

Defying a cultural taboo: using mobile phones for learning in secondary schools

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Abstract

In this paper we report a study that was originally intended to identify how mobile phones could be used productively within the secondary school curriculum, and soon raised greater issues of school culture. It took place in schools where mobile phones are banned in class, yet champions of change among teachers and students explored their use in various ways. We present findings relating to device use in several subjects, and consider the relationship between school policy and school culture, the roles of the teachers as designers, managers and mediators of learning, and the role of the technology as a catalyst for cultural change.

Background

When the English explorer Captain James Cook sailed the Pacific in the 1770s, he heard the Tongan word 'taboo', and wrote in his journal (1777), it 'has a very comprehensive meaning; but, in general, signifies that a thing is forbidden.' Since that time, according to Encyclopaedia Britannica, most authorities agree that taboos tend to relate to objects and actions that are significant for the maintenance of social order. Thus mobile phones are currently subject to a taboo in schools, driven mainly, it seems, by teachers.

Over 90% of secondary school students in the UK have a mobile phone (London School of Economics, 2006) but in spite of claims made for the motivating power of technology in education settings (Becta, 2007), the culture of schools and their documented policies mean that their use is forbidden in class, or even on site. The General Secretary of a teachers' union recently claimed:

Teachers are already battling against the misuse of such technology in classrooms. Pupils nowadays come to school equipped with mobile phones, MP3 players, and portable games consoles when teachers would like them to just bring a pen (Keates, in Alleyne, 2008).

Where mobile phones are used, existing practice tends to be around administrative tasks such as distributing exam results and sending diary reminders. However recent phone models emulate many computer functions, enabling users to read PDF formats, spreadsheets and word-processed files and providing clock, calendar, games, music player, Bluetooth connection, internet access, and high-quality camera functions in addition to voice calls and short messaging. In spite of, or perhaps because of, these features, mobile phone technology is seen by many teachers as problematic, if not disruptive. We wondered if it would be possible to find productive uses and how schools might build on any benefits.

School culture is based on attitudes, traditions, and beliefs that are transmitted through language, policies, symbols, rituals, and importantly, the curriculum in its broadest sense. It can be summarised as 'the way we do things around here'. While each school has its own culture, or way of doing things, shaped by its history, context and people, there is also a discernible culture of secondary schooling, characterised by a subject-based curriculum and fragmentation as students relate to a greater number of teachers than in the primary years (Hargreaves, Earl, & Ryan, 1996). This can provide opportunities for pockets of change, but can also make it difficult to implement whole-school innovation. The cultures of secondary schools in the UK are strongly influenced by the need to 'deliver' the National Curriculum and to prepare students for external tests and examinations. The results feed in to 'league tables': published rankings of school performance. Kress and Pachler (2007) argue that the dilemma for schools is that culture, technology, environments and conceptions of learning are constraining: what society expects of its education system shapes what schools can do.

Recently the concept of personalisation in public service delivery has been taken up in the education sector. The two aspects of personalisation which Leadbeater (2004) describes are a shallow form that offers modest modification of mass-produced, standardised services to partially adapt them to user needs, and a deep personalisation that would give users a far greater role—and also greater responsibilities—for designing solutions from the ground up. A previous Minister articulated the key features of personalisation in two words: choice and voice (Miliband, 2006). This view legitimately

brings into public services, such as schooling, another culture which might be described as popular culture or the 'everyday culture' of learners, many of them teenagers. A broad view of curriculum takes account of this culture, and sees personalisation as a means of building curriculum activity from personal or shared concerns (de Freitas & Yapp, 2005; Paul Hamlyn Foundation and The Innovation Unit, 2008). Thus it acknowledges what learners bring from their rich and diverse experience of 'informal' learning and takes account of students' current access to technologies and the skills they have acquired outside school (Green, Facer, Rudd, Dillon, & Humphreys, 2005). The recent interest in learning 'anywhere, anytime', using the same portable devices that fulfil social needs, has led to a plethora of conferences and publications around 'mobile learning'.

