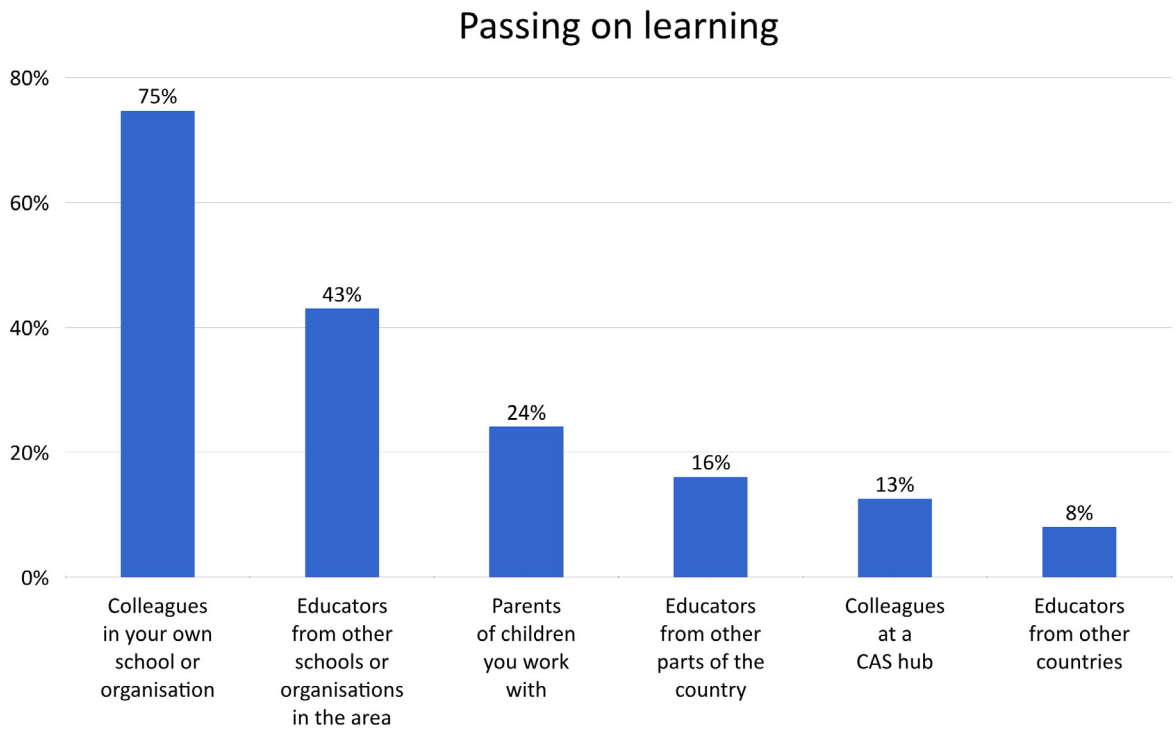
The picture is similar in the US and the UK, but in the US there is notably even stronger support for networking face-to-face and collaborating with colleagues.



Passing on learning

RCEs have most commonly passed on what they learned to colleagues in their own organisation: 75% of RCEs have done this. 43% have worked with educators outside of their own schools, and encouraging numbers have worked with those further afield.

