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*Reproducible pages are in italics.*

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# INTRODUCTION

Can you imagine going a day without your mobile phone? If you left it at home while on your way to work, wouldn't you turn around to get it? Today's technological advances have made mobile phones and mobile learning devices (MLDs) pervasive. As a result, it should come as no surprise that the use of MLDs – especially mobile phones – in education has become a hotly debated topic. Some suggest that MLDs have no place in schools and are an extreme distraction. Others embrace and capitalise on their possibilities and use MLDs for instructional purposes. Both sides have legitimate points.

Advocates cite the advantages of the real-world tools these devices contain (such as calendars, calculators, note-taking functions and cameras) and their ability to improve student attention and focus (Project Tomorrow, 2010). Conversely, others believe that mobile phones and other MLDs add to and even exacerbate existing problems in schools – that they are not only a distraction, but that they perpetuate cheating and make it easier for students to cause trouble and participate in illegal activities. Many school administrators can't imagine students using mobile phones for purposes other than texting their classmates the answers to tests, socialising, and taking inappropriate pictures and videos during school hours. Many educators are just not comfortable with technology. They fear that they will break something. Another factor is that, though they may want to find purpose and make connections within the existing curriculum, they do not want “something else to do”.

Most educational leaders, however, realise that mobile learning is here to stay in education, so the question remains, How do we make it work? The purpose of this *Essential for Principals* guide is both to answer basic questions about implementing mobile learning in schools and to encourage educators to embrace mobile technology integration in the classroom. In the chapters that follow, we hope to provide a framework for understanding mobile learning and technology and research-based instructional strategies to use when leveraging mobile learning and technology to increase student motivation and achievement.

In chapter 1, we look at the nature of mobile learning, its benefits for schools and the implications of the shift in our society from hard-wired computing (e-learning) to mobile learning (m-learning). In chapter 2, we investigate instructional pedagogy as it relates to mobile learning. In particular, we will look at some example standards, skills and research-based instructional strategies that should be used when integrating mobile learning in schools. In chapter 3, we offer a model for technology integration and share strategies and ideas for managing classrooms when

using MLDs. Chapter 4 offers specific steps for getting started with mobile learning in schools and includes guidance for home communication, acceptable-use policies and surveys.

Ideas and lesson plans for integrating MLDs into the classroom are the subject of chapter 5. There you will find complete lesson plans for nine different types of MLDs. Finally, in chapter 6, we look at the implications of mobile learning devices for instruction and the potential they have to assist with educational reform.

# Learning Every Time, Everywhere

I will never forget the day that one of my teachers flew into my office, exclaiming, “Mr Rogers, I took this mobile phone from Chantal. She had it on in class, and she was text messaging. I caught her red-handed, so I took the phone! Do you want it?”

Four years ago, my reaction to this situation would have been to take the phone and keep it until a parent came to school. Mobile phones were becoming a nuisance for teachers and my assistant principals. What changed my mind? Reality. Digital natives, 21st century learners, generation D or generation text – whatever you choose to call them, this generation of students is ready to learn differently, and future generations are right behind them. While Chantal’s behaviour was inappropriate, the truth of the matter is that she was just passing notes in class, 21st-century style (Rogers, 2009a).

As a principal of almost 1100 year sixes, sevens and eights, and the father of a mobile phone-toting year eight, it did not take long for me to realise that most students that age have mobile phones. If they did not, they would the next time there was a holiday or gift-giving occasion in their lives. A study by CTIA: The Wireless Association and Harris Interactive (2008) indicated that four out of five teenagers were carrying mobile phones in 2008 and that this number was steadily rising. If 80 per cent of our students now own mobile phones, we as educators are fighting a losing battle to keep phones and other mobile learning devices out of school. We should be turning these perceived obstacles into opportunities to learn.

I was not always convinced of this. In my early years as a principal, I was all over kids who wore ear buds or played with handheld games during the instructional day. I just did not get why kids needed to use these tools during school. The administrative instinct is to take them away, to be returned only if a parent comes to the school to claim the confiscated item. I remained a nonbeliever until I had the opportunity to help teach a year-seven pre-algebra class. This was the most rewarding – and humbling – experience that I have ever had as an administrator, especially since my subject of expertise is science. Talk about a learning curve!

