

LAPTOPS IN CLASSROOMS AND FINGERS ON MOBILES

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Abstract

All teachers are faced with decisions about allowing and/or encouraging the use of highly mobile devices in classrooms. Some writers in the literature, and many teachers, propose strict rules governing the use of highly mobile devices in class; other researchers demonstrate added value through the affordances of highly mobile devices in class (e.g., Swan, Kratcoski, & van t'Hooft, 2007). This paper will draw on recent research to clarify the main issues in this debate and help teachers in Higher Education (HE) to consider the best approach to adopt in their own practice.

Introduction

A simple brainstorming exercise with any group of students will quickly produce between 20 and 50 uses for the mobile or cellphone. These items are clearly not just for calling people; they are becoming tools for living and connecting and, as such, are surely part of people's personal learning networks. Negroponte (1995), head of MIT Media Lab, Media Lab Europe, and the 2B1 Foundation, a non-profit organisation dedicated to bringing computer access to the most remote and poorest parts of the world made the point:

Computing is not about computers. It is about life... We are discussing a fundamental cultural change: Being digital is not just being a geek or internet surfer or mathematically savvy child. It is actually a way of living and is going to impact absolutely everything. The way you work, the way you study, the way you amuse yourself, the way you communicate among your friends, with your kids... Ten years from now (**2005**), teenagers are likely to enjoy a much richer panorama of options because the pursuit of intellectual achievement will not be tilted so much in favor of the bookworm, but instead cater to a wider range of cognitive styles, learning patterns and expressive behaviors.
(p. 6)

We can contrast this with an interview given in 2011 by UK Education Secretary Michael Gove, who hinted that he would like to see mobile phones banned in schools. Claiming they lead to "disruption" and can be used for bullying, Mr. Gove bracketed mobile phones and iPods in the same category as weapons such as knives. Many objected to this broadside with an online petition.

So how does this dissension impact on teachers? Particularly teachers in HE who are well aware of some of the benefits of engaging online, as it is something many of them use themselves for scholarship. Is it appropriate for teachers to ban cell phones from classrooms and what are they saying if they do this? Does this mean that they are keen to be the only source from whom students learn? How then, can we encourage students to participate willingly in wider reading beyond the classroom when we switch off opportunities for learning while we are in the room? Looi et al. (2010) discuss a “*seamless learning environment*” facilitated by highly mobile devices, ones that can pull learning opportunities from both formal and informal contexts. The notion of a fixed place and time for learning is a nonsense that good teachers know to be untrue, readily drawing on experience before and after class and a range of sources within class to sensitise learners to the key messages they should explore. A fixed class allowed to receive information only from one tutor is unlikely to suit a range of learning styles and approaches and tends to encourage the idea, beloved of so many students in HE, that all they have to do is turn up and listen (and perhaps take some notes) in order to pass assessment and that that is what learning is about.

A mobile device, whether phone, smartphone, iPad or other laptop or tablet device, can of course provide distraction to the student, but this happens in any class (a window being one of the biggest potential distractors). It is possible to turn off notification features, but the most important thing is that the device itself is not the problem – it is how it is used, and teachers can play a key role here by negotiating its use with students and ensuring that the session is sufficiently engaging and interactive to sustain attention. The question of whether or not to allow or encourage mobile devices in class centres on the kind of literacies we wish our students to develop. Should this be confined to note taking in passive mode when in the classroom?

Literacies

What kind of literacies do we want for our students? Literacy definitions begin with the cognitive skills of reading, writing and arithmetic which enable all of us to take part in contemporary activities as individuals, as communities and as society. As we prepare learners to take an active part in society and community, to develop entrepreneurial, professional and critical thinking mindsets, there are some basic skills we have to reinforce through our subject discipline teaching. In Higher Education we do still have to negotiate the learning of these core literacies, as increasingly students present with gaps in literacy and numeracy, but this is not our main concern in this paper.

Andy Carvin in his Internet blog Learning. Now (2006) suggests that “Literacy in the 21st century is all about participation: the ability to critically consume and create knowledge for the betterment of ourselves, our families, and our communities.” This idea fits well with Howard Rheingold’s perspective of digital social literacies of attention, participation, collaboration, network awareness and critical consumption (Rheingold, 2012). Rheingold is particularly concerned to

avoid another digital divide, not between those with access and those without, but between those who can use the internet effectively and those who cannot. His concept of *infotention*, being able to direct attention purposefully and mindfully to relevant information and thence to evaluate it, is particularly helpful in understanding a practical approach to digital social literacy. It is seeing digital literacy as central to living and learning in the 21st century which makes it a vital part of Higher Education; an idea of literacy which enables us to access but more importantly to evaluate information and share ideas in a way which can affect every part of living and working in community.