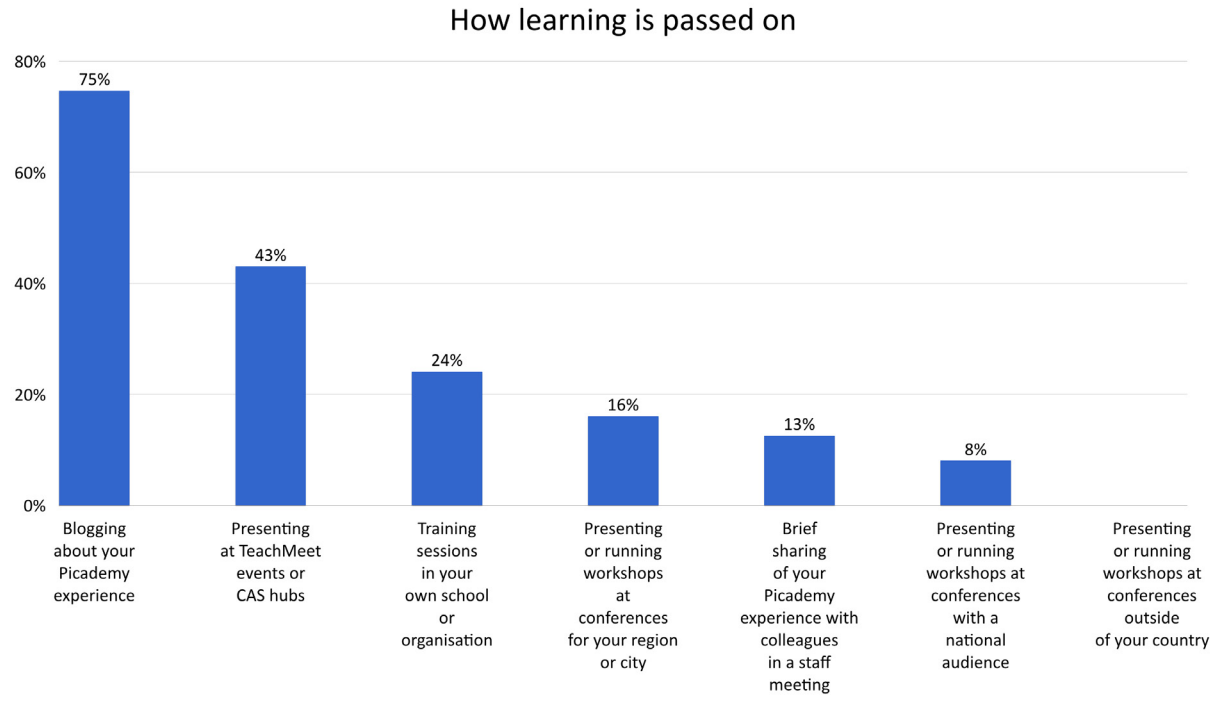
Comparing these results to last year, the only notable differences are a 3% increase in RCEs sharing with colleagues in their own organisation and a 3% increase in those indicating they shared with educators in other countries.



To whom have you passed on your learning?	N	%
Colleagues in your own school or organisation	359	74%
Educators from other schools or organisations in the area	287	59%
Parents of children you work with	247	51%
Educators from other parts of the country	189	39%
Colleagues at a CAS hub	183	38%
Educators from other countries	131	27%

Educators could choose more than one of these categories.

Only 24% of respondents have run training sessions in their own schools, suggesting much of the passing on of learning has happened through informal channels. This may have taken the form of advising other teachers on their plans, teaching together, or feeding in ideas as they work together. The most common method for passing on learning is blogging, with 75% of respondents writing about their experiences online. 43% have presented at TeachMeet or CAS Hub events, but only 13% have shared their Picademy experience in a staff meeting.



