21st Century Skills

While the core subjects of literacy and numeracy are key to the development of our primary school students, researchers point to the importance of a focus on the 4 Cs of 21st Century learning. Tucker (2014) suggests that education systems need to infuse the “4Cs (communication, collaboration, critical thinking and problem solving, and creativity and innovation)” into their practice, to assist in preparing students for their role in the world and support them in developing the capacity to cope with “accelerated technological change”. This perspective is re-inforced by Donovan, Green and Mason (2014) who argue that the 4Cs are “learning and innovation skills necessary to prepare students for increasingly complex life and work environments in today’s world”.

The 4 Cs of 21st Century Learning

Use of Mobile Technology in the Classroom

A significant development in the field of ICT in recent years has been the development and uptake of mobile technology. Looi et al. (2010) note that while “mobile devices are changing rapidly, important commonalities remain the same: portability, mobility and versatility. These functions make learning ubiquitous in and out of classrooms, provide potential opportunities for collaborative learning, and enrich the learning experiences with the support of technologies”. This view was prescient given the introduction of tablet devices did not take place until April 2010. It is arguable that Looi et al. were only
hinting at the revolution to come in mobile technologies. The rapid development of cheap and innovative programs, or apps, designed specifically for this new form of technology has had a major impact on education and the educational context itself.

It can be argued that Mobile technology can be personalised to cater for individual student needs with content being adapted or settings customised (Ciampa & Gallagher, 2013; Chou, Block, & Jesness, 2012) with greater ease and at more manageable cost than at any time in our past. Added to this, the functionality of the device can be easily tailored to meet the needs of the user by adding and removing apps. This enables students to choose how they wish to demonstrate learning from a range of multi-modal options (Milman et al., 2014). While it is also the case that, as never before, mobile devices also cater for a range of different learning styles (Ciampa & Gallagher, 2013) incorporating text, pictures, video, audio and multimedia (Liu, Navarrete, & Wivagg, 2014) and greatly differentiated forms of assessment, enabling students to demonstrate their knowledge and skills in increasingly individuated forms.

An increasing number of studies acknowledge the potential of mobile technology to cater for a range of learner needs in an authentic way. They can support a variety of pedagogical approaches but to “leverage the full range of affordances that mobile devices can offer” teachers will need to engage in classroom practices that are student centred (Lui, et al. 2014; Chou, et al, 2012; Pegrum, Oakley & Faulkner 2013).

Fisher, Lucas and Galstyan (2013) have found that “the accessibility of the iPad facilitated the collaborations between students. The size, portability, versatility and tactile nature of the iPad are four of the main factors that contribute to its accessibility”. They also explored the concept of public and private space when using tablet devices, identifying the ease with which students can change between them. Devices, such as the iPad, can perform well as both independent and collaborative tools.

Some of the key findings of the research conducted by Macquarie University for the NSW Department of Education and Communities, Use of Tablet Technology (iPads) in the Classroom (2012) are:

- Increased engagement and motivation
- Improved student knowledge and skills
- Enhanced collaboration and communication between students
- Learning for students easy to personalise
- Ease of differentiation
- Students enabled to easily produce a professional finished product
- Instant access to provide just-in-time learning
- Student-centred pedagogies supported with the iPad – students learn with not from the technology
- Multimodal nature of the device afforded new opportunities for learning
- More timely and frequent feedback on student work
- Intuitive and easy to-use tool with minimal technical help required
The NMC (New Media Consortium) 2014 Horizon Report, notes that BYOD devices in schools are a means of personalising learning, thus giving learners ownership of their learning. “BYOD” has profound implications for primary and secondary education because it creates the conditions for student-centred learning to take place”. As noted by Chou, et al. in 2012, “with sound pedagogy and implementation, one-to-one learning has the potential to transform the classroom into a true learner-centred learning environment in which communication, collaboration, and creative problem solving flourish to create student-driven learning”.

Incorporating student owned mobile technology into the school environment enables the creation of “seamless learning spaces” (Pegrum et al., 2013; Ciampa & Gallagher, 2013a; NSW Department of Education and Communities, n.d.). These devices expand space and time for learning, and “formal” and “informal” learning. Curtis (2012) states that permitting students to use their own mobile devices provides them with an opportunity to personalise their device, which in turn allows them to access and engage with their learning in ways which meet their individual needs.

The Government of the Canadian province of Alberta (2012) reiterates that students invest time, thought and energy into customising their personal device and setting it up to suit their needs. ‘The student is typically quite proficient with the device and will use it anytime, anywhere to learn. Such devices, in the hands of every student, afford seamless learning opportunities that bridge the formal learning in schools, with the informal, outside of classrooms and schools'
References