Etienne Wenger (1998) suggested that educational institutions had originally assumed that learning was an individual process, that it “has a beginning and an end, and that it is best separated from the rest of our activities” (p. 3). The work of Wenger and Lave discussing communities of practice (1991) moved away from this assumption, towards learning as a social phenomenon, arguing that learning was a continuing rather than discrete process and was stimulated and engaged through interaction with others and had much in common with constructivist theories based on ideas from Piaget, Vygotsky, Bruner and Dewey. Interaction was key to learning and that meant learning not *from* talk about a topic but learning *to* talk about a topic; that is, to master an idea through participation in discussion and practice of the idea. This entails notions of discourse, which are seen by John Traxler (cited in Ally, 2010) as being radically transformed today by mobile learning. He argues that mobile devices are capable of transforming our ideas of citizenship relating to commerce, employment, social norms, art, and, at heart, learning itself.

Shifting Boundaries

Swan et al. (2007) cite Cuban (1986) “unless teaching is radically reconceptualised to embrace technology, and unless teaching is continuously redefined within the changing context that these new tools create, highly mobile technologies will have no more impact than the many other technologies once touted as revolutionary” (p. 10). So what is it that needs reconceptualising? Perhaps we should review the boundaries between individual and collaborative learning, between academia and the commercial/professional world, between formal and informal learning, and between teacher and learner.

As academic roles begin to change to accommodate technology-enhanced learning, it can become difficult to work out what teachers should be doing in the classroom. If there is no longer a need for the “sage on the stage,” yet a “guide on the side” may not quite be what students demand, but rather a “sage on the side” – a phrase borrowed from Debbie Morrison’s weblog (2012). Such a teacher is a stimulator of learning or catalyst, where necessary rethinking curricula in response to student interaction. The role here is to support individual learning but also to blend it into a shared class experience. Prescriptive learning outcomes become subservient to learning goals or aims in this context, since to prescribe in advance exactly what a student may learn is to limit the opportunity for learning

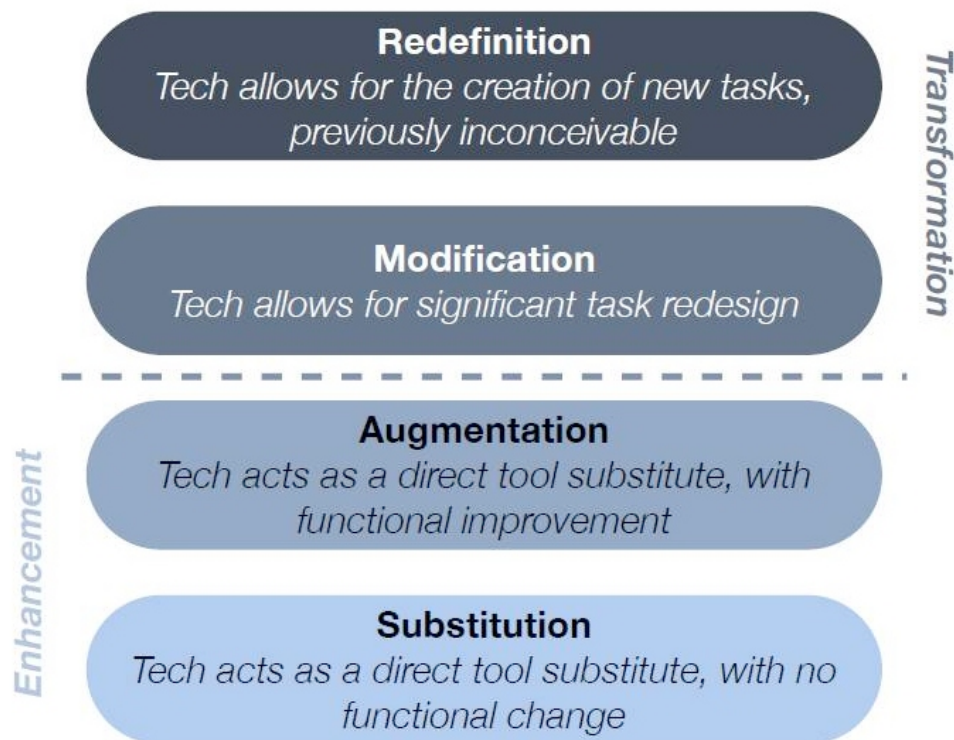
and for developing learning habits which are proactive and interactive. We know that few people learn in the same way; there are different styles, preferences and approaches which relate to our uniqueness as individuals and the nature of our past learning experiences. In order to achieve such seamless learning, Swan et al. (2007, p.12) suggest we need to educate students:

- With 21st century content, which includes information that is digital, networked and fluid.
- In 21st century contexts, including communication and collaboration that transcend spatial and temporal boundaries
- With 21st century tools, which are increasingly mobile and connected.