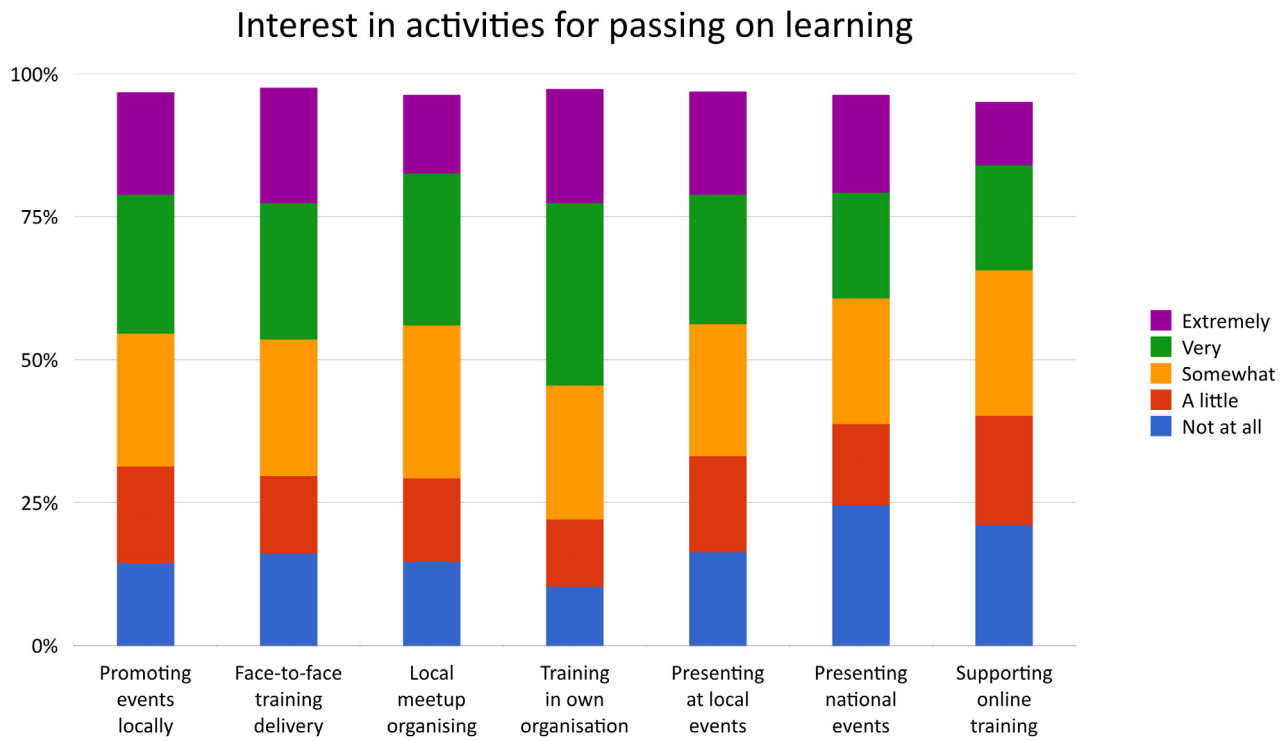
How have you passed on what you learned?	N	%
Blogging about your Picademy experience	363	75%
Presenting at TeachMeet events or CAS hubs	209	43%
Training sessions in your own school or organisation	117	24%
Presenting or running workshops at conferences for your region or city	78	16%
Brief sharing of your Picademy experience with colleagues in a staff meeting	61	13%

Presenting or running workshops at conferences with a national audience	39	8%
Presenting or running workshops at conferences outside of your country	0	0%

Respondents could choose more than one option.

Compared to 2016, the percentage of RCEs who reported blogging about their experience has increased a lot (from 16% to 75%). There have been big drops in the proportions of respondents who briefly shared experiences in staff meetings (from 54% to 12%) and who ran training sessions in their organisation (from 39% to 24%). However, the proportion of those who reported presenting at TeachMeet or CAS hub events has increased from 10% to 43%. It seems that in the last year, RCEs have been blogging more and engaging with regional CAS or TeachMeet events a lot more, but they have been sharing experiences and training within their own organisations much less frequently.

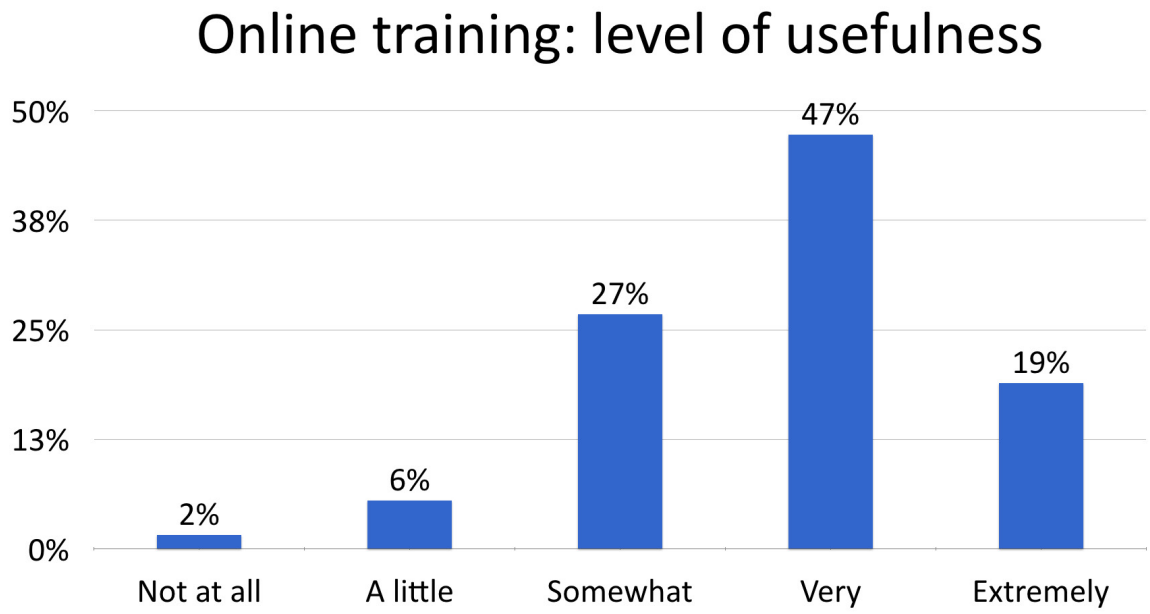
We also asked about types of activities that RCEs might be interested in for the purpose of passing on what they have learned. The strongest interest was in running training in their own organisations, which, as previous questions showed, is something that could be happening more often. It may be that TeachMeet and CAS events provide explicitly structured opportunities to share learning, and that more structure is needed for RCEs to see the best ways to do so within their own organisation. There is fairly strong interest in all of these ideas, showing RCEs are enthusiastic about passing on their learning. The answers regarding training in their own schools (as well as previous case studies) suggest that they may need some more formal measures, such as a named initiative which provides some structure and resources, in order to make passing on their learning seem feasible. We are currently working on resources to provide this kind of support, but we need to bear in mind the lack of time that RCEs reported before trying out too many ideas.



