TRANSFORMING LEARNING: TEACHERS’ ATTITUDE TO USING MOBILE TECHNOLOGY IN CLASS

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Background

Techknowledge for Schools embarked on the Transforming Learning project in the autumn, 2014. Using a qualitative methodology, including ethnographic observation, the project looked at the way in which teachers and students adapt to new ways of teaching and learning when one-to-one mobile digital devices are used in class. An important finding is that teachers believe that using mobile technology in class can have a positive impact on a wide range of students’ skills, however teachers require ongoing training and support to ensure the benefits are maximised1.

On the advice of the Family Kids & Youth’s (FK&Y) pedagogy2 group it was suggested that these finding should be quantified. 361 teachers in 21 schools were interviewed online (see Appendix 1). This report looks at the attitude of teachers towards using one-to-one mobile technology in teaching, the challenges they face when using the technology and their need for training and support. A second report (Transforming Learning: Future Skills3) looks at the skills students can develop through the use of one-to-one technology in teaching and learning, based upon the CBI ‘character skills’ framework4.

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1 Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London
http://techknowledge.org.uk/research/research-reports/transforming-learning/

2 FK&Y is advised by its Pedagogy Group which was formed in 2013 by Dr Barbie Clarke and includes Professor Colleen McLaughlin, Professor David Buckingham, Dr Duncan Mackrill as well as Head Teachers. The Group meets four times a year.

3 Transforming Learning: Future Skills, December 2015, FKY London
http://techknowledge.org.uk/research/research-reports/future-skills/

Management Summary

1. Use of mobile technology

- The majority of the schools surveyed use one-to-one mobile technology on a regular basis with all (38%) or some (50%) school years.
- Most (85%) of the teachers who use one-to-one devices in their teaching do so every week, with almost two in five (58%) using them on a daily basis and 15% in every lesson.
- The majority of teachers employ other teaching models when using one-to-one mobile technology in class, mainly flipped or project based learning.
- There is a clear opportunity to further increase the use of mobile technology in class; half of teachers would like to use mobile technology in their teaching more, rising to 64% for teachers who are using the technology every day but not for every lesson.

Attitudes to the use of mobile technology

- The majority of teachers and school leaders surveyed feel positive about the use of one-to-one mobile technology in their school (72%) and feel confident about using it in their lessons (78%).
- These positive attitudes towards the use of one-to-one mobile devices in teaching are perhaps to be expected given the majority of schools that have responded to the survey have one-to-one devices across most or all year groups.
- However, there is a relatively low proportion of teachers who feel very positive and very confident (19%, n=47) which suggests that there is an opportunity to support teachers further in their use of one-to-one mobile devices.
- Students use mobile one-to-one technology in a variety of ways (on average for 5.5 tasks), mainly for accessing information and resources.
- There appears to be an opportunity to increase the use of one-to-one devices for creating and uploading content; currently devices are less likely to be used for this purpose.
- Frequency of use and the range and types of activities the devices are used for is closely linked to attitudes towards one-to-one mobile devices. Teachers who are personally very confident in and very positive about using the devices in their lessons (n=47) are more likely to be using them on a daily basis (87% versus 40%), particularly for every lesson (40% versus 4%).

5 Flipped Learning is a teaching method in which students learn new content online by watching video lectures, reviewing presentations or conducting research, usually at home, and what used to be homework is completed in class with the teacher offering more personalised guidance and interaction with students. http://www.flippedlearning.org/cms/lib07/VA01923112/Centricity/Domain/46/FLIP_handout_FNL_Web.pdf
6 Project Based Learning is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an engaging and complex question, problem, or challenge. http://bie.org/about/what_pbl
Students of these very positive and confident teachers also use their devices for a wider range of different activities (7.5 versus 4.2), in particular to access resources prepared by their teacher (77% versus 43%), access resources on (72% versus 32%) or upload content to (70% versus 21%) an information platform and for creative activities (66% versus 27%). This again suggests that many teachers need additional support and training in order to maximise the use of mobile technology in their teaching.

Mobile technology ‘champions’

- In Stage 1 of the Transforming Learning research, the schools observed had a system of ‘digital leaders’ in place, whose role was to champion the use of mobile technology in the school and these were seen as key to the successful integration of mobile technology into the school\(^7\).
- Quantitatively, a third (34%) of teachers feel very positive about the use of mobile technology in school. These ‘champions’ are important advocates who are more likely to feel confident in using the technology in their teaching and are more likely to use it on a daily basis and for a wider range of activities.
- These teachers also strongly believe in the positive impact that the use of one-to-one mobile devices can have on students’ core skills, in particular on their ability to ‘be eager to explore new things’ (strongly agree 83% versus 28%), ‘work independently and be solutions focused’ (strongly agree 63% versus 17%), ‘identify and develop new ideas’ (strongly agree 59% versus 22%), ‘show enthusiasm’ (strongly agree 54% versus 17%) and ‘actively participate’ (strongly agree 53% versus 18%).

> I love working with one to one technology in the classroom. (Secondary School Maths Teacher)

> It is the most exciting thing that has happened to education in my school for the last 100 years! (Senior Leadership Teacher)

2. Perceived benefits of one-to-one mobile technology

Teaching to all levels

- Three in five of the teachers surveyed (61%, 15% strongly) agree that ‘because every student has a personal mobile device I am/would be better able to differentiate between different learning needs (e.g. no longer have to ‘teach to the middle’). This belief is consistent with findings from previous Techknowledge for Schools research\(^8\).

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\(^7\) Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London, p25
[http://techknowledge.org.uk/research/research-reports/transforming-learning/](http://techknowledge.org.uk/research/research-reports/transforming-learning/)

The majority of teachers surveyed felt that one-to-one mobile technology benefits weaker students and those with special educational needs (66% of teachers agreed, 18% strongly).

Teachers who feel very confident and very positive about using mobile technology in their teaching particularly believe in these benefits, suggesting that support and training on how to use mobile devices to differentiate teaching would be useful.

**Development of ‘character skills’ and resilience**

- Teachers believe that using mobile technology in class can have a positive impact on a wide range of students’ skills.
- The vast majority of teachers agree that one-to-one mobile technology can help students to become more ‘determined’ and optimistic’.
- Almost 9 out of 10 (87%) teachers agree that one-to-one mobile technology can help students to ‘be eager to explore new things’ and three in five (60%) that it helps students to ‘ask and answer questions to deepen understanding’ (curiosity).
- Over 8 out of 10 teachers believe it can help them to ‘identify and develop new ideas’ (creativity, 83%) and ‘work independently and be solutions focused’ (grit, resilience and tenacity, 82%).

> [It] helps to keep students current and allows them access to resources that make them independent and inquisitive learners. (Secondary School ICT Teacher)

- In Stage 1 of the Transforming Learning research the belief was expressed that many students engage more with the subject if they are asked to research it themselves. In this study, 78% of teachers agree that one-to-one mobile technology can help students to ‘actively participate’ and the same proportion to ‘show enthusiasm’ (zest and enthusiasm).