This suggests that using highly mobile devices in the classroom (as well as outside it) might be encouraged. But teachers remain concerned that the devices are not as ubiquitous as might be imagined in the mobile learning literature and that students may themselves be reluctant to use them in class. Research undertaken by JISC up to December 2010 (Transforming curriculum delivery through technology) should reassure, having found that students were in fact positive about using mobile technologies, including those owned by them, rather than offered by an educational institution or project, and were quite clear about which technologies could be used for learning and which were purely for social purposes. The need to distinguish the expected purpose of the technology has also been demonstrated in earlier research by the authors Greener and Grange (2011).

However, are we really talking about mobile learning here? Mobile learning can be defined as, “the processes (both personal and public) of coming to know through exploration and conversation across multiple contexts amongst people and interactive technologies” (Sharples et al., 2009, p. 5). This process involves the use of handheld devices, wireless networking and cell phones in a way which can transform learning and teaching: a mobile learner who learns best with the tools they have come to find helpful from personal preference and habit. Much literature on mobile learning in fact relates to the use of these devices outside formal learning contexts while on the move. However, the focus here is on the use which may be made of such devices within a classroom, and this may be said to be less about mobile learning than about the use of mobile tools commonly to hand within the classroom environment. The JISC mobile learning « Infokit » (2011) suggests that cultural issues in key settings have prevented the use of mobile devices in educational institutions. Such devices have been seen as disruptive, distracting or causing privacy issues, and management policy in many such settings has been one of blanket bans.

As a result of varied approaches to mobile devices, different approaches to mobile learning have been developed and Figure 1 suggests a taxonomy or framework against which to determine the approach made in a particular institution or by a particular tutor.



Podcasts on iTunes U: <http://tinyurl.com/aswemayteach>

Figure 1. SAMR model from Ruben Puentedura.

Source: Transformation, Technology, and Education. (2006)

In Figure 1 we can see that mobile learning can be used as enhancement or transformation of the learning process, with many teachers conservatively placing their bets on substitution (for example, encouraging students to access the existing Virtual Learning Environment via a mobile phone application). If the role of the teacher is changing away from the conveyor of all authoritative information and towards an environment in which learners can construct their own learning driven by their own personal networks and preferences, then it is these networks (both online and face to face) which will offer learning content, which can be mediated by but not dictated by teachers (Kop & Hill, 2008).

Does this then come down to our behaviour as teachers in the classroom? If the smartphone is a symbol and enabler of modern living, then it matters that staff are seen to use it for learning too. Cochrane (2010) found that one of the critical success factors for integrating mobile learning was the modelling of mobile devices by the lecturer. Using highly mobile devices in the classroom as well as outside it enabled a bridge to be built between the formal tutor-driven event and

students' personal experience of continued informal learning. Swan et al. (2007) found that mobile computing devices were likely to increase motivation towards and concentration during learning activities – especially writing activities - but this positive reaction could be explained as a “Hawthorne effect,” that is, the result of increased attention to the student in the study, rather than an objective increase in motivation due to the device use.

Findings Summary

Two studies (Fried, 2008; Hembrooke & Gay, 2003) offer evidence of the potential negative effects of laptop use in class in lecture courses. Table 1 below, based on a review of the literature, summarises these findings and adds a balance of views on which to base adoption decisions.

Table 1

Pros and Cons of Laptops, Smartphones and Tablets in Class

Pro	Con
Allows for increased speed, legibility and ease of note-taking	Students may try to multi-task
Allows students to organise notes and materials more effectively	Students may be less good at self-reported understanding of course material
Allows for engagement with online content of relevance to the course	Overall course performance may be reduced
Can increase student/staff interaction through dialogue and feedback	Distraction provided by devices when notifications left on
Can provide motivation to learn more proactively in class	Need to plan for Wi-Fi and server downtimes
Can promote participation in class	Some students dislike constraint on drawing diagrams etc (although this can be enabled on tablets)
Tablets have been observed to encourage discourse and offer more natural posture than netbooks (Alvarez et al., 2011)	Some students are slower at typing than writing
Competent integration of digital tools extend the lecture beyond the lecture-time (Lindroth & Bergquist, 2010)	Power problems (cables, sockets etc)
Can enable swift in-class research on topics, or literature search	Set-up delays in technology applications, sometimes incompatibility or firewall problems
Provide opportunity for quick problem-solving to aid individuals	Teachers' fears or lack of familiarity with the technology
Small group work is enabled, encouraging evaluative discussion of	

resources shared	
Promotes computer literacy for lifelong learning	
Ready generation of reports or presentations for assessment	

Source: Table based on literature review findings.

