Is Learning Compromised in a 24/7 World?

By Pam Mancell

The world has changed dramatically over the last 25 years. Technology, particularly in the form of ICT, has transformed the world. Communication is instantaneous, able to be accessed anywhere, any time. For many workers, the lines between home and work are blurred. People respond to emails and messages late into the night and often feel obliged to do so. After all, we live in a 24/7/365 world and this is often presented as a marvellous advance in human productivity and connectedness. By the time the children we teach reach adulthood, the world will have transformed even more. On this basis, schools are often encouraged to get on board with technology, as their students will need to be expert users to fully participate in their future world.

We need to be connected to learning networks so that we can engage educationally at all times. Yet recently, in *The Australian* (Bita, 2016) it was revealed that the Principal of Sydney Grammar School had banned laptops from school, and insisted that students up to year 10 hand write all assessment tasks. Further, the Wardorf School of the Peninsula in the U.S. has never allowed technology to intrude, despite being the school of choice for Silicon Valley families. So, what are teachers and schools meant to do in the face of such conflicting views? Is 24/7/365 a positive step forward, and are computers improving learning outcomes as much as we assume?

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On the issue of 24/7/365, while the world may have gone this way, the individual hasn't. That old union notion of 8 hours work, 8 hours play, 8 hours sleep is as relevant today as it was in the 1850s. Children particularly need active play and sleep. These things are necessary for their development, and a lack of these may be at the core of the recent dramatic rise in anxiety and depression in young people. We must always remember, the students we teach are first and foremost developing human beings, with needs and desires beyond educational achievement.

Neuroscientists are also expressing concern over this. A growing body of evidence shows that screen time, particularly late in the evening when the brain is preparing itself for sleep, can have a significant impact on brain function (Gmoser, 2015). Interestingly, the American Academy of Paediatrics, which had previously recommended no screen time for children under two years of age has now backed away from this, noting that the ever evolving nature of the technology means that recommendations are no longer clear cut (Brown, 2015).

The relatively recent trend to online learning management systems has probably the greatest potential to transform education to the 24/7/365 world than any other change. The failed Ultranet was an attempt to move into this space, and its demise led many teachers, including me, to use the teacher-based Edmodo to fill the void. There are other programs in this field, but this was the common choice at my school.

The idea has wide appeal. Summaries of lessons, along with support material, can be posted online for students to access. A blog feature allows for online discussions relating to ideas and tasks. Students who miss classes can keep in touch. As a school we have moved to a commercial product to provide a learning management system across the school, and this has been a boon. Except for the ongoing issues of whose time is it? If a parent comments, how quickly should I reply? Am I allowed any down time? What about the students? Gradually protocols will develop and these issues will find their solutions, but at present we are in the dangerous world of any time anywhere. We can never switch off.

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At the same time, there is a significant body of evidence showing the positive impact of technology on learning. A literature review by O'Hara and Pritchard (2014) showed that most research found the impact of technology on most areas of learning to be positive. They found that ICT provided authentic access to communication and information, which engaged students and improved their reading and vocabulary. Multi-media had a positive impact on content learning, and supported

understanding of concepts such as cause and effect. This is a necessarily short version of their findings, but illustrates the point that a sizeable body of research seems to indicate the worth of technology in our classrooms.

So it is surprising that the Wardorf School of the Peninsula, based loosely on Steiner principles, is a popular school for Silicon Valley families. Their promotional video (Zehrer, 2014), while clearly a public relations exercise, does provide some interesting insights. Emphasis is on thinking, collaborating and communicating, without the distraction of the technology. These capabilities are not incompatible with technology, but as a school, Wardorf has determined that students and teachers will speak directly with one another. This was also the rationale for the Principal of Sydney Grammar School. He sees “teaching as fundamentally a social activity” (Bita, 2016) and claims that iPads and laptops in classrooms inhibit conversation and form a distraction to learning.