Table 2.1: How the Four Cs Are Supported by Mobile Learning

| 21st Century Skills              | Skills That Mobile Learning Supports   |
|----------------------------------|--|
| <b>Creativity and Innovation</b> | <ul style="list-style-type: none"> <li>• Brainstorm to use idea-creation techniques.</li> <li>• Elaborate, refine, analyse and evaluate ideas to improve and maximise creative efforts.</li> </ul>   |
| <b>Critical Thinking</b>         | <ul style="list-style-type: none"> <li>• Reason effectively.</li> <li>• Analyse how parts of a whole interact with each other.</li> <li>• Make judgments and decisions.</li> <li>• Analyse and evaluate evidence, arguments, claims and beliefs.</li> <li>• Analyse and evaluate major alternative points of view.</li> <li>• Synthesise and make connections between information and arguments.</li> <li>• Interpret information and draw conclusions.</li> <li>• Reflect critically on learning experiences and processes.</li> <li>• Solve problems.</li> <li>• Solve different kinds of non-familiar problems in both conventional and innovative ways.</li> <li>• Identify and ask significant questions that clarify various points of view and lead to better solutions.</li> </ul> |
| <b>Communication</b>             | <ul style="list-style-type: none"> <li>• Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills.</li> <li>• Listen effectively to decipher meaning.</li> <li>• Use communication to inform, instruct, motivate and persuade.</li> <li>• Utilise multiple media and technologies.</li> <li>• Communicate effectively in diverse environments.</li> </ul>  |
| <b>Collaboration</b>             | <ul style="list-style-type: none"> <li>• Demonstrate ability to work effectively and respectfully with diverse teams.</li> <li>• Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal.</li> <li>• Assume shared responsibility for collaborative work, and value individual contributions made by team members.</li> </ul>   |

The initial NETS, created in 1998, focused on students embracing and mastering technological tools; now that digital students are much more adept at using technology, however, the NETS focus on technological proficiency that comes as a result of e-learning and m-learning (International Society for Technology in Education, 2010) – that is, the focus of the current NETS for students is on digital fluency. The standards emphasise that students need to focus on authentic, inventive and emergent uses of digital technology and on how they apply outside the school setting. The focus is more practice oriented than knowledge based and encourages educators to move from teaching students how to use the technology to teaching them how to use the technology to learn. This change in focus aligns with the orientation of the Partnership for 21st Century Skills.



## Privacy

The guidelines for recording should be clearly and specifically addressed. Students should not be allowed to record voice, still or moving images of each other or of the teacher without permission. Students should certainly not post recordings online without permission.

A considerable amount of time should be spent discussing what is and what is not appropriate for online publication. Use this time to discuss school expectations, digital literacy and especially digital footprints (the data trail that is left when any activity is conducted in a digital environment). When I was a principal, we taught students that any information that could be transmitted wirelessly could be traced back to the originator of the message. Whether that is a true statement or not is debatable. However, I have yet to have a student challenge me about it.

## Safety

If you plan to use mobile learning devices that are capable of accessing the Internet, be sure to discuss safety first. We placed a lot of emphasis on mobile phone safety before allowing students to use them in class. You may also consider having students complete an Internet safety quiz. The instructional technology person in your school should be able to assist you.

Once guidelines are set, post them around your school, and refer to them frequently. This will help to create a culture of appropriate use. If you have several teachers who are introducing MLDs, create a slideshow and share it, so that all students hear the same message.

## Security

One of the great characteristics of mobile learning devices is their portability and size. Most MLDs can fit unobtrusively in a pocket. But precisely because of their portability, it is wise to have a plan in place to keep them from being lost or stolen. One of my teachers used an engraving tool to etch numbers on her classroom set of Nintendo DSs. When students used their own MLDs, she made sure that they had put their names on them. Many MLDs have a security feature on them so that people have to enter some sort of code before they can use them. If students are using their personal MLDs, ask them to create a security code for their devices.

