The Technology-Infused English Classroom, 4(13)

Phil Coogan
pcoogan@unitec.ac.nz
UNITEC School of Education

Table of Contents
Abstract
Vision
Getting There
Acknowledgements
References
Author Notes

Abstract

This article outlines the minimum code for a technology infused English classroom. It then presents a series of scenarios in which teachers and students utilise technology to enhance the learning process. Finally, Westside Elementary School in Hood River, Oregon and Tahatai Coast School in New Zealand are used as case studies to explore the teacher development processes which are a necessary precursor to the technology infused school and technology enhanced learning.

The Vision

Introduction

Schools and teachers now face unprecedented pressure to get technology, especially information and communications technology (ICT), get networked, enhance skills and get online. At times during this headlong rush to implement technology, it is possible to forget what it is all for. The aim of this section is to paint a picture of what an ICT-infused English classroom might look like once minimum technology and professional development requirements are in place. In other words, how might all the current ICT inspired angst and excitement lead to the sort of enhancements in teaching and learning which Lemke and Coughlin (1998) argue are indicated by emerging trends. Their report, Technology in American Schools: Seven Dimensions for Gauging Progress argues that:

under the right conditions, technology:

- accelerates, enriches and deepens basic skills
- motivates and engages students in learning
- helps relate academics to the practice of today's workforce
- increases the economic viability of tomorrow's workers
- strengthens teaching
- contributes to change in schools
- connects schools to the world.

These are quite some claims but there is increasing evidence for them elsewhere, e.g. March (1995) in discussing the educational advantages of the Internet, provides compelling illustrations of this medium's immediacy, passion, cleverness, humour, interactivity, relevance and currency.

There is growing evidence of the impact of technology in specific areas of the curriculum, e.g. Archer (1998) reports that:
computers can raise student achievement (in Math)….but they have to be placed in the right hands and used in the right ways. (my italics).

And in the curriculum area which is the focus of this article, University of Newcastle (2000) research shows that computers can boost primary pupil’s reading and writing even more than their numeracy skills.

A Minimum Code English Classroom in 2005

What are the minimum classroom requirements for an ICT-infused English curriculum? What would I be lobbying for in each English classroom over the next three to five years?

I would want fast (ISDN 64k-byte minimum) Internet/World Wide Web access, two or three standard Internet-enabled computers as well as one reasonably powerful multimedia machine. I would also want a telephone and fax plus a large flat screen television monitor (with or without VCR - see later) capable of being seen by all students from time to time. I would want to be able to borrow from the resource centre, a class set of laptops (or alphasmarts), a video/still digital camera and a visual presenter (see later). The total set-up cost per classroom would be perhaps $NZ10,000, including online costs, but excluding initial network cabling. The probable annual maintenance costs would be perhaps $NZ3,000 including technical support, depreciation for replacement and online costs. [see footnote]

Yes, it is a lot a money. In fact if we were starting from scratch, it would cost in the region of $NZ350 million to equip the 35,000 learning spaces in New Zealand schools. But the money has to be spent. All over the developed world, federal and state governments are investing such amounts in infrastructure, hardware and teacher professional development. If New Zealand wishes to become part of the information age, it has no choice but to do the same. Otherwise we face a future as a client state, purchasing our technological products, knowledge and skills with diminishing income generated from an increasingly dangerous dependence on commodities. Enough of the politics - what about the learning?

Pedagogical Issues

So, let’s assume the government bites this bullet and we are teaching in the minimum code classroom I described above. Although not yet the norm, such a set-up is increasingly typical of classrooms in many North American and some New Zealand schools. What do we do with it all that gear?

First, we do not change our models of good teaching and learning. We continue to emphasise:

- motivational introductions
- explicit sharing with students of the desired outcomes
- modelling, demonstration and supporting students towards the outcomes
- active approaches to learning in which students spend more time doing than listening
- formative assessment aimed at providing plenty of opportunity to practise new skills, to learn and create new knowledge and gain feedback
- opportunities for students to engage collaboratively with new learning
- authentic real world contexts for the learning
- learning which leads to production of some kind for real audiences (what the Americans call a "generative curriculum")
- summative assessment which is closely tied to the desired learning outcomes
- assessment and reporting which clearly signal the next stage of learning.