**Becoming aware of global issues**

- Technology is seen as offering students a way of ‘seeing the world’; two thirds (67%) of teachers agree that one-to-one mobile technology can help students to ‘be aware of pressing global issues, and contribute to leading society internationally’.

Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London
[http://techknowledge.org.uk/research/research-reports/transforming-learning/](http://techknowledge.org.uk/research/research-reports/transforming-learning/)

9 Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London, p9
[http://techknowledge.org.uk/research/research-reports/transforming-learning/](http://techknowledge.org.uk/research/research-reports/transforming-learning/)
Preparation for the future

- In addition to the perceived impact on ‘character skills’, teachers believe that using mobile technology in teaching and learning prepares students for their future employment.
- Teachers expressed the belief that schools must use mobile technology in class to ensure that teaching and learning remains relevant and keeps up with technology use trends.

_The modern world requires youngsters to be able to use up to date technology to communicate with others. Ensuring all youngsters feel comfortable in using this is essential to their future successes._ (Secondary School Senior Leadership)

3. Perceived challenges of using one-to-one mobile technology

Distraction

- The potential for devices to be a distraction continues to be raised as an issue.
- Three quarters of the teachers surveyed agree that ‘managing the potential for distraction is a major problem for some students’ (75%) and almost a third (30%) agree strongly.
- Teachers also have mixed feelings about the potential for one-to-one mobile devices to help students to develop self-control skills; just 27% of teachers agree and 52% disagree that using one-to-one mobile technology in the classroom can help students to ‘pay attention and resist distractions’.
- Self-regulation and appropriate use of technology were described in Stage 1 of the Transforming Learning research as important attributes which needed to be learnt by students and this belief is also mirrored in the comments of teachers surveyed in this research.

_The students need to be educated how to use it, we cannot expect them to be able to use the internet without coaching on how to use it. Students need to be told why not to play games and the effect it can have on their learning and also that of others._ (Secondary School Maths Teacher)

Social wellbeing

- The potential detrimental effect of over-use of technology is a continued concern for teachers; three quarters (74%) agree that ‘I worry that my students never ‘switch off’ from using technology’.
The belief that mobile technology is just one of a range of teaching and learning tools and its use should be balanced with other forms of learning is also expressed by teachers.

*It is important that students learn in a variety of ways in the class room as tech dominates most other aspects of their lives.* (Secondary School Geography Teacher)

Teachers expressed a view that some skills cannot be learned through the use of mobile technology, such as practical or physical skills and handwriting.

**Skills gap**

- Lack of teachers’ skills in using mobile technology in teaching is a barrier to using the devices more.
- Almost two in five (37%) teachers say they would like to use mobile technology more but they need more training.
- Although teachers claim overall that they are willing to learn how to use the devices more, finding the time to do so is clearly a challenge for many.
- 43% of teachers say they have not had the time and 52% believe that other tasks take priority over learning how to use mobile technology more.

**Unreliable infrastructure**

- Disruptions to lessons caused by students not bringing their devices to class (56%) or not charging their device (52%) are common.
- Teachers had also experienced issues with the technology itself, such as unreliable Wi-Fi (51%) or unreliable devices (29%).

**Classroom management**

- Concerns about classroom management have been raised in previous research for Techknowledge for schools and continues to be a theme.
- Around a third of teachers have fears about losing control of the class due to technical problems (33%) or due to students becoming distracted by their devices (29%).

**4. What is needed?**

**On-going training and support**

- It is clear from the qualitative and quantitative Transforming Learning research that teachers need on-going training and support to help them utilise technology in their teaching more effectively.
- This research shows that teachers who feel very confident about using one-to-one mobile technology in class are likely to be using it more frequently and for a wide range of activities.
- These very confident teachers are also less likely to agree that ‘I would like to use mobile technology more, but I feel I need more instruction and training on how to use it’ (16% vs 48%).
- Encouragingly, most of the schools in the research appear to have a clear training structure in place; almost 9 out of 10 teachers agree (87%, 58% strongly agree) that they know who to talk to in the school about using mobile technology in teaching and learning.
- Overall, three out of five (60%) teachers agree that they would like more support and training on how to integrate mobile technology into their teaching; 58% would like more technical training, such as how to use specific apps.
- Given that many teachers struggle to find time to engage in training, this needs to be prioritised to ensure the benefits of the devices are maximised. A mix of formal training sessions and informal learning from colleagues is the preferred ideal.
The Findings

1. Use of Mobile Technology in Schools

1.1 Frequency of use

The majority of the schools in the research use one-to-one mobile technology on a regular basis with all or some years.

Almost two in five of the schools use one-to-one devices across all years (38%) and half in some years (50%). The vast majority (85%) of teachers personally use one-to-one mobile technology in their teaching.

Of those teachers who personally use one-to-one devices in their teaching, most (85%) do so every week. Almost two in five (58%) use them on a daily basis; 15% in every lesson, a third (34%) more than once a day and one in ten (9%) once a day.

Figure 1: How often would you say you typically use one-to-one mobile technology in your lessons?

Encouragingly, half of the teachers in the study would like to use mobile technology in their teaching more. Overall, 51% of teachers would like to use mobile technology in the classroom more than they currently do, rising to 64% for teachers who are using the technology every day but not for every lesson.

1.2 Use of other teaching models

Teachers using one-to-one mobile technology in class are keen to explore different pedagogical approaches and the use of other teaching models when using one-to-one mobile technology in class is common. 75% (n=170) of the teachers in the research agreed that teachers at their school use other models of teaching when using one-to-one devices in
class. Of these, flipped\textsuperscript{10} (75\%) or project based learning\textsuperscript{11} (71\%) are the most common. Amongst those who believe that the teachers in their schools do not use other models of teaching when using one-to-one mobile technology (n=58), almost a third (30\%) are interested in trying different models and 56\% may be interested. Just 14\% (n=8) said they were not interested. This indicates that there is an appetite among teachers in these schools to learn more about other models of teaching.

\textit{Figure 2: Which of these do you, or other teachers in your school, use?}

\begin{center}
\begin{tabular}{|c|c|}
\hline
Which of these do you, or other teachers in your school, use? & \\
\hline
Flipped learning & 75\% \\
Project based Learning & 71\% \\
Challenge based learning & 43\% \\
Blended learning & 20\% \\
Other & 2\% \\
\hline
\end{tabular}
\end{center}

\textit{Base: 170 respondents}

1.3 Attitudes towards the use of one-to-one mobile technology in teaching and learning

Overall, the majority of teachers and school leaders feel positive about the use of one-to-one mobile technology in their school and feel confident in using it in their lessons, however the relatively low strength of feeling suggests that teachers could be supported more.