Although personal digital assistants (PDAs) are not subject to the same social stigma as mobile phones, they offer many of the same functions, but might be less threatening because they are associated with a business context, rather than a social one. Yet when Wolverhampton local authority undertook large scale implementation of PDAs in primary and secondary schools in addition to positive responses from students and parents, it found that some secondary teachers were concerned about bullying, theft, intrusion into privacy and other unspoken fears (McFarlane, Roche, & Triggs, 2007; McFarlane, Triggs, & Yee, 2008). However within schools there are small numbers of champions who are keen to work with students' devices of choice to enrich the curriculum and motivate students, and who are prepared to challenge the culture. We use the term 'disruptive technologies' to signal a focus for innovation and potential cultural change, recognising that it is not the technology itself that causes the change, but that it might well provide a third-party focus for attention. In this paper we consider the role of mobile phones as potentially positively disruptive to existing school culture. The study reported here was informed by previous research with small numbers of students using mobile phones in and out of class in Australia (Hartnell-Young & Vetere, 2005, 2006) and with primary classes using mobile devices in the UK (Hartnell-Young, 2007; in press). In each subsequent study we have moved closer to mainstream schooling to explore our ideas.

As teachers roles in the field of 'mobile learning' are not well documented, this paper uses a model of teachers' roles developed through previous empirical research in classrooms (Hartnell-Young, 2006). This model includes three discrete roles: designing learning environments, managing people and resources, and mediating learning, that could be found in each teacher, or potentially disaggregated into specialisms. They are supported by a fourth, improving practice, which all teachers were found to engage in to varying extents. Designing generally involves planning the physical space as well as the curriculum activities for particular groups and individual learners. More than classroom management, today the managing role involves managing a wide range of resources—including technologies—and people, including teaching assistants, other school staff and external experts. Mediating takes place through interaction with learners, through dialogue, feedback, and scaffolding. Where teachers consider themselves as learners they engage in improving their practice. Cochran-Smith and Lytle (2001) suggest that teachers learn when they generate local knowledge of practice within the context of inquiry communities and connect it to larger social, cultural and political issues. They call this 'knowledge-of-practice', and argue that the inquiry stance is a fundamental way in which teachers, both experienced and inexperienced, work together to generate local knowledge, envision and theorise their practice, and interpret the theories and research of others.

Methods

The broad focus of our research was the effect of secondary school cultures on the integration of mobile phones into everyday practice. Within this theme were a number of sub-questions, exploring the shifts that occur in attitudes and practice when mobile phones are allowed to be used in school and the ways in which mobile devices might actually support learning. Funding was provided by Becta, the agency that provides policy advice to the government in England, particularly to do with technology.

The project was developed by the university team in conjunction with teacher-researchers in three locations, who could potentially be more influential than the researchers on the school cultures in which they worked (Hopkins, 2002). While it was classroom-based research, it had the potential to influence the whole school context and culture, through the social networks of these teachers, especially the weak ties to their peripheral colleagues (Granovetter, 1973). As Hopkins argues, teachers who do research in their own classrooms must relate their enquiries to the work of their colleagues and the aims and direction of the school as a whole, but in a case such as this it need not be a formal relationship. In addition, Bereiter (2002) argues that bridges must be built between teachers and

researchers if teaching is to become a modern profession, leading to a new ‘hybrid’ culture of teaching and research. He suggests that researchers should aid in the evolution of ideas, by selecting, intelligently, the novel ideas that emerge from practice. This requires being close to the action, and deeply involved while at the same time having a large view, with the background knowledge and time to reflect. In previous research (Hartnell-Young, 2003) it was found that teachers appreciated being able to focus on classroom practice while working with researchers to interpret and finally document the outcomes. Through communities of practice (Wenger, 1998), teachers and researchers can interact with a shared purpose in a particular domain of practice.