Online training

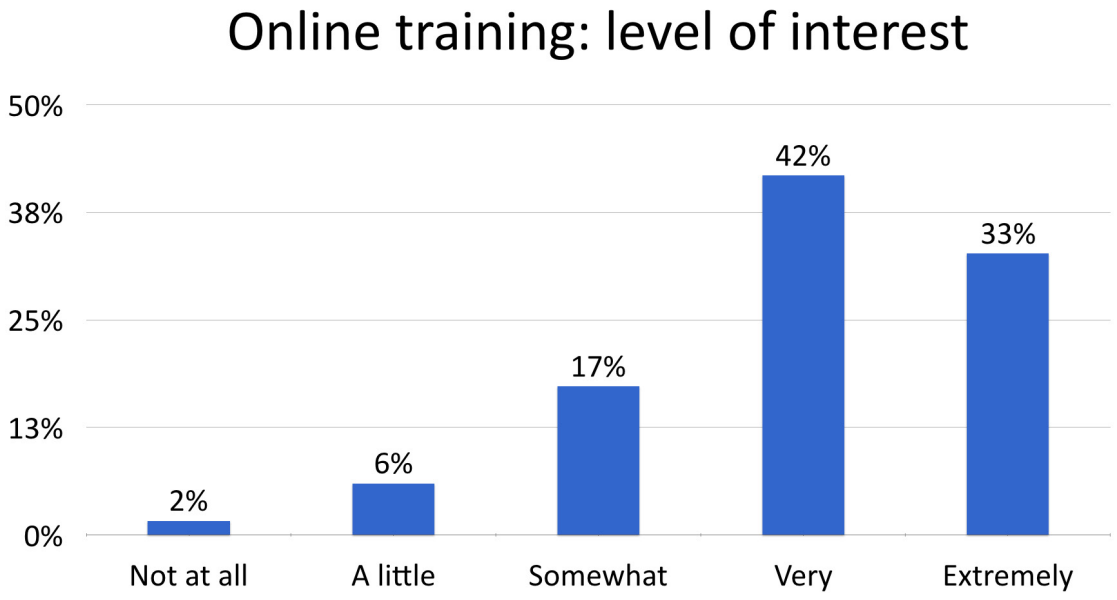
27% of RCEs have used some of our online training courses; use of the courses is a little more common among the UK cohort than the US cohort. It should be kept in mind that our online training had only launched a few months before the 2017 survey was carried out. Feedback on the usefulness is very positive, with 66% of respondents who have used the training rating it as very or extremely useful. 74% of all RCEs said they were very or extremely interested in online training, and 98% said they were at least a little interested.

There is clearly very strong interest in the online training among RCEs in general, and strong satisfaction with it among RCEs who have participated. With continued promotion, many more RCEs can potentially benefit from our courses in the next year.