Three quarters (72\%, n=176) feel ‘positive’ about the use of one-to-one mobile technology in their school, with just over a third (34\%, n=83) ‘very positive’ and almost two in five (38\%, n=93) ‘somewhat positive’.

\textsuperscript{10} Flipped Learning is a teaching method in which students learn new content online by watching video lectures, reviewing presentations or conducting research, usually at home, and what used to be homework is completed in class with the teacher offering more personalised guidance and interaction with students. \url{http://www.flippedlearning.org/cms/lib07/VA01923112/Centricity/Domain/46/FLIP_handout_FNL_Web.pdf}

\textsuperscript{11} Project Based Learning is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an engaging and complex question, problem, or challenge. \url{http://bie.org/about/what_pbl}
Similarly, three quarters (78%, n=184) feel confident about using one-to-one mobile technology in their teaching. Over a third (35%, n=82) feel very confident and over two in five (42%, n=102) feel somewhat confident.

*I love working with one to one technology in the classroom.* (Secondary School Maths Teacher)

*It is the most exciting thing that has happened to education in my school for the last 100 years!* Senior Leader Teacher

**Figure 4:** How confident do you personally feel about using one-to-one mobile technology in your teaching?

<table>
<thead>
<tr>
<th>Confidence Level</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very confident</td>
<td>35%</td>
</tr>
<tr>
<td>Somewhat confident</td>
<td>43%</td>
</tr>
<tr>
<td>Neither confident nor unconfident</td>
<td>15%</td>
</tr>
<tr>
<td>Not very confident</td>
<td>6%</td>
</tr>
<tr>
<td>Not at all confident</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Base: 236*
It is reassuring to note however that very few teachers describe themselves as ‘not positive’ (12%) or ‘not confident’ (7%).

It could be argued that such positive attitudes towards the use of one-to-one mobile devices in teaching might be expected, given that the majority of schools taking part in the research have one-to-one devices across most or all year groups. However, the relatively low proportion of teachers who feel very positive and very confident (19%, n=47) suggests that there is an important opportunity to support teachers further in their use of one-to-one mobile devices.

1.4 How one-to-one mobile devices are used

Figure 5: Thinking about the last two weeks, in what ways have students used one-to-one devices in your lessons?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>76%</td>
</tr>
<tr>
<td>Accessing resources I direct them to (e.g. websites)</td>
<td>70%</td>
</tr>
<tr>
<td>Accessing resources I have prepared (e.g. PDFs, ebooks etc)</td>
<td>56%</td>
</tr>
<tr>
<td>Summarising information (e.g. creating presentations)</td>
<td>52%</td>
</tr>
<tr>
<td>Watching video clips (e.g. YouTube)</td>
<td>52%</td>
</tr>
<tr>
<td>Accessing resources or information on platforms such as a school VLE, Showbie etc.</td>
<td>48%</td>
</tr>
<tr>
<td>Taking educational quizzes</td>
<td>42%</td>
</tr>
<tr>
<td>Creative activities (e.g. filming, creating movie trailers, mind maps etc)</td>
<td>41%</td>
</tr>
<tr>
<td>Writing/reading emails</td>
<td>40%</td>
</tr>
<tr>
<td>Uploading information to platforms such as a school VLE, Showbie etc.</td>
<td>37%</td>
</tr>
<tr>
<td>Playing educational games</td>
<td>28%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
</tr>
<tr>
<td>I haven’t used one-to-one devices in my lessons in the last two weeks</td>
<td>6%</td>
</tr>
</tbody>
</table>

Base: 231
Students use mobile one-to-one technology in a variety of ways (5.5 on average), mainly for accessing information and resources. Reflecting findings from the qualitative stage of the Transforming Learning research\(^\text{12}\), a key role for one-to-one devices appears to be researching or accessing information. Research is the most common activity, with three quarters of teachers (76\%) reporting that their students had used their one-to-one mobile device for this purpose in the previous two weeks.

The earlier qualitative Transforming Learning research found that most teachers interviewed recognised the benefits of having immediate access to the internet in class for all students. More specifically, one-to-one mobile devices in the classroom were felt to offer students access to the wider world, develop their research skills, and enable teachers to extend the amount of information available to students.

The majority of teachers in this study also report that students use their device to access learning resources; 7 out of 10 (70\%) teachers said their students used their device to access resources which they had directed them to, 56\% to access resources they had prepared and 48\% to access resources on platforms such as a school VLE or Showbie. Around half mentioned watching video clips on their device (52\%).

There appears to be an opportunity to increase the use of one-to-one devices for creating and uploading content; presently devices are less likely to be used for this purpose.

The most common activity for creating content is summarising information, such as producing presentations (52\%), while just over two in five (41\%) had used their devices for other creative activities such as producing films. Almost two in five (37\%) had uploaded information to an information platform such as a school VLE or Showbie.

1.5 The link between teachers’ attitudes and device use

Frequency of use and the range and types of activities the devices are used for is closely linked to attitudes towards one-to-one mobile devices.

Teachers who are personally very confident in and very positive about using the devices in their lessons (n=47) are significantly more likely to be using them on a daily basis (87\%) and are also more likely to be using them for every lesson (40\%). By contrast, two in five (40\%) teachers who are not very confident or very positive (n=119) use the devices on a daily basis and just 4\% use them for every lesson.

There is also a link between the attitudes of teachers and the range of activities that students use one-to-one devices for. On average, students of ‘very positive’ and ‘very confident’ teachers had used their devices for a wider range of different activities in the previous two weeks (7.5), compared to those who are not very confident or very positive (4.2). These students were in particular more likely to have used their device to access

\(^{12}\) Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London, p9
http://techknowledge.org.uk/research/research-reports/transforming-learning/
resources prepared by their teacher (77% versus 43%), access resources on (72% versus 32%) and upload content to (70% versus 21%) an information platform and for creative activities (66% versus 27%).

Although it is difficult to ascribe a causal relationship between attitudes and frequency or type of use, these findings do suggest that supporting and encouraging teachers to use the devices more frequently and for a wider range of activities may go hand in hand with an improvement in attitudes towards the value of one-to-one devices in teaching.

1.6 Digital Leaders

In Stage 1 of the Transforming Learning research, each of the schools observed had a system of ‘digital leaders’ in place, whose role was to champion the use of mobile technology in the school. These leaders were not necessarily highly familiar with mobile technology, but were often described as approachable and open to trying new things.

It is clear from this research that teachers who are very positive about the use of mobile technology are important advocates. A third (34%, n=83) of teachers said they feel very positive about the use of one-to-one mobile technology in their school. These very positive teachers are more likely than those who are not very positive to be confident in using the technology in their teaching (96% confident, 57% very confident versus 68% confident, 22% very confident), using the devices on a daily basis (77% versus 48%) and for a wider range of activities (7.1 versus 4.7). Two thirds (67%) would like to use the technology in their teaching even more than they currently do and the majority of those who do not wish to use it more feel they are already using it for every lesson or as much as they possibly can.