These are fundamental principles of teaching and learning irrespective of ICT. The technology simply makes them easier and more fun to achieve.

Second, we do not reduce our emphasis on reading and writing in the English classroom. However, we acknowledge the increasing fusion of the visual and the verbal in all forms of communication (see Kress, 1996) and of course, we continue to recognise the key life skills of speaking and listening.

What will change to some extent are the vehicles we use to develop those skills. As shown below, the technology does expand the options in quite dramatic ways. However, no one is going to stop teaching Shakespeare or a favourite novel - we'll just aim to do it better.
Some Possible Scenarios

As can be seen from the hyperlinks throughout the article, most of the following scenarios are currently happening in leading-edge English classrooms in New Zealand and around the world. In other words this is not techno-utopia. With the right investment in hardware/software and, crucially, in teacher professional development, this could be the norm in New Zealand classrooms within three to five years.

Example One: Year 13 - The Crucible

A year 13 class is preparing to study Arthur Miller's *The Crucible*. Their teacher realises that they need considerable contextual background information about the time in which Arthur Miller was writing as well as the setting in 1690's New England. The class is divided into groups, each allocated a research topic and given a period to find answers to the questions. Groups use a variety of Websites which the teacher has identified for them (and which have been identified for her by a centralised resource). In the next period, groups report back the findings of their research using the large screen TV to display relevant Web pages. Hence instead of a dry oral delivery, groups can illustrate their report with, for example, television pictures of Joe McCarthy addressing the House UnAmerican activities. Another group through a simulation is able to give a synopsis of the prevailing tensions in Salem which led to accusations of witchcraft. A third group is able to show the examinations and testimonies of some of the Salem accused, along with pictures of their graves and memorial in present day Salem.

Example Two: Year 6 - Process Writing and Publication

A year 6 class is involved in a unit on process writing. Their teacher has initiated an online project through Global Schoolsnet as a way of generating the raw material for writing. As a result, small groups of children are each involved in the development of two collaboratively written stories with students in Ontario. Each group is responsible for the development of two short stories, which they work on alternately with a parallel group in the Ontario school. They contribute a paragraph, email it to their Canadian peers who email their paragraph back. Once the first drafts of the stories have been completed, the teacher, again using some of the ideas from the centralised resource centre, guides students through a focused process to improve their writing. She then publishes the final versions in the Writers' Window which enables all students involved in the project to view the final results of their initial collaboration.

Example Three: Year 2 - Pet Exchange

A year 2 class has decided to try an alternative to the usual stuffed toy international exchanges and is sending a stuffed kiwi called Kapai on a world tour. Their teacher advertised the project through Global SchoolsNet and received responses from teachers in the USA, Canada and Europe. Kapai was posted to his first class near Los Angeles (where he was last seen on the Tower of Terror at Disneyland) together with a log in which his minders record his experiences. Minders are children who take turns to take Kapai home, show him their home and community and write about what they did with him. With help from parents, siblings and teachers, they record his experiences in words and photos in the log before sending him on the next leg of his tour. Kapai's class back in New Zealand track his progress through email reports sent from the classrooms he visits. The New Zealand class use the daily emails to chart his journey on a world map with their teacher taking the opportunity to increase the children's knowledge about the places Kapai is visiting. The teacher does this mainly by encouraging students use of extracts and visuals from Compton's Interactive Encyclopedia which can be accessed via the school's intranet - without having to physically access the CD.