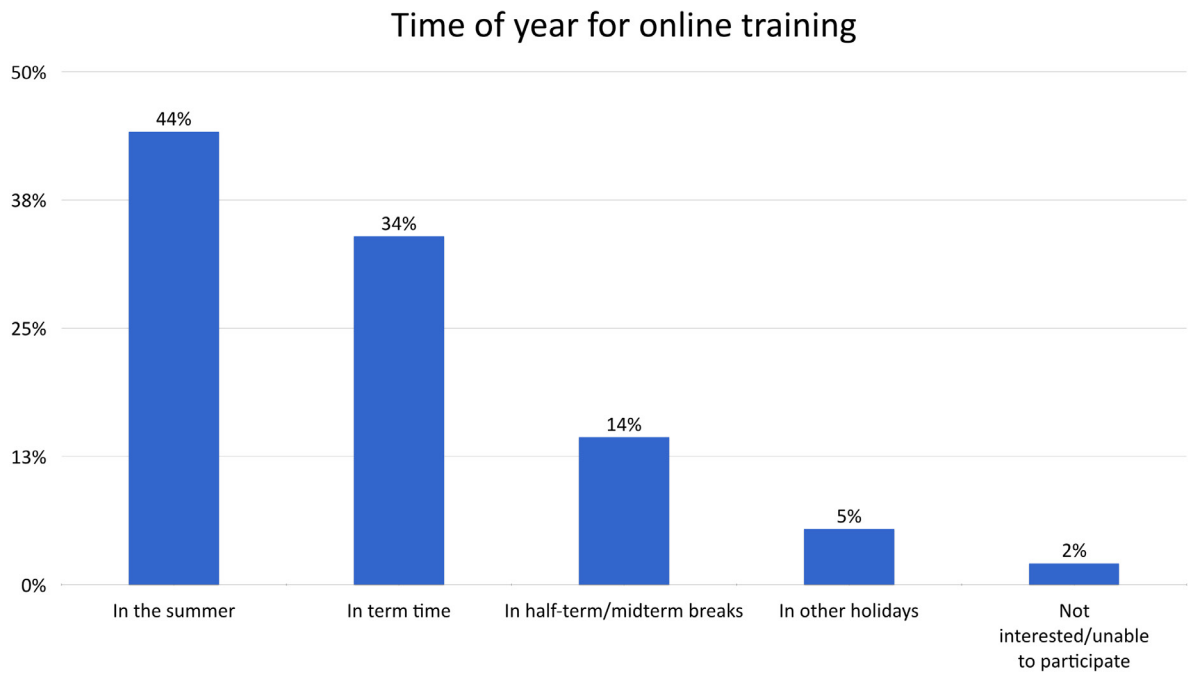


(Responses of RCEs who have participated in it).

Used online training	N	All	UK	US
Yes	132	27%	29%	21%
No	354	73%	71%	79%



With a view to expanding the take-up of online training, we asked during which time of the year the educators would prefer to take these courses. The summer holidays came out as most popular (44%), with during term time in second place (34%). It seems RCEs are less interested in or able to participate in online training during half-term/midterm breaks or the Easter or Christmas holidays.



We also asked about areas of interest for future courses. They were all rated very strongly in terms of interest, but 'creative computing' was the most popular (81%). Unfortunately, the high enthusiasm across the board does not tell us much about which area to prioritise, although it appears that people prefer practical skills and projects to delivery of more theoretical concepts.

Online training areas of interest	N	%
Themed ambitious projects	353	74%
Programming skills	358	75%
Creative computing	390	81%
Computer science concepts	326	68%

Respondents could choose more than one option.