While the above table does not offer a fully comprehensive list, it does raise a wide range of issues for consideration. The result of a small class poll by the author with students using their mobiles is also shown below (see Figure 2 below). In-class polling (in this case using PollEverywhere) regularly increases student engagement provided it is not over-used (see for example Salemi 2009). The unusual finding here was that administrative information seemed to be the top reason for using devices, in particular laptops, in class. It should be noted that this poll was taken in a class of 31 students held in France in a Business school where it is customary to use laptops in classrooms.

What is the best thing about using a laptop in class?

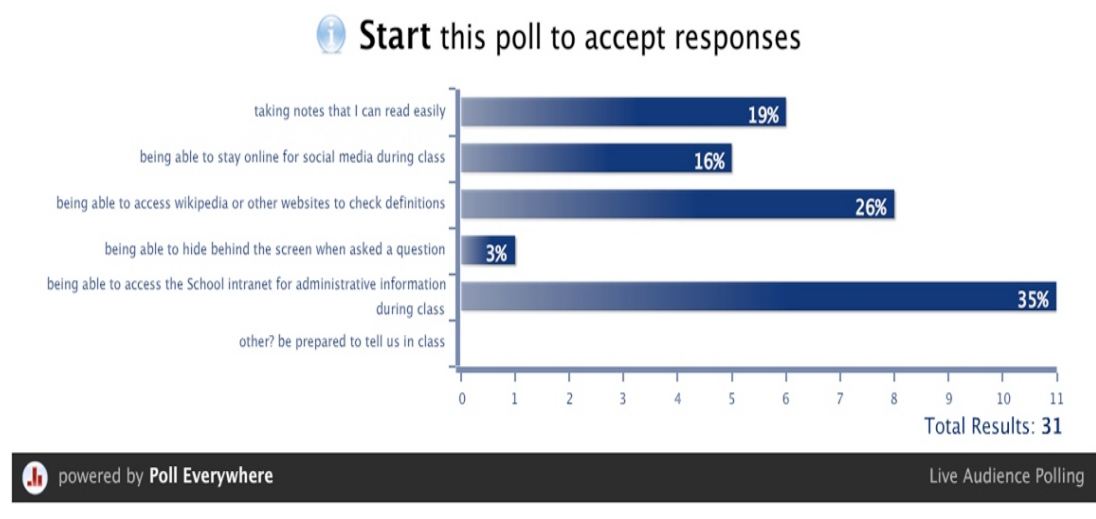


Figure 2. Results of class poll exercise on using laptops in class.

Source: Small class poll (Greener, 2011)

In line with the results shown in Figure 2, Sharples, cited in JISC Mobile learning infokit (2011), also found that up to date information about teaching and administration was a high priority for students, who saw a mobile device as a “one stop shop” for access to a wide range of information.

Concluding Remarks

This paper has presented a brief review of literature relating to the use of highly mobile devices in the classroom and has explored the future, or increasingly present, world of teaching in which such devices are genuinely accepted in the classroom as personal networks which enable and enhance learning rather than interfering with it. Far from being potential distractions and as bad as “weapons” in the classroom, such devices offer considerable potential for pro-activity and interactivity in learning. One of the key affordances of technology for learning is to be able to deliver information to learners without taking up precious class time, enabling the latter to focus on rich interaction, construction of knowledge and application of ideas. Having the devices there can provide a safety net for knowledge capture, as well as a stimulus for knowledge creation and allowing students to contribute more to class interaction.

Teachers need to decide for themselves, as professional specialists in learning, how to face the laptops and smartphones in class. Their decision will depend on where they wish interaction to take place – whether this should be primarily learner to teacher, or learner to learner – and how various devices can be used to enable this interaction, through blogging, searching, recording, reading and collaborating. While setting ground rules for device use is important, even more important will be the familiarity and confidence of the teacher in the use of such technology for learning. This involves recognition that today’s students do not question the use of highly mobile devices, only their application to learning, and this is a domain where teachers can contribute lifelong expertise.

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