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My own observations as a teacher and teacher-librarian at Northcote High School support the view that devices, particularly iPads, are a distraction to students. Students (and many adults) are permanently attached to their devices and consider them to be an extension of their normal selves. This, however, doesn't mean that they are expert users of the technology and often fall into all manner of traps. They may bully, or become a bully. They may give away so much personal information that their identity may easily be stolen. They may be ripped off or deceived. On the other hand, they might keep in touch with friends and loved ones, be alerted to news that is important to them. It may also help them to develop a social conscience or form opinions on important social and ethical issues.

However, I am yet to be convinced that they do much to improve concentration or deeper understanding. In fact, my observations with our year 7, 8 and 9 students who have iPads is that they are a major distraction. Students are often on games, despite school policy and parental expectations. Games, of course, are what these devices do so well. They are alluring. Our senior students with laptops don't seem to be so distracted and use them as required (by them, not us). The students in my VCE 20th Century History classes are mostly competent users of the technology, and it has allowed us to access primary sources that are otherwise unavailable to school students. We have been able to discuss the value of various sources to the historian, and construct mind maps of ideas and evidence using Inspiration.

This year we have finally moved to BYOD, which hopefully will mean each student has the device that suits them best. Currently, most students are still using the device they had last year, but this will gradually change as devices are upgraded. As a school we have put an enormous amount of work into changing our teaching strategies, developing tasks that engage with the technology and following 'best practice' research, yet our results so far are patchy at best. While Naplan results are not the be all and end all, our results show a decline in writing levels since the introduction of the iPads. This, of course, is not necessarily causal, but it is consistent.

The OECD has also been examining these issues, focusing on the relationship between computers and student learning outcomes. They have completed an international survey using PISA data and self-reporting on computer reach from member countries. While the report is very detailed, I will include its key findings here:

- Resources invested in ICT for education are not linked to improved student achievement in reading, mathematics or science;
- In countries where it is less common for students to use the Internet at school for schoolwork, students’ performance in reading improved more rapidly than in countries where such use is more common, on average;
- Overall, the relationship between computer use at school and performance is graphically illustrated by a hill shape, which suggests that limited use of computers at school may be better than no use at all, but levels of computer use above the current OECD average are associated with significantly poorer results (OECD, 2015).

There is a caution though, as – despite the wide range of data and contexts – “even statistical techniques cannot isolate the cause-and-effect relationship among computer access and use of computers . . . and performance” (OECD, 2015).

Given there is a conflict between the findings of O'Hara and Pritchard and the OECD, clearly the issue is complex. I suspect that in many schools in Australia, the technology has been thrown at schools, with inadequate professional development. As teaching allotments and class sizes (at least in government schools) have gradually increased, teachers are grappling with unprecedented change. Professional development is added on to the end of the teaching day, and tends to be focussed on the school's strategic plan. Leaders often assume that only brief demonstrations of new programs are required, and little attention is paid to getting the most out of the technology. Until this is systemically addressed, the lack of measurable improvement in students' performance identified by the OECD might remain a feature. Teachers need access to high quality, targetted professional development that supports their constructive use of technology in the classroom.

The issue of computers and devices in schools and anywhere any time connectedness is complex and will not go away. However, issues of teacher burnout, lack of down time, inadequate teacher professional development and conflicting research are all potential impediments to improved student learning. The issues of down time and distraction also apply to students. I am not advocating we stop all devices from entering the school yard. I think that genie is well and truly out of the bottle. However, I would like to see a good deal more research done – by neuroscientists, educationalists, psychologists and psychiatrists, plus anyone else with expertise, so that we, as teachers and librarians (and teacher-librarians) can develop best practice that doesn't just follow the trends but genuinely meets the needs of our students as both learners and human beings.

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Pam Mancell *has been a teacher-librarian for more than 30 years, the last 20 as Library Manager at Northcote High School. She has a particular interest in how students learn.*