Classroom sets of mobile learning devices should be clearly marked, and a check-out system should be devised. You can use a simple number-name system. For example, Jack always has the number 7 iPod touch. Teachers should always build in time to check the devices in and out.

## Consequences

I have had many conversations with administrators about the problems they face when students bring mobile learning devices to school. Many say they spend a lot of time on this issue – especially dealing with mobile phones. My impulse, again, is to punish the behaviour and not the technology. No matter how much you try, you can't get the technology to go away; however, you can work toward making inappropriate behaviours go away. When we go into a theatre or courtroom, we are taught appropriate mobile phone etiquette. Signs politely ask us not to use our mobile phones and, for the most part, we comply.



## Consider Access for All Students

The question of what to do with students who don't have a Nintendo DS, iPod or mobile phone always comes up. The conversation centres on their feeling inadequate or bad because they don't have their own device. It's true, not all kids have these devices; however, many have access at home, and this is why a survey of your students will come in handy. Several strategies can be used if you don't have a one-to-one mobile learning initiative at your school.

One strategy is to use one device as part of a differentiated small-group activity. Primary students will do very well in groups of two or three using one device. Secondary school students will respond similarly. You can also use a few devices and place students in groups.

Another option is to consider obtaining used devices. For example, in many instances you will find that students will either own or have access to handheld game systems like the Nintendo DS. In May of 2009, Nintendo released a report saying that one in ten people owned a Nintendo DS in the United States (Plunkett, 2009). Not one out of ten gamers, one out of ten people. Keep in mind that number does not include people who have upgraded to more modern versions of the gaming system. To give it some perspective, my family has two Nintendo DSs. Both my daughter and son have one. My son is actually on his second one, as I spilled a drink on his and replaced it. In Japan, the numbers are even greater. Over 20 per cent of the population have a Nintendo DS! I assure you, your students can obtain one if you wish to use it in the classroom in Australia.

As newer generations of MLDs hit the market, consumers want to replace their current devices with the newer models. The iPod has had several different generations. So have Nintendo and the Portable Play Station. While it's great to have the latest in technology, the truth is, you can conduct a great lesson using earlier generations of technology tools. In fact, I highly recommend it. For example, the major differences between the Nintendo DS, and the Nintendo DSi are the camera function and some Wi-Fi options. The regular Nintendo DS works just fine for instructional purposes without the camera feature, it is more accessible to students, and the cost is significantly lower. A used Nintendo DSs can be purchased relatively cheaply from sites like eBay or elsewhere, and new DSs are also relatively cheap compared to some other options. Finding other MLD items secondhand can save a great deal of money. Teachers have told me that when they went into their local game stop, spoke with a manager and shared their proposal, they were able to purchase used handheld gaming systems for an extremely reduced price.

When I first began incorporating mobile phones, I had an old Motorola Razor that I allowed students to use in centre activities. Those models were the best because of their ease of use of the peripherals. I also asked some of my staff to donate old mobile phones they had not handed in. Tell your local mobile service providers about your project. They are usually very generous with donating used mobile phones for instructional usage. One company gave a teacher a set of ten of the same model mobile phone, which was tremendously helpful for planning instruction using MLDs.

# Nine Common MLDs That Support Instruction

Many schools are challenged fiscally, and therefore, the availability of digital and video cameras, MP3 players and even computers is not as widespread as we would like. However, the ubiquity of mobile learning devices – especially student-owned devices – allows the use of relatively expensive technology with a large number of students (Teaching Today, n.d.). There are many ways that MLDs can be used to collect data, record and create content. As we pointed out earlier, even older devices, if they can perform these functions, can be useful in classroom instruction.

This chapter describes activities and lessons for nine devices. Detailed lesson plans using each of the nine devices can be reproduced from pages 58 to 66.

## Mobile Phones

The possibilities for using mobile phones are limited only by your creativity and the available peripherals. The typical mobile phone's peripherals include the following:

- Calendar
- Notepad
- Calculator
- Stopwatch
- Alarm
- Voice recorder
- MP3 player
- Camera
- Video camera