Options given were:

- Themed ambitious projects (e.g. high-altitude ballooning, wearable technology, robotics)
- Programming skills (e.g. ICT to Computing, Node-RED, advanced Python)
- Creative computing (e.g. GitHub collaboration, cross-curricular computing, introducing new technologies into the classroom)
- Computer science concepts (e.g. computational thinking)

Ideas for online training

We also asked RCEs for their ideas about further online training, and received a range of interesting responses:

> *"How do you engage the majority of teachers who would love this stuff, but find the current offerings daunting?"*

> *"Real-time workshops where participants could create projects along with facilitator via online interface."*

> *"CDP-worthy certificates make them more appealing."*

> *"Look at how it can be related to the NC objectives for computing, which are very cumbersome."*

> *"Perhaps rated as to the difficulty? Projects that could be learned that relate to the CFE experiences and outcomes?"*

> *"Some of your learners are starting completely from scratch and have much more of a learning curve than others. It takes time to fully grasp the concepts, put them all together, and then be able to carry out an overall project or deliver a session to others. That said, I have sometimes thrown myself in at the deep end, as this spurs me on to learn and understand what it is I am trying to do."*

"Use of video chat like Skype or Google hangouts."

"It might be helpful to identify some regional leaders so that folks who wanted to could do some face-to-face sharing too while learning online."

"Try to schedule meetups for geographical areas for the participants and trainers. Send a cool tip/project of the week to people via email."

"Make some available for staff teams to complete together, e.g. as a staff INSET."

"Don't require team meetups; I took a online course that required people to meet up outside of the online course regularly, and that was probably the most difficult part."

"I would love to have interactive modules where we record screencast videos and submit to share."

"For teachers I think it should support curriculum outcomes — less flexibility and narrower scope than hobbyists."

"Advanced course would be great! Let's turn it up to 11! "

"Supplementary course notes to print/refer to/make notes to help and for future use."

"Be opinionated: pick (and champion) one option, provide high-quality resources. There's a huge amount of time wasted exploring and choosing between different libraries or platforms, when often it makes little difference. I'd gladly outsource those decisions and follow informed, practical, pragmatic advice — indeed, that's why I'm using Python."

Ways of reaching other educators

We asked RCEs for their suggestions to help us reach other educators who are not already aware of our resources and programmes.

Some of the ideas included:

- Groups on social media we are not currently using, such as Facebook
- Local meetups or locally provided CPD sessions
- A working group of educators to advise us on this issue
- Training in schools
- Working with groups/schools/trusts
- A one-day Picademy, or shorter courses
- Encouraging RCEs to spread the word
- Direct mailings to schools or senior management
- Wider advertising, possibly through other education organisations
- More events in school holidays
- Cross-curricular events
- A better experience for total beginners
- Advertising in more general education publications or teacher magazines
- Less focus on the Raspberry Pi computer itself
- Covering supply costs for training