The volunteer teachers, from two single secondary schools and one cluster, known as A, B and C, chose individuals and class groups to participate, with the result that the cohort comprised 331 students, made up of one group of A level students, plus a class of Year 10 science students who moved up to Year 11 in School A; four individual students, a Year 9 group and one Year 11 Design Technology class in School B; and in Cluster C, 12 Year 9 students from three schools in 2006, and 147 Year 9 students in School C in 2007. The teachers decided where and how to integrate the project in the curriculum. The university team wrote to the head of each school to explain the project, provided consent forms and planning and data collection frameworks. The schools were allowed funding for several teacher release days to allow time for project activity, and one researcher from the university team was designated to visit each school for briefing, sharing plans and additional data collection, demonstration, and drafting documents.

We offered smart phones, provided by the Nokia Global Universities Foundation, on long-term loan to participating teachers and students, but in fact three different approaches developed. Site A students used their own phones 24/7 for several months; site B students used their own sim cards in the borrowed smart phones 24/7 for several months; while in site C all students used the university phones, with sim cards included, for periods of less than a day. This provided useful opportunities to compare models of ownership.

Each school shared the relevant policy documents with the university team. A baseline survey was constructed with one of the teachers and shared across all sites, and a second survey was developed by the university team during the project in light of the data coming in. Each participating teacher, and selected students, engaged in recorded conversations with a university researcher and these were transcribed. Data were also collected through observations (with video) and samples of digital products created by students and teachers. The university team coded the qualitative data to identify attitudes, use, teachers’ roles and emerging themes such as wider effects of the project in the school, and shared the data with the schools. The quantitative data were analysed for frequencies of use, correlations between attitudes and activities, and evidence of change over the period.

Findings

School policy and practice

The three schools had documented policies that discouraged the use of mobile phones, and excerpts are displayed in Table 1.

School	Policy excerpt
A	Students must keep phones switched off and out of sight in lessons and in the College building. In exceptional circumstances, such as a family emergency, students should seek staff permission to use their phone.
B	For students in Years 7 to 11, we do not allow mobile phones in school. This is an extension of our policy regarding Walkmans, laser pens, Cyberpets and other devices which could interfere with the quality of teaching.
C	Any use of a mobile phone, whether it is for calls, messaging, photographs or games during the school day is strictly prohibited. The school has adopted these rules because the use of mobile phones in school can be highly disruptive.

Table 1: Policies regarding mobile phones in three participating schools

The influence of teachers is evident in the negative tone of the policies and the phrases ‘interfere with the quality of teaching’ (B) and ‘can be highly disruptive’ (C). School A’s policy has a compassionate view, allowing phone calls in emergencies, while the other schools recognise a wide range of disruptive uses for the devices. Students’ survey responses (n=331) indicated that they knew their school’s policy.

88% reported that phones were ‘not allowed at school’, while 10% indicated that phones were ‘allowed outside lessons’. All teachers in the project worked around the policy (with the support of the school heads). The Principal of School A, a keen PDA user, was very supportive of the project, indicating to the research team that he did not agree with outright bans on mobile devices, and positioning his school as a leaders in the area. Champions within each school were a Science teacher in School A, an ICT coordinator and several teachers in School B, and a Geography teacher in School C.

Figure 1 shows that even at the beginning of the project, students reported using their phones in classes, mainly in Maths (33%) and Science (20%) where calculator and stopwatch functions were often used, and English (14%). This was confirmed by a teacher in School B who reported, after running the first survey:

We did this survey with the Year 9s and were asking them ‘what is the school policy on mobile phones?’ and it should have been, you know, they are banned in school. But then we got ‘Oh, which subject?’ and they came up with this whole list.