These ‘champions’ of mobile technology strongly believe in the positive impact that the use of one-to-one mobile devices can have on students’ core skills. Teachers who are very positive about the use of one-to-one mobile technology in schools are significantly more likely than those who are not very positive to agree that the devices can help students to develop all of the character skills tested. In particular, these teachers strongly believe in the positive impact of one-to-one mobile technology on students’ ‘curiosity’ (‘be eager to explore new things’, strongly agree 83% versus 28%), ‘grit, resilience, tenacity’ (‘work independently and be solutions focused’, strongly agree 63% versus 17%), ‘creativity’ (‘identify and develop new ideas’, strongly agree 59% versus 22%) and ‘enthusiasm & zest’ (‘show enthusiasm’, strongly agree 54% versus 17%; ‘actively participate’, strongly agree 53% versus 18%).

1.7 Skills gap

Lack of skills in using mobile technology in teaching is a barrier to using the devices for some teachers. Almost two in five (37%) teachers feel they would like to use mobile technology more but they need more training.
I think it can enhance learning but I do not always have the knowledge or skill to be able to use it smartly enough. It is not yet embedded into my practice. (Secondary School English Teacher)

I feel that I do not currently have the expertise or confidence to make the most of technology. Learners respond positively when it is included but inexperience means that this can sometimes take too long and waste time especially in the initial stages. (Secondary School English Teacher)

**Figure 6**: Below are some things teachers have told us about using one-to-one mobile technology in the classroom. Please indicate how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree Strongly</th>
<th>Agree Somewhat</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree Somewhat</th>
<th>Disagree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would like to use mobile technology more, but I feel I need more instruction and training on how to use it</td>
<td>12%</td>
<td>25%</td>
<td>21%</td>
<td>25%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Base = 228

Unsurprisingly, teachers who feel they need more technical training are less confident about using mobile technology in their teaching (65% versus 86%) and are using the devices less frequently (use daily 49% versus 63%). Their students are also less likely to be using the devices for a number of activities: accessing resources the teacher directs them to (60% versus 76%); using platforms such as school VLE/Showbie to access resources (39% versus 54%); upload content (27% versus 42%) and producing creative content (32% versus 45%).

Although teachers say overall that they are willing to learn how to use the devices more, finding the time to do so is clearly a challenge for many. Over two in five (43%) agree that ‘I would like to use mobile technology more, but I simply have not had enough time to learn how to do so’ and half (52%) agree that ‘I would like to use mobile technology more but there are other tasks that take priority over learning how to do this’.

Teachers describe how they lack the time to be able to familiarise themselves with the apps/programmes and to learn how to use them.
I find it difficult to keep up and understand some of the apps/programmes and a lack of time to create, develop new resources, as well as a lack of confidence and a sense of being overwhelmed. (Secondary School ICT Teacher)

I need time to learn how to use the technology. (Secondary School Art Teacher)

I have not spent enough time developing its implementation and improving my use of the technology to know fully how useful it would be to extend further. (Secondary School Art Teacher)

Figure 7: Below are some things teachers have told us about using one-to-one mobile technology in the classroom. Please indicate how much you agree or disagree with each statement.

| I would like to use mobile technology more, but I simply have not had enough time to learn how to do so | 18% 25% 15% 29% 14% |
| I would like to use mobile technology more but there are other tasks that take priority over learning how to do this | 9% 21% 18% 38% 14% |

Base = 228

Having the time to prepare lessons and develop resources for use with mobile technology is also described as difficult by some teachers.

Students enjoy using technology, but I don’t have the time to set up the work on the iPads. (Secondary School Maths Teacher)

[I need] time to plan and workload prevents this. (Secondary School Geography Teacher)

The reason I don’t do as much I as I'd like is that there is not enough preparation time. (Secondary School Maths Teacher)

It is worth noting that in the previous qualitative stage of the Transforming Learning research, teachers who were new to teaching (NQTs) or new to schools using one-to-one...
technology found it a challenge to learn how to use the devices in the classroom, in addition to other aspects of their new role and often described the experience as ‘overwhelming’\textsuperscript{13}.

\textsuperscript{13} Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London, p9
http://techknowledge.org.uk/research/research-reports/transforming-learning/
2. Perceived Benefits of One-to-One Mobile Technology

2.1 Teaching to all levels

A consistent finding from Stage 1 of the Transforming Learning research and over the past four years of Techknowledge for Schools’ research\(^\text{14}\), is the perceived positive effects of one-to-one technology in enabling teachers to differentiate between students’ abilities; this finding is supported by the majority of teachers surveyed in this study. Three in five (61%, 15% agree strongly) teachers agreed with the statement ‘because every student has a personal mobile device I am/would be better able to differentiate between different learning needs (e.g. no longer have to ‘teach to the middle’).

*One of the key things that 1:1 unlocks is the possibility of digital differentiation for mixed ability classes.* (Primary/Secondary School ICT Teacher)

*It is so much easier to adapt lessons on the go based on student's needs and understanding when you have technology at your fingertips.* (Secondary School RE Teacher)

*It’s a great differentiation tool if all the pupils have access to mobile technology.* (Secondary School Maths Teacher)

*Instant differentiation by providing a range of links. Natural extension by curious students to investigate elements that interest them if they finish.* (Secondary School English Teacher)

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Figure 8: Below are some things teachers have told us about students using one-to-one mobile technology. Please indicate how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree Strongly</th>
<th>Disagree Somewhat</th>
<th>Neither Agree nor Disagree</th>
<th>Agree Somewhat</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because every student has a personal mobile device I am/would be better able to differentiate between different learning needs (e.g. no longer have to ‘teach to the middle’).</td>
<td>6% 9%</td>
<td>26%</td>
<td>47%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>One-to-one mobile devices particularly benefit weaker students and students with Special Educational Needs.</td>
<td>96% 25%</td>
<td></td>
<td>48%</td>
<td>18%</td>
<td></td>
</tr>
</tbody>
</table>

*Base = 223*

Also reflecting the earlier stages of the research, the majority of teachers felt that one-to-one mobile technology benefits weaker students and those with special educational needs (66% of teachers agreed, 18% strongly).

*Because it would help to engage those with low literacy levels. (Secondary School NQT)*

*Enables teacher time to be directed at struggling students in valuable 1:1 time (rarely possible in a whole-class situation). (Secondary School English Teacher)*

Devices were described as offering students an alternative way to access and present learning, particularly for those with learning disabilities or those who struggle with handwriting.