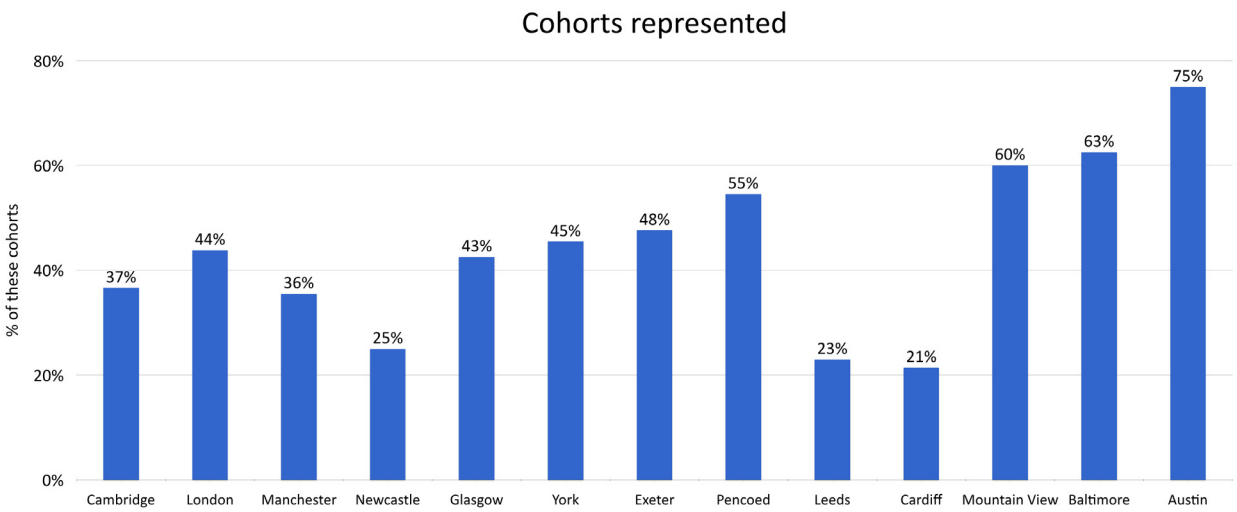
Representativeness of survey

This survey was sent out to all RCEs that had been through the training until around a month before. It was primarily sent via email, but also shared on social media and through our education newsletter. To encourage participation, a lottery for five sets of five Raspberry Pi Zero W computers was run among all respondents who completed the survey. It is inevitable that the survey will not be fully representative, and it is very likely that those RCEs who completed it are the most enthusiastic ones. However, we have some data allowing us to judge how representative the survey is in terms of cohorts.

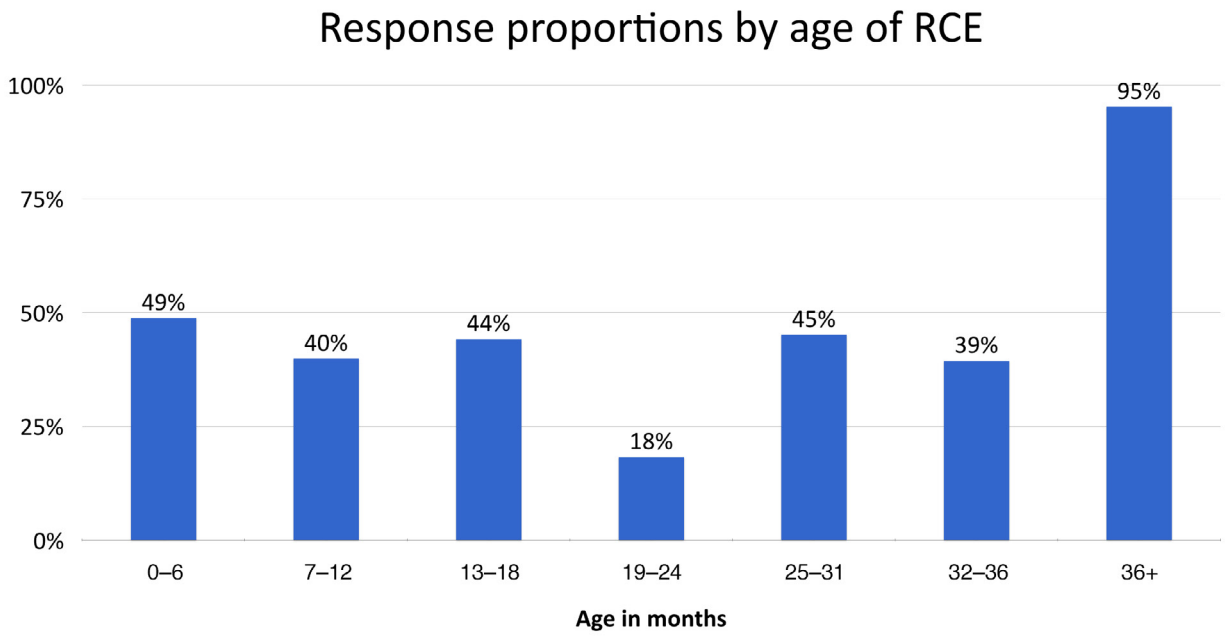
The completion rate for UK educators was 37%, and for the US it was 72%, so the overall findings will over-represent the US cohorts. However, where there are notable differences, they have been indicated in this report.

Picademy location	N	% of respondents	% of these cohorts
UK	369	76%	37%
USA	117	24%	72%

We also looked at the response rates from the different cohorts of RCEs by city. At least 20% of each cohort responded, and in some cases the rate was above 60%. There is a fairly good representation in terms of cohorts, with a few cohorts less well represented than the average (Leeds, Newcastle, and Cardiff in particular).



We calculated the 'age' of RCEs in terms of how many months had elapsed since their training. We then looked at how represented each age group was among the survey respondents. Surprisingly, the representation across most ages is quite similar, suggesting that the survey is quite representative of RCEs in this aspect. 19- to 24-month-old RCEs are under-represented, and the oldest group (the first cohort in Cambridge) is over-represented. This might be expected, at the most enthusiastic people were probably involved in the very first Picademy.