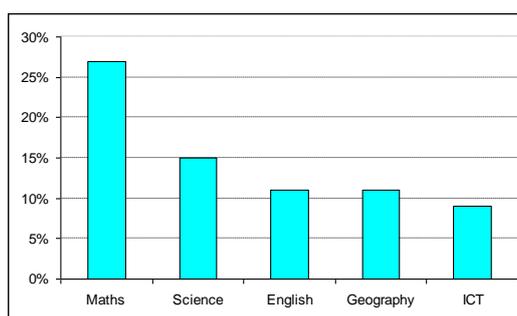


Figure 1: Use of mobile phones in subjects before the project commenced (n=331)

One teacher expressed her surprise at the lack of use in ICT classes, but as these were usually held in computer labs, it appears that desktop computers were available and links were not made with mobile devices. The specific functions used ‘in lessons’ are listed in Table 2. The options were provided in the survey and students selected all those they had used. The results indicated clearly that they did not observe the school policy in every case.

Function	%
Calculator	37%
SMS	19%
Camera	18%
Stopwatch	16%
MP3 (music)	14%
Internet	11%
Phone call	9%

Table 2: Device functions and % of students mentioning their use in lessons (n=331)

The figures in Table 2 indicate that in spite of the policies banning phones, some teachers (and not just those in our study) allowed students to use the functions that were helpful to class activities, and even some that seem less appropriate. A teacher in School B explained why she allowed students to use their phones as MP3 (music) players (with headphones):

For some of them, listening to music has been very focusing. They sit at the computer and work away because they’re in their own little world. They’re aware that when I need to talk to them they take them out, but the fact is that for some of them it’s been a really good thing.

Table 3 lists the productive uses of mobile phones that teachers and students reported in the three schools at the end of the project. Some were frequent uses, while others were occasional. It is clear that a wide range of functions was used, including communication, capturing evidence, accessing information and sharing items. In School B one student downloaded podcasts of German language, recorded his English teacher reciting poetry, made free voice over Internet (VOIP) calls and created his complete timetable as a to-do list. Others used the camera to capture evidence of products they created, logged on to the learning platform remotely (eg. from home), and used the global positioning system (GPS).

Timing experiments with stopwatch
Photographing apparatus and results of experiments
Photographing development of design models for eportfolios
Photographing texts/whiteboards for future review
Bluetoothing project material between group members
Receiving SMS & email reminders from teachers
Synchronising calendar/timetable and setting reminders
Connecting remotely to school learning platform
Recording a teacher reading a poem for revision
Accessing revision sites on the Internet
Creating short narrative movies
Downloading and listening to foreign language podcasts
Logging into the school email system
Using GPS to identify locations
Transferring files between school and home

Table 3: Productive uses of mobile phones in Schools A, B & C

In spite of many interesting uses of the phones developing over time, school policy was reified by the teachers' rhetoric and behaviour, particularly in School B. The project coordinator announced to staff that the project was taking place, but was otherwise fairly low key, and it was not announced in the newsletter. Students were told that school policy was to be followed, so that once they left the project lessons, they were not allowed to use their phones because members of staff would see them with a taboo object. When one student was found surfing the Internet on the playing field at break time, apparently doing research, he was reprimanded. As the coordinator stated 'He was keen to do it, but, you know, school policy has to be followed'.

Teachers' roles

Designing

During the project, teachers designed activities in Science, Design Technology, Textiles and Geography, and worked out ways to link the phones with school infrastructure such as learning platforms and eportfolios. School A students doing Applied Science were asked to use their own camera phones to build up portfolios of evidence of plant growth over several weeks for assessment. Teachers in School C designed Geography projects to take advantage of the functions offered by the mobile phones, and to personalise the curriculum by connecting with students' interests. A School C teacher said:

It is an added dimension to engage students as it is new and exciting. Students like mobiles and they know how to use them. Using this technology gives them more freedom to express themselves and their thoughts without having to be constantly supervised.

As a result, she mentioned the potential uses in fieldwork: 'you could do a video diary, life blog etc and have constant access to the evidence and different perceptions.'