*As an English teacher, I notice that children whose written work is very messy can often show when they type that they have good ideas, and they enjoy being able to demonstrate their ability without the barrier of the messy page. (Primary/Secondary School English Teacher)*

Agreement with these statements is significantly higher amongst teachers who feel very confident and very positive about using mobile technology in their teaching (see Figure 7), suggesting that supporting and training teachers on ways to use mobile devices to differentiate learning needs may have benefits for students.
2.2 Helping students to develop ‘character skills’ and resilience

Using the CBI ‘character skills’ framework\(^{15}\), teachers were asked to what extent they agreed or disagreed with the notion that the use of one-to-one technology in teaching and learning can help students to develop or improve a range of skills. A second report (Transforming Learning: Future Skills\(^{16}\)) looks at this area in more detail.

It is clear that teachers believe that using mobile technology in teaching and learning can have a positive impact on students’ skills across a wide range of areas. The vast majority of teachers agree that one-to-one mobile technology can help students to develop a range of attributes which enable them to be ‘determined’ and optimistic, including ‘curiosity’, ‘creativity’, ‘grit, resilience and tenacity’ and ‘zest and enthusiasm’ (Table 2, page 22).

Teachers are most likely to agree that the use of one-to-one mobile technology in the classroom can help students to ‘be eager to explore new things’ (87%), ‘identify and develop new ideas’ (83%), ‘work independently and be solutions focused’ (82%), ‘actively participate’ (78%), and to ‘show enthusiasm’ (78%).

>[It] helps to keep students current and allows them access to resources that make them independent and inquisitive learners. (Secondary School ICT Teacher)


\(^{16}\) Transforming Learning: Future Skills, December 2015, FKY London [http://techknowledge.org.uk/research/research-reports/future-skills/](http://techknowledge.org.uk/research/research-reports/future-skills/)
[Mobile devices] foster independence and can motivate students to use their time efficiently/effectively by having continuous access to resources. (Secondary School Teaching Assistant)

These findings clearly support the qualitative findings from Stage 1 of the Transforming Learning research\(^\text{17}\), in which teachers described the key benefits of using mobile digital devices in teaching as a means to enable students to research and find out information for themselves, allowing teachers to discover and assess what engages and interests their pupils the most.

\(^{17}\) Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London, p9
http://techknowledge.org.uk/research/research-reports/transforming-learning/
Table 1: Please tell us whether you agree or disagree with the statements below. Using one-to-one mobile technology can help the students in my school to...

<table>
<thead>
<tr>
<th>The system should encourage young people to be:</th>
<th>This means helping to instil the following attributes:</th>
<th>NET: Agree</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determined</td>
<td>Curiosity</td>
<td>Be eager to explore new things</td>
<td>87%</td>
</tr>
<tr>
<td>Optimistic</td>
<td>Creativity</td>
<td>Identify and develop new ideas</td>
<td>83%</td>
</tr>
<tr>
<td>Determined</td>
<td>Grit, resilience, tenacity</td>
<td>Work independently and be solutions focused</td>
<td>82%</td>
</tr>
<tr>
<td>Optimistic</td>
<td>Enthusiasm &amp; zest</td>
<td>Actively participate</td>
<td>78%</td>
</tr>
<tr>
<td>Optimistic</td>
<td>Enthusiasm &amp; zest</td>
<td>Show enthusiasm</td>
<td>78%</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>Sensitivity to global concerns</td>
<td>Be aware of pressing global issues, and contribute to leading society internationally</td>
<td>67%</td>
</tr>
<tr>
<td>Optimistic</td>
<td>Enthusiasm &amp; zest</td>
<td>Inspire others</td>
<td>62%</td>
</tr>
<tr>
<td>Determined</td>
<td>Curiosity</td>
<td>Ask and answer questions to deepen understanding</td>
<td>60%</td>
</tr>
<tr>
<td>Optimistic</td>
<td>Gratitude</td>
<td>Recognise and show appreciation for their own opportunities</td>
<td>57%</td>
</tr>
<tr>
<td>Optimistic</td>
<td>Confidence &amp; ambition</td>
<td>Be willing to try new experiences and meet new people</td>
<td>51%</td>
</tr>
<tr>
<td>Determined</td>
<td>Self-control</td>
<td>Get to work right away rather than procrastinating</td>
<td>50%</td>
</tr>
<tr>
<td>Determined</td>
<td>Grit, resilience, tenacity</td>
<td>Finish tasks started and understand the value of work</td>
<td>49%</td>
</tr>
<tr>
<td>Determined</td>
<td>Self-control</td>
<td>Remember and follow directions</td>
<td>46%</td>
</tr>
<tr>
<td>Optimistic</td>
<td>Confidence &amp; ambition</td>
<td>Pursue dreams and goals</td>
<td>45%</td>
</tr>
<tr>
<td>Optimistic</td>
<td>Gratitude</td>
<td>Recognise and show appreciation for others</td>
<td>45%</td>
</tr>
<tr>
<td>Determined</td>
<td>Grit, resilience, tenacity</td>
<td>Learn to take positives from failure experienced</td>
<td>35%</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>Humility</td>
<td>Find solutions during conflicts with others</td>
<td>31%</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>Respect &amp; good manners</td>
<td>Know when and how to include others</td>
<td>29%</td>
</tr>
<tr>
<td>Determined</td>
<td>Self-control</td>
<td>Pay attention and resist distractions</td>
<td>27%</td>
</tr>
<tr>
<td>Determined</td>
<td>Self-control</td>
<td>Allow others to speak without interruption</td>
<td>26%</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>Respect &amp; good manners</td>
<td>Demonstrate respect for the feelings of others</td>
<td>23%</td>
</tr>
<tr>
<td>Determined</td>
<td>Self-control</td>
<td>Remain calm even when criticised</td>
<td>22%</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>Respect &amp; good manners</td>
<td>Be polite to adults and peers</td>
<td>18%</td>
</tr>
</tbody>
</table>

*Base = 262*
2.3 Becoming aware of global issues

In Stage 1 of the Transforming Learning research, technology was described by teachers as a means of extending learning beyond the classroom, offering students a way of ‘seeing the world’ and allowing education to remain current, up to date and relevant to students\(^{18}\). This notion is supported by the quantitative findings.

Two thirds (67%) of teachers believe (20% agree strongly), that one-to-one mobile technology can help students to ‘be aware of pressing global issues, and contribute to leading society internationally’.

\[\text{I think it can facilitate a greater understanding of the world and a deepened sense of self-worth. (Secondary School Sociology Teacher)}\]

\[\text{Instant access to cutting edge Science. Brings subjects alive and relevant to life.}\]
\[\text{Opens the eyes of students to what is happening in the world and how science is everywhere in their lives. (Secondary School Science Teacher)}\]

2.4 Preparing students for the future

In addition to the perceived impact on ‘character skills’, teachers believe that using mobile technology in teaching and learning prepares students for their future employment, mirroring the findings from the qualitative stage of the Transforming Learning research\(^{19}\). When teachers were asked if there was anything else they would like to say about the way in which using one-to-one mobile technology in school might help prepare students for the future, the development of important skills and techniques for entering university and employment were mentioned.

\[\text{Technology is the future so pupils must be made aware of how to use it to help them solve problems. (Secondary School Maths Teacher)}\]

Teachers also expressed the belief that schools must use mobile technology in class to ensure that teaching and learning remains relevant and keeps up with technology use trends globally.

\[\text{The modern world requires youngsters to be able to use up to date technology to communicate with others. Ensuring all youngsters feel comfortable in using this is essential to their future successes. (Secondary School Senior Leadership)}\]

\(^{18}\) Ibid. 17, page 21
\(^{19}\) Ibid. 18
3. What are the perceived challenges?