Example Four: Year 7 - Magazine Production

As the culmination of a study of magazines - both traditional magazines and online ezines, a year 7 class is to produce their own ezine for publication on their school's Website. The children's study has equipped them with a good understanding of the need to target visuals and language to audience, of presentation features and also of the production roles involved. Different groups are each allocated a role (editorial, features, advertising, layout/graphics, marketing etc). Students spend class and homework time interviewing, researching articles (using the fax and phone in the classroom and the Internet along with traditional written sources) and approaching local businesses for advertising placements to help offset the costs. The students use a word processing programme and the borrowed set of laptops to ensure that their initial focus is on the effectiveness and clarity of their written English. The word processing files are then imported into Microsoft Publisher to allow them to format, add graphics and digital photos before publishing the final product on the school's Website. Hence, thanks to the employment of a variety of technologies, students are not only able to produce a publication which is professional in both content and...
appearance, but they are able to share their work with parents, peers and friends locally, nationally and internationally.

In the following year, as a natural progression of their writing development, this same group of students is introduced to a study of literature written as hyperfiction. In this form of literature, readers construct much of "the story" for themselves by following hyperlinks which take them on non-linear, often visual, and sometimes startling journeys through a narrative. The best examples are entered in the primary section of the Listener Internet Fiction competition.

**Example Five: Year 11 - Romeo and Juliet**

A year 11 teacher is preparing her class to study and then perform excerpts from *Romeo and Juliet*. As part of her preparation for reading she wants her class to gain an appreciation of the influence of the original performance space on the way Shakespeare wrote his plays. So she uses the Internet and the larger screen monitor to take her students on a guided tour of the present day *Globe* in London. She then shows the class excerpts, easily digitally selected through DVD (Digital Video Disk), of *Shakespeare in Love* on the large screen monitor to provide a rich context to the study of the play. The teacher has used the school's Intranet to book the video showing - all handled from the centralised resource centre using the schools' Media Master System.

**Example Six: Year 10 - Radio**

A year 10 class is undertaking a study of the way language changes according to the audience. Each class member is allocated a radio station broadcasting on the Internet and/or locally and asked to analyse the features of the language and report back to the class about the target audience based upon the linguistic analysis. Students then plan, script and produce their own radio station using cassette recorders. The combined use of both traditional technology (cassette recorder) and an emerging technology (streaming audio via the Internet) has several advantages. It not only ensures that study and planning result in a final product which can be shared but also helps widen the study beyond the local and familiar allowing classes anywhere to access the range of radio stations necessary to ascertain the way language is adapted to audience in this medium.

**Example Seven: Year 12 - Cyber English**

A high school English department has been investigating ways of using ICT to allow for more individualised and motivational programmes for its highly diverse year 12 student population. Over the course of a year, one of their teachers is given time (one class allocation) and clerical help to put the Year 12 course structure, assignments and resources on the school's Intranet. She is inspired by the work of "Cybrarian" Ted Nellen of Murray Bergtraum High School in New York City whose Cyber English course has attracted much attention in the USA and beyond. Then she discovers Microsoft FrontPage - which provides a framework into which she can slot course instructions, resources, and assessments as well as discussion forums which provide students with mutual help and email access to their teachers, from either home or school.

The online course allows students to control the pace of their learning, to revisit areas they found difficult as many times as they need and to seek help on a "just-in-time" basis from their teacher or peers. Students appreciate the non-linear nature of the course, which allows them to follow avenues of interest in a less rigid way than in a traditional classroom. Also, absence from class is much less disruptive for both students and teachers.

Teachers are able to work in far more individualised ways with students and track their progress carefully through electronic audit trails. The gap between home and school is narrowed and course content can be updated continuously. Most importantly, students are clearly motivated to succeed in this multi-sensory, self-paced, interactive learning environment.

**Example Eight: Year 1 - Writing**

A year 1 teacher has the class writing a response to a story they have read. As part of the school's assessment policy the teacher is asked to indicate the level for transactional writing at which each student is working. As this is the only year 1 class in the school, the teacher finds it difficult to be sure about where individual pieces of work fit against the curriculum levels. The teacher therefore accesses an online exemplar of transactional writing for level one with accompanying commentary to guide assessment decisions. Having the exemplar online ensures a busy teacher can access it from anywhere (as opposed to trying to find it among the pile of materials in the teacher workroom) and can quickly print a copy for her/his own use and files. For those creating and disseminating the exemplars, online
publication is economic and also allows for instant modification in response to changes in curriculum and assessment.