The capacity to connect via wireless to School B's learning platform (via Internet) was developed and tested in several ways. Design Technology students were encouraged to upload evidence and access materials. Their teacher said:

I've been trying to encourage students as well, because I think a lot of them didn't know that they could find something at home, save it on their little area and then access it in school and vice versa.

However, since the teachers were exploring the potential of the devices alongside their students, there appeared to be less emphasis on designing than on the other teaching roles.

Managing

All participating teachers negotiated and discussed the appropriate use of the phones with their students. In School A the Science teacher encouraged his students to use the phones for the first 20 minutes of each science class, mainly collaborating to capture evidence of experiments. He found that students complied without any problems, and suggested pragmatically:

You always want to do something that you're not allowed to do and when you're allowed to do it then the novelty disappears...I think there is a need for control and obviously as teachers we all set those particular boundaries in different places.

He emphasised the efficiency of students having their own phones to hand, allowing spontaneous collection of evidence, measurements and calculations, without the need to distribute such equipment or teach students how to use it.

In School B using the phones to access the Internet was popular, but usability needed to be improved: They like the web searching, but I think the main problem that they've got with that is [on a computer] you right-click on an image and you're then able to download file to memory, that would be an ideal function for it to be able to do because then it would mean if they download all those images then they could upload it to their eportfolio and then could actually use it within Word.

Many students appeared to hold very reasonable attitudes, as reflected by this Year 11 student from School A:

If you're allowed to take your phone in school I think that they should say you're allowed to use it if your teacher says, for an experiment or something like that. You shouldn't be allowed to just have them out to text your friends, but just have it out for educational reasons.

Mediating learning

This important role of teachers requires knowledge of the students, the curriculum and ways of monitoring and providing feedback. Teachers in this study used their expertise to scaffold both ICT and subject skills, and were open to suggestions from their students. Some used email and SMS to communicate with their classes, while others communicated through the learning platform. In School C the Geography curriculum topic was 'inclusion' and students were asked to consider the school environment in this light, taking photographs of evidence for various aspects relating to the topic, which they later downloaded to the school network. The teachers developed assessment criteria and gave students a choice between a digital or a print based presentation, which both peers and teachers assessed. One reported that boys seemed more prepared to share their thoughts than previously, by photographing and reflecting on their work.

The device itself also mediated learning. Although a great deal of activity took place in the classrooms, in some cases the students took advantage of access to computing while on the move, such as reading files (as with e-books, spreadsheets etc) and editing, as one student in School B found:

Quick Office software enables you to edit things on the move. If you see a mistake you can edit it before you print it out on the computer.

Teachers in Schools A and B took advantage of connecting to the Internet via mobile phone, especially when there were no other connections available. One student assisted his Geography teacher:

When she didn't know a fact I was able to go on the internet and quickly look it up. And when she needed to know something quickly, I could help her, her teaching, by using the device to quickly look it up. And it also helped the rest of the class as well, that I was there with the device, quickly looking it up and able to connect so quickly to the school's network and able to find the thing I needed.

Similarly a School A teacher appreciated the immediacy of Internet connection:

Perhaps a student's asked a really good question... Well actually I'm not quite sure what the answer is, so you can go and research it on here and then report back to us at the end of the lesson.

An Art teacher in School B loaded material specifically to each student's space on the learning platform, thus assisting personalisation. One Year 13 student used her space on the learning platform to store resources for inspiration, capture images and interact via her phone, at school and at home. Crossing the home-school boundary is one benefit of mobile devices that has been previously documented (Hartnell-Young, in press). Students in this project used the phones 'to take pictures of some of my work to show my Mum' (School A); and 'to access the things at home that I can access at school as well' (School B), while 'over summer the teacher took our phone numbers and our email addresses to remind us about homework and the exams we had to do over the holiday' (School A).

