Chapter 1
Why integrate technology?

It can seem that the educational costs and risks associated with integrating technology outweigh the often elusive benefits.

There are, of course, a number of institutional reasons why teachers should integrate ICT into the curriculum. Virtually every modern curriculum dictates that technology be integrated into students' learning. The provision of ICT equipment to schools from governments and central authorities usually requires that the equipment is actually used. Mandating that we must use technology, however, is rarely successful, especially when the legitimate concerns that teachers raise are not addressed.

School leaders need to address teachers' concerns regarding the integration of technology and create cultures that encourage the use of technology as an effective component of learning. If we understand the educational imperative underpinning the integration of technology, then our application of ICT will be more committed, more authentic and more successful. Here are some common concerns.

• *My teaching is sound. My students generally do well in state and national testing. Why should I change and risk these results?*
If your underlying teaching is sound, you are ideally placed to introduce technology. Technology serves to amplify your teaching ability. If your teaching strategies are good, technology can improve them.

For example, a well thought out, inquiry-based, library research assignment is a good teaching strategy. Expanding the assignment beyond the library, simply by using the internet, increases the sources of information available to students and also requires a greater level of intellectual rigor and analysis. The use of technology—including the internet—does not fundamentally change the teaching strategy. It does improve it and amplify its effectiveness.

• *I have heard that the research evidence concerning the effectiveness of using ICT is inconclusive.*
Just as technology will make good teaching better, it will also amplify mediocre teaching strategies. It is important to consider the quality of the underlying teaching strategy when integrating technology. In many respects this accounts for much of the inconclusive research evidence.

Research studies that look at the question 'Does ICT improve student outcomes?' will always have mixed results. Teaching strategies used to implement the technology range from inspired to appalling. Drill and practice activities and rote learning are very easy to implement using ICT. Indeed, if a teacher simply turns their overhead transparencies into a PowerPoint presentation they are probably gaining very little pedagogically. If this teacher then asks students to make their own PowerPoint, based on the information that was presented to them, we discover where the terms 'death by PowerPoint' and 'PowerPointlessness' come from. The key is to ensure that the underlying teaching and learning strategies are relevant, engaging and encourage higher-order thinking.

• *I cannot be expected to use technology in my classes until I have had professional development.*
New software and hardware is being developed at such an increasingly fast rate that formal professional development courses for specific applications or pieces of hardware are no longer viable. Individuals and teaching teams need to develop the ability to 'have a go', 'think about it' and 'work it out'. We will have to learn from the people we work with or talk to in our wider professional networks. These networks include our teaching colleagues in the next classroom, as well as teachers we have never met who write blogs or post information to teacher-community websites, such as www.teachertube.com.

We employ this style of personal learning in our everyday lives, have done so for some time and we are generally pretty good at it. There was no formal professional development on how to withdraw money from an ATM, how to send text messages from a mobile phone or how to make a purchase on *eBay*—we just had a go. The 'have a go' attitude is a very successful strategy. Over 100 million people have *MySpace* accounts, yet very few would have had any professional development on how *MySpace* operates. Of course, the 'have a go' mindset is just another way to describe lifelong learning. This mindset needs to be consciously applied to our work when we integrate new technologies into our teaching practice.

• *Students have enough computing at home, they don't need more of it at school.*
Students often do have a great deal of exposure to computers, television and digital technologies outside school. How should schools and teachers respond to this? Should we use this as a reason not to use technology in schools?

Consider a statement such as: *Almost all of the students I teach speak English extensively at home. For many that is the only language they speak outside school. I think they are speaking too much English and schools shouldn't teach in English. They should only teach in Greek, Chinese or Hindi.*

This, of course, is an absurd line of reasoning, but in many respects it is similar to the 'students have enough technology at home' argument. Most students—and adults—use technology regularly. They rarely use technology for its own sake. It is what they use the technology for that is important. People use technology to communicate with others, to share information, to plan their time, to research and for entertainment. Removing technology from the daily lives of most people, especially students, would make it difficult for them to communicate, research, plan their time or share information. It would make it harder for students to effectively reach their potential at school and would certainly not prepare them for the world of work.

• *I find that technology 'dumbs down' my class. Students simply copy and paste from the internet without analysing the information.*
It is almost clichéd to say that ICT is just a tool, but that is all it is. Cutting and pasting text or copying, as it used to be known, has been around for a very

long time. When I was in high school, I sometimes copied out of encyclopedias in the school library.

Why did I—and many others—do this? Firstly, as long as the information copied was appropriate to the assignment, it was accepted. The teachers seemed to want to know that we could read and regurgitate an answer. The second reason that we did not undertake the intellectually challenging task of researching and analysing the information ourselves was that the subject matter failed to interest or hold any relevance for us.

The quality of teaching is the most important school-based influence on the standard of student learning. This includes: making lessons significant to students' lives; creating high levels of intellectual quality in the classroom, creating an environment that sets high expectations and encourages all students to participate. There is no evidence that ICT dumbs down your class, but it can make poor pedagogy more obvious.

• ICT is unreliable and doesn't always work when it needs to. When it works all the time I will use it.

I agree with the first part of this statement. ICT should work all the time and it often doesn't. It is also true to say that students should behave all the time, and they don't. Teachers cope very well with less than perfect behaviour from students. They cope because they have created a classroom culture that encourages students to do the right thing. When a student does behave inappropriately the teacher has a range of strategies to either guide the student back on track or to minimise the negative effects of the behaviour.

While we would like technology to behave all the time, it would be unrealistic to expect that it will, but we can plan accordingly. The maintenance of the ICT environment and the technical support provided to teachers needs to be well planned to ensure that most of the technology will function properly most of the time. Schools and teachers can develop a range of strategies to fix minor problems (often by asking the students) or to minimise the negative effects of ICT malfunctions on their teaching and learning program.