Other Benefits for Teachers

The minimum code classroom described above provides limitless opportunities for more interesting and motivational approaches from teachers and enriched learning for students. However, the opportunities for teacher development and support are just as profound. From this classroom, teachers of English can access solutions to a raft of professional issues such as the following:

- I've got to revise our primary school's English scheme. **Where do I begin?**
- I need a new English/integrated unit for my year 5 class. **Where do I look?**
- I'm so tired of the way I approach the teaching of *To Kill a Mockingbird*. **Where can I find a different approach?**
- I'm at the stage of my career where I'd like to read a little more about the theory of my subject. **Where should I start?**
- I'd love to know what other teachers think about the latest assessment proposals. **Where should I start?**
- I want to learn more about using information technologies in my classroom. **Which one?**
- My performance appraisal suggested I should attend a professional conference. **Which one?**
- I haven't had a decent laugh in ages. **Where can I find a different approach?**
- I'm right into this Web-based stuff. **Where can I go further?**
- I've only just got computer access. **Where could I start?**

Although beyond the scope of this article, the administrative benefits in areas like internal communication, keeping registers, report generation, accessing templates, policies, records etc. are just as tangible.

Getting There

Professional Development

Of course, the possibilities of a technology-infused curriculum range well beyond the English curriculum and also beyond the Internet. As I have already mentioned, the professional development of teachers is the key component in such pedagogical shifts. If we do not give professional development the same emphasis as we do hardware and software, then the types of approaches I have outlined above will not occur in most classrooms and we will end up with a range of under-utilised hardware depreciating in classroom corners.

In New Zealand, teacher development obviously has some way to go. Despite there being Internet access in 83% of primary schools and 94% of secondary schools, only 20% of schools reported a quarter or more of their staff or students use email or the Web during a typical school week (Gifford, 1999). Such figures are paralleled in the US where Peck, Cuban and Kirkpatrick (2000) argue that it is not technophobia which is the barrier to teacher usage but: hectic time schedules, heavy job demands, and the fact that computers are subject to routine breakdown, interfere with their embrace of technology in the classroom. For the majority of New Zealand teachers I would add the crucial barrier of access. Merely having Internet access, for example in a library, does not guarantee staff access. However, the other crucial factor behind such figures is lack of staff expertise and confidence - not necessarily in accessing the Internet or other learning technologies, but in incorporating the technologies into teaching and learning in practical, meaningful ways. As I argue above, the latter is impossible without the provision of technical resources in the classroom along with professional development. Regarding, the latter, I found the approach of one American school instructive.

Case Study 1: Westside Elementary School

Westside Elementary School in Hood River Oregon, is framed by the spectacular backdrop of snow covered Mt Hood. However, I found even more spectacular the school's approach to staff development, and the integration of learning technologies into the process of teaching and learning. The school was technologically very well equipped but its success did not derive from hardware. Principal Betty Shalhope has a few simple educational philosophies which were clearly reflected throughout the school and which accorded with Honey, McMillan and Carrigg's (1999) argument that technological innovation must be accompanied by simultaneous changes in: administrative procedures, curriculum, time and space constraints, school-community relationships and a range of other logistical and social factors. At Westside such changes included:
A belief in vision first. Honey, McMillan and Carrigg's argument could have been discussing Westside School when they stated:

Technologies matter only when harnessed for particular ends within the social contexts of schools.