3.1 Staying on task

The potential for devices to be a distraction has been raised previously in qualitative research conducted for Techknowledge for Schools and concerns about this are confirmed by teachers in this research. Three quarters (75%) agree that ‘managing the potential for distraction is a major problem for some students’ with almost a third strongly agreeing.

If used correctly by motivated students it is a good idea but mobile phones etc. can be distracting to some. (Secondary School ICT Teacher)

Figure 10: Please tell us whether you agree or disagree with the statements below. Using one-to-one mobile technology in the classroom can help students to ‘pay attention and resist distractions’.

Teachers also have mixed feelings about the potential for one-to-one mobile devices to help students to develop self-control skills. While around half of teachers agree (50%) that using the technology can help students to ‘get to work right away rather than procrastinating’ and that it can help students to ‘finish tasks started and understand the value of work’ (49%), some teachers disagree with these statements (27% and 18% respectively). Just 27% of teachers agree and 52% disagree that using one-to-one mobile technology in the classroom can help students to ‘pay attention and resist distractions’.

I think that most students, not having fully mastered skills of research and social skills, find it difficult not to be sucked into the negative aspects of one-to-one technology e.g. cyberbullying. They do have potential, but the use of games and other apps needs to be better controlled so their purpose is educational. (Secondary School Humanities Teacher)

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20 Ibid. p14 page 18
I do feel that some students do not value tablets as learning tools and just use them to play games instead of the work they are supposed to do. (Secondary School Library Manager)

In Stage 1 of the Transforming Learning research\textsuperscript{21}, some teachers found this challenge manageable and felt it was no different to the way in which students might pass notes or go off task in some other way, whilst other teachers found monitoring appropriate use of technology very difficult and cited it as a deterrent to using the technology more frequently in class. Teachers also reported that over time, students can become less engaged with the devices and distractions such as gaming and communication become more of a challenge.

The potential for distraction is not just confined to mobile device use in school. In the Techknowledge for Schools 2015 report \textit{How Students Use the Internet at School and at Home}\textsuperscript{22}, 53\% of secondary pupils agreed that they can get distracted by other things when doing their homework on their Tablet or other device and agreement increases with age, from 48\% of Year 7 pupils to two-thirds of sixth formers (67\%).

Self-regulation and appropriate use of technology were described by teachers in Stage 1 of the research as important attributes which needed to be learnt by students and there was a widespread belief amongst teachers that it is the responsibility of schools to teach students how to self-regulate and use technology appropriately\textsuperscript{23}. This belief was also mirrored in the comments of the teachers taking part in this research:

\begin{quote}
\textit{Students today are entering a working world where total absorption in technology will exist - we therefore need to mimic this in schools so that they can learn to navigate the opportunities and pitfalls that are inherent with technology.} (Secondary School Senior Leadership)

\textit{The students need to be educated how to use it, we cannot expect them to be able to use the internet without coaching on how to use it. Students need to be told why not to play games and the effect it can have on their learning and also that of others.} (Secondary School Maths Teacher)
\end{quote}

While many schools do take an active approach to teaching children to self-regulate their use of technology, it was recognised in Stage 1 that children need boundaries which are also enforced at home. Schools and parents need to ensure that each communicates effectively and agree on how children can be encouraged and supported to use technology safely and responsibly both in class and at home\textsuperscript{24}.

\textsuperscript{21} Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London, p22
\url{http://techknowledge.org.uk/research/research-reports/transfoming-learning/}


\textsuperscript{23} Ibid. 21

\textsuperscript{24} Ibid. 21
3.2 Social wellbeing

In Stage 1, teachers raised concerns about the way in which the ubiquitous use of technology could have a detrimental effect on young people’s social wellbeing and this concern is mirrored by the teachers in this study. Three quarters (74%) agree and almost a third (30%) strongly agree that ‘I worry that my students never ‘switch off’ from using technology’.

Whilst in Stage 1 of the Transforming Learning research teachers did not feel that the problem was necessarily caused by the school’s use of technology, some felt that many pupils do not have the maturity to self-regulate their technology use and questioned whether students’ use of mobile devices at school further exacerbates the issue.25

*Lack of communication at a basic level of human behaviour, lack of engagement with peers...as has been identified explicitly with older year groups.* (Secondary School Science Teacher)

*One to one technology isolates and prevents interactions between students. It makes them unresponsive to peers and what is going on around them.* (Secondary School English Teacher)

*There is a loss of relationship with students sometimes who spend more time looking at a screen rather than building skills.* (Secondary School Languages Teacher)

This concern about over-use of technology and the need to balance it with other forms of learning is also expressed by teachers in this research.

*I feel it is unnecessary and time at school should not be spent looking at a screen.* (Secondary School PE Teacher)

*It is important that students learn in a variety of ways in the class room as tech dominates most other aspects of their lives.* (Secondary School Geography Teacher)

*There need to be a balance between technology and face to face.* (Secondary School English Teacher)

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Figure 11: Below are some things teachers have told us about using one-to-one mobile technology in the classroom. Please indicate how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>I worry that my students never ‘switch off’ from using technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree Strongly</td>
</tr>
<tr>
<td>30%</td>
</tr>
</tbody>
</table>

*Base = 223*

In the verbatim comments, many teachers expressed the view that mobile technology is just one of a range of teaching and learning tools and should be used as and when appropriate.

*I like to use a range of activities in my lessons, iPads are just one of them.* (Secondary School Science Teacher)

*I think one-to-one technology has its place but it can only supplement good teaching. It is simply an additional tool.* (Secondary School English Teacher)

*Mobile technology is good but there is still room for teaching without, which can be better, depending on the lesson/ topic.* (Secondary School Foreign Languages Teacher)

Teachers also felt that students are required to learn a range of skills, some of which cannot be learned through mobile technology, such as practical or physical skills. In particular, because examinations are handwritten, clear handwriting was often mentioned as an important skill which students need to develop and this cannot be done through the use of mobile technology.