Influences on attitudes and behaviour

At the outset, students were often surprised at the thought that mobile phones could be used for learning. They saw their phones as mainly for social uses, normally only using the camera to take pictures of parents or friends when socialising, and only 12% of the students surveyed thought the

phones could be used for specific learning activities. After some involvement in the project, even for a short time, this proportion increased to over 42%. These attitudes reflected those of their teachers. One teacher said ‘Before I had this phone, I used to think that text messages were just a waste of time. And I was wrong. It’s a very subtly different type of communication’ (School B).

Given the current school policies and the publicity against mobile phones, we anticipated that some parents might not approve of the project. However most parents of students invited to join the project signed the consent forms without any concerns, and only a few asked for more information about privacy and security of the data. Teachers reported that parents were keen on the project and of the 147 students involved in School C, only 1 parent objected. After their hands on experience, almost all participants reported that they enjoyed the project and felt more motivated. According to teachers in School B, the most important thing they learned was that some students who were lacking in confidence were using the phones so successfully that they had ‘blossomed’ both in their social and learning environments and as a direct result, their work ethic had increased exponentially. One teacher reflected

You know, this whole thing of cyber-bullying and all the stuff like that, I appreciate it’s a very real issue with parents and it’s a very real issue at school, but at the end of the day, where do you draw the line between hand-holding all the time and giving the kids some responsibility? (School B).

If mobile phones are to be used profitably, teachers, assistants and other staff need to be aware of ways to design, manage and mediate learning productively, to counteract the disadvantages which are widely publicised at present, and as one student commented: ‘Teachers need to be trained in order to be able to see these phones as learning devices instead of a distraction’ (School B). In terms of improving practice, hands on opportunities in school were seen as potentially useful, as professional development courses are unlikely to be taken up by those who hold a negative attitude to mobile phones. This project was itself a form of professional development, and a teacher suggested:

In every single department there is a couple of people that could bring the others up to speed. I think if teachers were shown actually, on your mobile, you could do this, and encouraged to do it, or even lent a phone and ‘Right, have a play around’...If you actually sat down and physically showed them how easy it was with a worksheet that said ‘Now click on this, now click on that’, they’d do it. (School B)

In the same school the student above suggested: ‘If a teacher was to record herself and then to send it to students...giving the teacher more control, so that she can send out the resources’.

Starting small with champions and learning from their experience is a useful strategy for this type of change. School B started with four students, and then a whole class group. Because of the nature of secondary schooling, these students interacted with many other teachers, thus raising the possibility for discussion and use in class. The ICT coordinator said:

I’d already started the small project early in the year. That started to filter out from the subjects that I’d identified. So Geography was very successful, and then I approached the other members of staff that taught these students, and they were 100% supportive.

As a result of this process, a student reflected ‘I think I have influenced some of my teachers’ views towards using mobile devices in a learning capability’. This led to several teachers talking of changing the policy in School B, in spite of some concerns regarding equity of access to devices. One teacher said: ‘If the majority want the change then why should we hold it back for two or three kids?’ Another applied for a position as a learning coordinator in the school. Just after the interview she reported (cf. Green et al, 2007):

I said to them that mobile phone policies will have to be looked at because they’re all going on blogs, they’re all using Facebook, they’re all using this, that and the other.

However in spite of the success that teachers reported, they continued to display a cautious approach to breaking the taboo, or culture change, as expressed in the four comments in Table 3.

On one hand...	On the other hand...	
We’re working towards single user sign-on. So what they log on to the learning platform with is the same one that they access their email with.	But that comes with its problems. ... They will have then same password to access student-critical data and the network. Now all you need is for students to share their passwords and their mate can get into their email and their work on the learning platform.	Teacher School B

I thought it was a useful project for the students to do.	It showed them another use for mobile phones apart from playing music on them.	ICT Manager School C
It's a lovely idea of having this wireless network within the classroom and sending messages across and doing whatever, and it being all scientifically related.	In reality, certainly with the Year 11 class, I wouldn't feel confident that they could do that – and it would only need one or two for the whole thing to fall down. So that's class management in a particular class dynamic situation rather than ruling it out of hand.	Teacher School A
I thought, well, four of these phones are going to end up on eBay tomorrow...	...but these kids have absolutely run with it. They've taken them wholly responsibly. We have had to pull one or two of them up for not following school policy, but the reasons that they were doing it were for educational reasons.	ICT Coordinator School B