At Westside, resources, finances and technologies followed in the wake of a clearly articulated philosophy and strategic plan. The vision came from a structured year of reflection when all staff took responsibility for researching best practice in other schools and other countries (two teachers from Westside had visited New Zealand to study our approaches to reading);

A total commitment to teaching and learning in all phases of school life. The teachers are not there to entertain (although school is fun) and no time is wasted. From 8.00am on day 1 of the term till 2.30pm on the final day, classes are focused on their number one priority - learning. There are no jugglers at assemblies but there is plenty of celebration of student achievement through ongoing presentations by students of their work to their peers, more often than not utilising, or assisted by, an array of technologies;

A commitment to staff development philosophically and financially, which, in ten years, has seen an almost unchanged teaching staff evolve from competent, mainly didactic teachers into outstanding teachers, facilitators of learning and adventurous users of technology. This has been achieved through leadership which understands the process of group development and managing complex change;

The hard-won wisdom that you "can't jump the teachers". Having specialists demonstrate to teachers the use of high-powered learning technologies did not work. Teachers themselves had to be given the opportunities and incentives to explore and utilise technologies within their own programmes in their own classrooms;

A belief that such change must be school-wide and that having a few 'stars' is not the way toward school improvement. Teachers are always paired for professional development undertakings;

Recording the change process and often checking staff perception through rigorously constructed questionnaires which lead to direct action;

For both teachers and learners, accepting failure as a key part of the learning process. As Fullan, as cited in Robinson (1995), says:

Success in school change efforts is much more likely when problems are treated as natural, expected phenomena, and are looked for... The anxieties of uncertainty and the joys of mastery are central to the subjective meaning of educational change.

However, at Westside there are many, many public celebrations of success which are recorded (digital cameras were everywhere and in constant use), as evidenced by the record of my visit. Food was also an important part of celebrations;

A commitment to accountability. Staff were expected to demonstrate the outcomes of the considerable money spent on their development. They could do this, for example by leading a workshop about what they have learned or perhaps taking responsibility for becoming expert in, and demonstrating, the curriculum-related use of a learning technology - which may be anything from a visual presenter to a set of tools;

A school-wide commitment to authentic learning experiences with real life applications (see below);

A belief that excuses ("these kids can't learn", "there are too few resources") are not acceptable;

Placing the information centre/library at the heart of the school - both physically and symbolically;

A belief that all students should be exposed to equally exciting learning experiences that must be directed at an outcome which may be a presentation or product which demonstrates the learning. Hence the school no longer has enrichment classes for "bright kids". As shown below, every class at Westside is an enrichment
class. So those students for whom school has not always been successful grow in stature as, with the help of technologies, they are presenting their work, not themselves.

In other words, a profoundly sensible, practical philosophy of education underpins all that happens at Westside. I visited just eight days before the end of the school year and a few days after the "Highlight On Learning" - a day of student presentations of projects and demonstrations to their teachers and parents. Utilising learning technologies these were spectacular celebrations of learning across the curriculum. The continual refrain was "you should have been here last week". I'm not sure I could have coped because on the second-to-last Friday of the school year - a normal school day - the following things were happening in classrooms:

- A physical education teacher was wired up with a microphone whilst taking a class in the gym. The teacher did not need to raise his voice and there was a purposeful, calm on-task atmosphere;

- A class of students were using the library suite of computers (there are also four in each classroom, two of which are high-end Macintoshes) to construct a Hyperstudio presentation of an allocated aspect of the History of the Oregon Trail as part of The Trails Project. These students were collaborating with others from towns and cities along the trail to produce a CD which will include the stories, hardships, geography, music and celebrations of those who headed west to find a better life. They used books and the Internet to gather information and, because this year there is a school-wide focus on the new Oregon music curriculum, much of their information was actually sung;

- A teacher was dissecting a beef heart using a visual presenter (basically a video camera hooked up to a large screen TV), explaining and questioning as she went. The students were able to follow the process by comparing what she was doing to some pictures they had previously copied;

- A class whose study of force and projection culminated in their launching water propelled rockets into the air with the altitude being measured mathematically by other classmates to arrive at a winner (which reached a height of one hundred and twenty two feet!);

- A class which had been learning about plants by each child germinating a plant from a seed, then planting it in the garden in the front of the school. This garden was divided up into labelled plants unique to the Hood River eco-system, unique to Oregon, or unique to North America.

So no videos on Friday afternoon for these students - the evidence suggesting that such active, authentic technology-enhanced learning was typical. One teacher took me though a quick tour of the archive of projects stored on the school's server. These included many collaborative projects such as one involving hundreds of schools across the USA and Mexico which each reported the progressive migration north of the Monarch butterfly - all charted on wall charts. Another similar project reported the progressive arrival of spring across North America through a study of the timing of local blossoms.