*I think I use mobile tech in almost every lesson, but that is also sometimes in conjunction with pen and paper. This is especially for the children who will be sitting exams, where they have to write - we need to prepare them for that also. There is a clash of priority at the moment between preparing children for exams, and preparing them for life outside of school.* (Primary/Secondary School Languages Teacher)

*There is no substitute for a pen and exercise book. The art of being able to write legibly is more important in life!* (Secondary School English Teacher)

*Damages students’ ability to write and draw - makes them less curious learners and more dependent on always being ‘on’.* (Secondary School Art Teacher)
3.3 Unreliable infrastructure

In Stage 1 of the Transforming Learning research, teachers described a range of problems which had disrupted the delivery of lessons, discouraging them from using the devices in the future\textsuperscript{26}. These concerns are mirrored amongst the teachers surveyed in this research. Problems caused by students not bringing their devices to class (56%) or not charging their device (52%) are common. Teachers had also experienced issues with the technology itself, such as unreliable Wi-Fi (51%) or unreliable devices (29%).

*Technology often presents its own problems, i.e. devices not working, etc.* (Secondary School English Teacher)

*Pupils forget them, [the devices] need charging or are damaged.* (Secondary School ICT Teacher)

*Unreliable internet connections and students forgetting their own devices.* (Secondary School Science Teacher)

In Stage 1, the impact of this was illustrated in one of the lessons observed in which a problem with loading a website onto the devices meant the teacher had to spontaneously re-design the task. A normally ‘challenging’ class quickly became distracted and the task of getting them back on track was difficult for the teacher\textsuperscript{27}.

3.4 Classroom management

Concerns about distraction and classroom management have been raised in previous research for Techknowledge for Schools\textsuperscript{28,29} and continue to be a theme in this research. Fears about losing control of the class due to technical problems (33%) or due to students becoming distracted by their devices (29%) are raised by around a third of teachers.

As seen in the qualitative research for Transforming Learning (Stage 1)\textsuperscript{30}, attitudes to classroom management with one-to-one devices are closely linked with the occurrence of technical problems. Teachers who are concerned about losing control of the classroom due to technical difficulties are more likely than those who are not concerned to say that

\textsuperscript{26} Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London, p19  
\textsuperscript{27} Ibid. 26 page 28  
\textsuperscript{29} Transforming Learning: Ethnographic Observation and Interviews Stage 1, July 2015, FKY London, p21  
\textsuperscript{30} Ibid. 26
unreliable Wi-Fi (70% versus 41%) or unreliable devices (42% versus 22%) prevents them or their colleagues from using mobile technology more in teaching.

_**Mobile technology has a time and place within schools but it can be over used and abused easily by students who aren’t as focussed in their learning.**_ (Secondary School ICT Teacher)

**Figure 12:** Below are some things teachers have told us about using one-to-one mobile technology in the classroom. Please indicate how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree Strongly</th>
<th>Disagree Somewhat</th>
<th>Neither Agree nor Disagree</th>
<th>Agree Somewhat</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>A fear of losing control of the classroom due to unforeseen technical problems prevents me from using mobile technology more in my teaching.</td>
<td>23%</td>
<td>25%</td>
<td>18%</td>
<td>26%</td>
<td>7%</td>
</tr>
<tr>
<td>A fear of losing control of the classroom due to students becoming distracted by their mobile devices prevents me from using mobile technology more in my teaching.</td>
<td>25%</td>
<td>27%</td>
<td>19%</td>
<td>23%</td>
<td>7%</td>
</tr>
</tbody>
</table>

*Base = 228*
4. What will encourage teachers to fully integrate mobile technology in their teaching?

4.1 On-going training and support

It was identified in the Stage 1 Transforming Learning research\(^{31}\) that some teachers need on-going training and support to help them utilise technology in their teaching more effectively. Although all schools offer substantial training for teachers when mobile technology is first introduced, for many the motivation to use the devices needs to be sustained. While new teachers requested training to be included in their induction period, more experienced teachers wished to have on-going support.

Ongoing training and support is required for less confident teachers to ensure mobile technology use is maximised. 63% of teachers who are not very confident would like more technical training, such as how to use specific apps. Two-thirds (67%) of these less confident teachers would like more support and training on how to integrate mobile technology into their teaching. Management of the classroom when using mobile technology also presents a challenge for some teachers, with almost half (47%) of less confident teachers requesting support in this area. These findings are explored in more detail in the Transforming Learning: Future Skills report\(^{32}\).

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\(^{31}\) Ibid. 26 [age 28

\(^{32}\) Transforming Learning: Future Skills, December 2015, FKY London

http://techknowledge.org.uk/research/research-reports/future-skills/
Teachers who are very confident in using one-to-one mobile technology in their teaching are using them more widely, suggesting that increasing teachers’ confidence leads to more effective use of devices. These teachers are likely to be using them more frequently (82% daily versus 45%) and for a wider range of activities (7.0 versus 4.8) compared to teachers who are not very confident. These teachers are also less likely to agree that ‘I would like to use mobile technology more, but I feel I need more instruction and training on how to use it’ (16% of very confident teachers versus 48% of teachers who are not very confident).

The vast majority of teachers appear to be clear about who they need to speak to in the school to learn more about using mobile technology, suggesting schools have a training structure in place. Almost 9 out of 10 teachers agree (90%, 58% strongly agree) that they know who in the school to talk to about using mobile technology in teaching and learning. Just 11 respondents (5%) disagree.
Teachers would like a mix of formal training sessions and to be given the opportunity to learn informally from colleagues. A mixed response is seen in the preferences of teachers with regards to training on the use of one-to-one mobile technology. While one in five (20%) prefer formal training sessions, over a quarter (29%) prefer to learn informally from colleagues. 51% of teachers gave a response in between, suggesting that they would prefer a mix of formal and informal training.

Figure 14: Thinking about the training you receive on the use of one-to-one mobile technology, which of the following do you or would you prefer?

![Bar chart showing preferences]

This mix of formal and informal training was seen in the longitudinal research conducted for Techknowledge for Schools\(^\text{33}\). Although teachers found formal CPD sessions very useful, informal systems of CPD were also employed. Successful training was often described as happening informally within the department group, such as sharing or co-creating lesson resources which teachers would personalise to fit with their style of teaching or with the needs of a specific class.

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5. Conclusions

The aim of this stage of the Transforming Learning research was to quantify some of the findings from the Stage 1 qualitative research, in particular to understand how teachers feel about the use of one-to-one mobile devices in teaching, the perceived benefits of and barriers to using the devices in teaching and what training and support teachers need in order to use the devices effectively.

Importantly the majority of the teachers surveyed do feel positive about the use of one-to-one mobile technology in their school and feel personally confident in using it in their lessons. Given the majority of schools who have responded to the survey have one-to-one devices across most or all year groups, this is perhaps to be expected. However, relatively few feel strongly positive or confident, suggesting that more needs to be done to support teachers in their use.