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Computer Science
Program your
Run experiments
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Conclusion

This survey allowed us to find out the views and impact of 45% of the Raspberry Certified Educators trained to date. The findings are likely to represent the most enthusiastic educators, but the high response rate and the good spread of responding RCEs in terms of location and time since their training suggest that we have captured a representative picture of views among Picademy-trained educators. The overall results may be somewhat skewed towards participants trained in the US due to the higher response rate from this cohort. Therefore, notable differences between responses by UK- and US-trained educators have been identified.

The overall comments and feedback were hugely positive, and the majority of RCEs appear to value the training and being part of the community. Respondents estimated reaching 110 794 children and young people with what they have learned. This is a large increase in overall reach compared to last year, where the estimated total reach was 42 364; the average reach of RCEs also appears to have increased.

Most RCEs who responded are making use of what they learned at Picademy in their teaching at least several times a year. Only 8% reported not having used what they learned. This is also an increase compared to the figures collected in the 2016 survey.

We found out much more about the work of RCEs, including that a third of them have degrees in computer science or a related subject and that the average RCE also takes part in another Raspberry Pi Foundation programme (most often Code Club). Three quarters of respondents keep in touch with each other after Picademy, using both face-to-face and online communication.

Support for CPD from schools and organisations is still a challenge: while 80% of RCEs discussed going to Picademy with their managers, only 36% had their travel and accommodation costs covered.

RCEs do not always have access to large amounts of equipment: only 59% of them have access to a small number of Raspberry Pi computers, and 27% to a class set. 51% have access to micro:bits; these were given to every secondary school in the UK. This makes on-screen programming (either visual or text-based) the most common approach, but many RCEs are experimenting with physical computing where they can. Scratch and Python lead among the programming languages in use, with HTML/CSS, Java, and JavaScript also being popular. There are many other languages used by small numbers of RCEs.

Funding for equipment is the most common challenge for RCEs. They also find it challenging to find time to practice skills, build confidence, and plan activities. The most popular types of educator support are those involving face-to-face events, with online videos being popular as well.

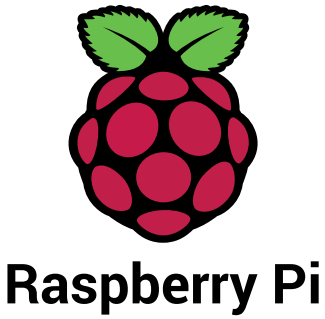
Three quarters of RCEs have passed on their learning to colleagues in their own organisations, and 43% to outside educators. Respondents seem to be focusing on sharing outside of their organisations more than inside; they are keen to do more to pass on their learning, and there may be opportunities to encourage them to do more light-touch sharing with people they work with on an ongoing basis.

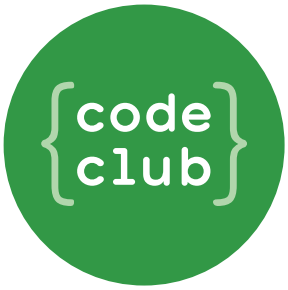
Our online training is popular with RCEs, with 27% of them having taken part and rating it very highly. Almost three quarters are very interested in the courses, and it appears that this type of training is a good area to continue to promote to them, especially as the RCEs are saying they need more opportunities to practice and develop their skills.

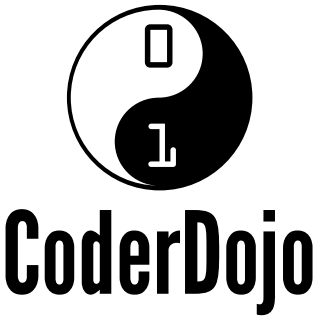
We asked for suggestions for reaching more educators, and the RCEs offered a range of options. The most common ones concerned variations of local meetups and face-to-face events — the same events they are keen to take part in themselves. There may be opportunities in enabling them to run events themselves that also attract more educators and allow them to find out about the training, resources, and programmes offered by us.

As in previous years, along with all the data, there are large numbers of enthusiastic and positive comments in the responses. They show the energy of the RCE community and the value RCEs place on their experiences at Picademy and on the range of other opportunities through which we support them. There are possibilities in using the collected suggestions to continue developing our support for educators, and to bring even more of them into this community.









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