In one class, students proudly displayed T-shirts printed with the picture of a marine animal which, as part of a class project, they had researched, drawn, digitised, printed on their T-shirt and presented to the class as a seminar, using multi-media technologies.

It was obvious that all students made confident use of technologies as part of their everyday learning. At kindergarten level, students were writing on alphasmarts (mini-word processors, six of which are available in every classroom with a class set available for borrowing), with publication on the class computers after initial drafting on these handy little machines.

The walls of the school were covered in celebrations of student learning and all students were articulate in discussing their learning and were also knowledgeable about the purpose of the project or activity they had undertaken.

This is a technologically well-equipped school but more importantly, it was vision-enriched - and, as with Tahatai Coast School on the other side of the Pacific Ocean, that's where it all has to start.
Case Study 2: Tahatai Coast School

Tahatai Coast School is a relatively new primary school situated near the stunning beaches of the beautiful Bay of Plenty region of the east coast of New Zealand.

Once again, a strong educational vision pervaded all aspects of the school. As professional development coordinator Raewyn Baldwin-Denton says, "We don't teach, we provide choices to facilitate learning among our students".

Led by principal Mark Beach, the school has developed into a model of learning assisted by ICT. As with Westside Elementary, the school invests heavily in the professional development of staff. All are equipped with a laptop and all are expected to devote considerable time to their own development.

Teachers are expected not only to be Internet literate but also familiar with applications such as ClarisWorks, Hyperstudio, Kidpix, Photoshop and Adobe Premier. However, it is not the technology which is at the core of the school and of the professional development, it is the model of inquiry learning promoted by Canadian Lane Clark - a model which is supported by the impressive folder of selected professional readings issued to staff members each term.

In the inquiry model, the aim is to enable children to "follow their passions" through question posing, refining, selecting sources of information and then using the computer applications to synthesise findings and create new knowledge, often in a multimedia presentation. Raewyn Baldwin-Denton describes the ICT as a sort of "outward bound for the mind" allowing students to go further and do more than they could ever have imagined. The school's award-winning Website, designed and maintained by students, attests to the efficacy of the approach, as did the articulate young people who, like the students of Westside, were able to describe not only what they were doing but also the learning strategies they were employing to do it.

Classrooms were happy, with engaged students working on a variety of projects under the overall theme for the term, which was "Planet Earth and Beneath". One particularly impressive aspect was the use of student experts whereby different members of the class are helped to become expert and thus able to help other class members with some aspect of ICT - from video making to editing using Hyperstudio, to the magic of the Fireworks software package.

The school has developed a digital administration system in which most internal communication is done via email. It also has an extremely sophisticated and manageable recording and reporting system using Filemaker Pro. All planning information, pro formas, meeting agendas and minutes are also available from staff laptops via the Intranet.

Students from Tahatai Coast School are currently working with Copeland Wilson and Associates to produce a water safety video. They produced the school's publicity video, maintain its award-winning Website and are utilising ICT in their learning in remarkable and creative ways. And, as with Westside Elementary, the success of the school can be clearly traced to the vision of the leadership team and the concomitant investment in strategic staff professional development.

Acknowledgements

My thanks to the following people who were so generous with their time during my research for this article:

- Betty Shalhope - Westside Elementary School, Hood River, Oregon
- Carole Polney - West Babylon High School, Long Island, New York
- Ted Nellen - Murray Bergtraum High School, Manhatten, New York
- Stone Wiske-Harvard Graduate School of Education, Cambridge, Massachusetts
- Marty Keast - Forever Learning, Toronto, Canada
- Mark Beach and Raewyn Baldwin-Denton - Tahatai Coast School, New Zealand

and to all of my colleagues in the UNITEC School of Education and Learning Technologies Centre whose feedback has been invaluable.
References


[Back to the Top]
Phil Coogan
UNITEC School of Education