The vast majority of the teachers surveyed in these one-to-one schools believe that the technology has many benefits and can have a positive impact on the development of a range of attributes in students, in particular attributes which enable them to be more ‘determined’ and optimistic’. When used in the right way, many teachers believe the devices can help students to become more curious, creative and enthusiastic and it is believed that many students engage more with the subject if they are asked to research it themselves. Teachers believe that the use of mobile technology allows students to connect with the world, ensuring their education remains current, up to date and relevant and keeping up with technology use trends globally. It is also believed that using mobile technology in class prepares students for their future and for employment.

In particular, teachers who are very positive about the use of mobile technology in school strongly believe in the impact that the devices can have on students’ skills. These ‘champions’ of mobile technology are important advocates and having a system of ‘digital leaders’ in place was seen in Stage 1 of the Transforming Learning research as an important component of successful integration of mobile technology into the school.

Confident teachers use the devices more regularly and for a wider range of activities, increasing the opportunity for students to develop and improve their skills. In order to maximise the benefits of using one-to-one mobile devices in teaching and learning, it is clear that some teachers need ongoing training and support; technically, pedagogically and in classroom management techniques. Whilst most schools appear to have a clear training personnel structure in place, many teachers struggle to find the time to learn how to use the devices more effectively. Time to engage in training needs to be prioritised, both formally through structured training sessions and informally through sharing experiences and knowledge with colleagues.
Appendix 1

Methodology

Family Kids & Youth conducted online interviews with 316 teachers from 21 schools during July and September 2015. Respondents were screened to ensure that their school uses one-to-one mobile technology for teaching and learning. In addition to quantitative questions teachers were given the opportunity to add verbatim comments, and some of these have been included in the report.

Teachers from primary, secondary and mixed schools were included in the research. The types of school and teacher roles are detailed in the table below.

Table 2: School and staff profile

<table>
<thead>
<tr>
<th>School Type (296):</th>
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<tr>
<td>Primary</td>
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<tr>
<td>Secondary</td>
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</tr>
<tr>
<td>Mixed</td>
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<table>
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<th>Staff Role (282):</th>
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<tr>
<td>TA/Support staff</td>
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<tr>
<td>Teacher training</td>
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</tr>
<tr>
<td>NQT</td>
<td>4</td>
</tr>
<tr>
<td>Main pay scale teacher</td>
<td>26</td>
</tr>
<tr>
<td>Upper pay scale teacher</td>
<td>18</td>
</tr>
<tr>
<td>Middle leadership</td>
<td>35</td>
</tr>
<tr>
<td>Senior leadership</td>
<td>7</td>
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<tr>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix 2

Family Kids & Youth

Family Kids & Youth is an award winning agency specialising entirely in research with families, children and young people, providing both global research and consultancy. Our business is solely about the lives of children and those who care for them. In the last year alone we have conducted over 30,000 online interviews with children, parents and teachers, 100 focus groups with children aged 5 to 16, over 100 groups with parents and teachers and in-home and in-school ethnography on subjects ranging from children and their use of media, need states, behaviour change, volunteering, play, diet and exercise. The FK&Y team has recently worked on projects with children and young people for the BBC, the Money Advice Centre, Unilever, IKEA, The Prudential, The University of Cambridge, The Department of Health and The Department for Education. We are the main consultants and suppliers of research to IKEA on family and children’s research. Authors of IKEA’s ‘The Play Report’, the largest study ever carried out in 25 countries on parenting and play, we have recently repeated this research in 12 countries with over 16,000 parents and 12,000 children.

Family Kids and Youth is currently carrying out the on-going research for the charity Techknowledge for Schools which is looking at the way in which mobile devices can be utilized in school to improve children’s lives. We have also been the long-term evaluators for the Cabinet Office and Youth United, looking at the notion of behaviour change in childhood and adolescence through young people’s involvement in community activity and our report on volunteering was published in August. Our research on digital advertising and marketing to children on behalf of CAP and the ASA was published in February 2015.

Family Kids and Youth is a Company Partner of the Market Research Society (MRS), and holds membership with the British Educational Research Association (BERA), ESOMAR and the British Psychology Society (BPS), abiding by the codes of conduct of these organizations, including those guidelines involving research with children. Last year we were appointed onto the new UK SBS government research roster as a supplier of research with children and young people. All members of staff have DBS clearance.

The FK&Y team has academic qualifications in psychology and sociology and founder Dr Barbie Clarke’s research at the University of Cambridge has focused on children and their use of social media. FK&Y works closely with the Faculty of Education, Cambridge and the Department of Education, Sussex, and advisors include Professor David Buckingham, University of Loughborough and Professor Colleen McLaughlin, University of Sussex, both of whom sit on the FK&Y Techknowledge for Schools Pedagogy Group.

http://www.kidsandyouth.com/
## Figures and Tables

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>How often would you say you typically use one-to-one mobile technology in your lessons?</td>
<td>9</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Which of these do you, or other teachers in your school, use?</td>
<td>10</td>
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<tr>
<td>Figure 3</td>
<td>Overall, how do you feel about the use of one-to-one mobile technology in your school?</td>
<td>11</td>
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<tr>
<td>Figure 4</td>
<td>How confident do you personally feel about using one-to-one mobile technology in your teaching?</td>
<td>11</td>
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<td>Figure 5</td>
<td>Thinking about the last two weeks, in what ways have students used one-to-one devices in your lessons?</td>
<td>12</td>
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<td>Figure 6</td>
<td>Below are some things teachers have told us about using one-to-one mobile technology in the classroom.</td>
<td>15</td>
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<tr>
<td>Figure 7</td>
<td>Below are some things teachers have told us about using one-to-one mobile technology in the classroom.</td>
<td>16</td>
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<td>Figure 8</td>
<td>Below are some things teachers have told us about students using one-to-one mobile technology.</td>
<td>19</td>
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<tr>
<td>Figure 9</td>
<td>Below are some things teachers have told us about students using one-to-one mobile technology. (Very positive and very confident teachers)</td>
<td>20</td>
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<tr>
<td>Figure 10</td>
<td>Please tell us whether you agree or disagree with the statements below. Using one-to-one</td>
<td>24</td>
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<tr>
<td>Figure 11 &amp; 12</td>
<td>Below are some things teachers have told us about using one-to-one mobile technology in the classroom.</td>
<td>27 &amp; 29</td>
</tr>
<tr>
<td>Figure 13</td>
<td>Below are some things teachers have told us about receiving training on the use of one-to-one mobile technology</td>
<td>31</td>
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<tr>
<td>Figure 14</td>
<td>Thinking about the training you receive on the use of one-to-one mobile technology, which of the following do you or would you prefer?</td>
<td>32</td>
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<td>Table 1</td>
<td>Please tell us whether you agree or disagree with the statements below. Using one-to-one mobile technology can help the students in my school to...</td>
<td>22</td>
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<tr>
<td>Table 2</td>
<td>School and staff profile</td>
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