Table 4. Ambivalence among project proponents

Conclusion

This study could not have been possible without teachers who prepared to take action to upset the social order in their schools, because they believed that students would benefit. The only complaints from parents came from those who children did not get access to the latest model devices. The results show that the participating teachers were keen to continue using mobile phones after the project period, and that in some cases they influenced other teachers. They were supported by their head teachers, but the written policy did not change. Here Becta, as a policy advisor to the government, plays an interesting and potentially disruptive role itself. It funded the research, which goes against the policies of the schools involved. It would no doubt wish the results to provide advice to the schools, but it cannot force schools to change their policies.

On reflection, it appears that secondary school cultures both promote and constrain the integration of mobile phones into everyday practice. Teachers have a strong influence, and in spite of trends towards 'student voice' and personalisation, there is still a curriculum with high stakes accountabilities. Teachers can be compliant in delivering the curriculum, and maintain some power in the ways they create school rules and policies, or they can see the curriculum as a springboard for creative interpretation, involving students and their devices of choice in everyday learning. The fact that most students (because of their age) are familiar with mobile devices can increase efficiency which is beneficial in short lessons, while the autonomy of teachers in their classrooms enables them to try out new things.

However if mobile phones are to be a catalyst for change, rather than taboo, the issues that concern teachers, such as fear of distraction in class, cheating, inappropriate recording of students and teachers, and publication on sites like YouTube, must be addressed. The major recommendation of this study (Hartnell-Young, E. & Heym, N. (2008) was that the focus of policy needs to shift away from the devices themselves to consider the following concerns. The first is the ownership of computing equipment, which is of interest for reasons of social and educational policy and budget, and access to network connections. A fundamental difference between mobile phones and the handheld computers that have been introduced into schools through other projects is that most students already own mobile phones. At least one teacher suggested that they might be encouraged to pay for their own devices, rather than schools providing all computing facilities. Some were keen to incorporate students' own technologies so that they used them in social and school life. However when students interact with school learning platforms and the Internet, there are technical and security considerations which teachers must discuss with school IT managers and, in some cases, Local Authorities. This local approach was supported by a teacher in School A, where students used their own phones, who suggested:

A lot of it will depend on the particular school and the ethos within the school. There are very strong relationships here between staff and students. And they're very supportive of their own learning, their parents are supportive of the learning, the school are supportive and so when you've got that in place the other things are clearly enablers.

The second concern is to use an appropriate range of computing and communication tools to support curriculum and personalisation for their particular students. This might relate to socio-economic

considerations and the types of activities required by the curriculum and will be addressed by teachers in their designing role, considering what resources students already use, what tasks need to be done, and how students might be motivated. Third, the management role of teachers comes into play as they discuss with each other and with their students appropriate behaviour towards others in school and other contexts, and develop critical literacies that will guide them in deciding what is appropriate for publication. Since there are many ways to capture photographs, video clips and audio recordings, policies should apply to the practice, not the device. Finally, schools themselves need to ensure that their students' personal data and eportfolio evidence (including photographs and video clips) are kept private and secure, with levels of access set by the owners of the data. Thus the project findings support the teacher union's campaign 'to secure government backing against the *misuse* of technology in schools (Keates, in Alleyne, 2008) (our emphasis), but they do not support blanket bans on devices.

As a result of the study we suggest that as teachers become confident enough to share their experiences (in spite of policies and media pressure) and attitudes and behaviours align with purposeful learning, schools will reach the tipping point (Granovetter, 1973), where threshold groups of teachers realise that the taboo against devices is merely addressing the surface issue, and they will work together with students and the community to develop policies as suggested above.

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