

A Courage of Adieus

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We praise the pioneer, but we praise him on wrong grounds. His strength lies not in his leaning out to new things—that may be mere curiosity—but in his power to abandon old things. All his courage is a courage of adieus.

Thomas Kettle 1915

Summary

1. We have done a lot of pioneering work in applying ICT to schooling.
2. We have applied technologies in small and conservative ways, as if we are a cottage industry.
3. In the next few years we need to think more broadly and connectedly.
4. While systems and governments need to do more, teachers are the education agents of our future and have the pioneering opportunity.

Introduction

I found the quote from Thomas Kettle when I was at high school, copied it out and kept it in a folder of quotes that I periodically revisited. More than any of the others in that folder, in spite of its use of the masculine pronoun as a universal, this one has influenced my thinking and acting. It has tempered my tendency to pick up and run with new ideas and causes.

Thomas Kettle was born in 1880, an Irish, home-rule nationalist committed to a free united Ireland in a free united Europe. Scholarly and bohemian, he was a mathematician, economist, barrister, philosopher and MP. He set up an Irish regiment to go to the aid of Belgium as World War I broke out, in the belief that the two countries had values in common and could be long term allies.

I knew nothing about him when I memorized his words 45 years ago, but in recent months, using the Internet, I have found his life, with its paradoxes and ambiguities, surprisingly relevant.

He died in 1916 at the age of 36, at Ginchy, during the battle of the Somme, believing he had failed as a pioneer of Irish home rule.

In education, and more particular in schooling, we have been experimenting with change for a long time. Indeed, our profession is necessarily about change. There is no point in an education system if it doesn't produce change. Schooling is a process of shaping change, of, over a period of 12 years, ensuring that infants grow to be fully functioning members of society, able to contribute in ways that guarantee the survival and growth of the community. Our society changed through the schooling process, adjusting to ever more demands and expectations. Our debates have been about the extent to which this process emphasises conformity or questioning; continuity or divergence. Unsurprisingly,

we are more comfortable with growth models for change than we are with models of discontinuity or pioneering.

Although the growth in information and communications technologies in the last 40 years has enabled and driven much change in our society, much of it is discontinuous and it has not driven and enabled similar change in schooling even though there are some widespread and some outstanding applications.

This paper comments on what has happened to date in schooling as a result of ICT application. It is based on my experience as a person working for the last six years on a national initiative with hooks into various areas of national and international education policy and strategy.

International and National Application of ICTs in Schooling

Internationally and nationally, policies for ICT in education have been related to government policies for knowledge or information economies. This can be seen in the work of the OECD and the European Union, and in policies of countries such as United Kingdom, Canada, South Korea, Singapore, Thailand, New Zealand, and the USA.

All these countries have moved towards broadband provision, ratios of 1 computer to 4 students in schools, electronic whiteboard provision and digital content procurement. They have a variety of teacher development activities in train.

In Australia, governments agreed in 2000 that to support an information economy education needed to work on four fronts: infrastructure; people; content and policy/regulation. They also agreed that the easiest one to work on together, and likely to provide the most productivity, was content. From this decision The Le@rning Federation was born, a five year initiative from July 2001 to June 2006 to deliver, using electronic means, 4500 items of digital content to all Australian and New Zealand schools.

The task has been formidable, requiring as it did, the building of repository infrastructure, the agreement to interoperable standards, to intellectual property sharing arrangements and content specifications across ten governments. It has been so successful that the ten governments have agreed to a further three year investment, moving towards sustainability by June 2009. The evaluation of the initiative against its original terms of reference, (The TFG Report) is available on the Initiative website.ⁱ

EdNAⁱⁱ had been set up in 1998, before The Le@rning Federation, as a gateway to websites useful to education and training. The Le@rning Federation was an initiative to create specifically purposed educational content, applying digital knowledge and processes.

The other priority areas agreed by governments in 2000 were left largely to individual jurisdictions with some federal work on bandwidth and professional development work remaining firmly with states and territories. The TFG report has questioned the effectiveness of this and suggested that ministers re-look at collaborative action on these issues. The content driver has produced quite a bit of essential change in areas such as standards, interoperability, IP sharing, curriculum soundness and pedagogical thinking but indications are that take-up of digital content and other ICT applications by teachers is not ubiquitous. This is consistent with experience elsewhere.ⁱⁱⁱ

Jurisdictional Application of ICT in Schooling

At a system level we have seen the introduction of student management systems, human resource management systems, intranets, record management software and geographic positioning systems. In some, but by no means all, jurisdictions some of these applications even exchange data. In others, each application is still separately funded; separately developed, separately 'owned' within the organisation by well meaning enthusiasts convinced their application is the answer to a problem

Applications of ICT in schools

For at least two decades, schools have been using ICT applications for a variety of purposes. Some of the earliest applications were introduced by teacher-librarians in library management systems of various levels of sophistication. Not too far behind them were teachers who developed software for classroom use. In Australia the floppy-disc version of *Where in the world is Carmen Miranda* was a break-through program, showing teachers some of the possibilities of this medium.

Before long student management systems emerged, often from very small local developers working with a teacher or administrator. Distance education was quick to see the opportunities and adopted a range of applications that have lead to the final replacement of the pedal radio and the earlier pioneering technologies.

Today, in addition to the significant body of online curriculum content available to all Australian and New Zealand schools, we have schools, and in some cases education systems, using SMS messaging technology as part of their attendance management strategies, security cameras to reduce vandalism, internet research as an accepted, routine part of student learning, experts communicating directly with students via email, parent contact with the school via email, phone messaging and websites, communities of practice operating via wikis and blogs and increasingly, assessment practices including electronic processes using both scanning or online processes.

There is also a global sharing of knowledge, practice and product. The Le@rning Federation is trialling content in Canada, France, the United Kingdom, Mexico, and Singapore. We are exchanging content with many of those countries and selling licences to others.

There is a lot happening. It is good to remind ourselves of that and to give credit to those who have taken the risks and worked very hard to achieve these applications within schooling. It would be foolish, however to do no more than congratulate ourselves. Our sector has still not applied technology in an integrated way as have other sectors of the community and at all levels, we still need to argue that information and communication technologies are essential to our business.

Arguments for using technology in schooling

I regard it as self-evident that technology must be adopted and applied across the whole of the education sector, as it is in society in general and in particular sectors and industries. To me, the ubiquity of ICT in our society leaves no choice about its use in schooling, but there are at least two additional arguments.

Ubiquity

Schooling is a major tool of our society. It moved from an elite service to a mass service in response to the demands of the industrial revolution using the enabling technology of the printing press. While chalk and blackboards, tools that served not many purposes outside schools, were appropriated uniquely by our sector, there has remained a permeable membrane between schools and society as you would expect from an institution so closely bound to communities and to the preparation of both citizens and workers.

The logic runs as follows: in a democracy all schooling serves society; all society is ICT dependent; all schooling is therefore ICT dependent.

We would need to have very good reasons for rejecting technologies that are now transforming interactions, processes and media across our society.

Impact on Learning

Longitudinal, co-ordinated and properly controlled studies of the impact of technology on student learning are only just beginning to emerge. This is not surprising in an industry so dispersed, under-funded and competing with large ticket items like health and defence for government funding. However, there is now a sufficient body of research to be able to assert that, at the very least, there are improvements in engagement and motivation from using ICT in classrooms^{iv}

There is also an accumulating body of evidence which links the use of ICT in learning and teaching to improvements in standards and performance^v.

There is a growing interest in the possibility that, as a result of the use of ICTs, both in their in-school and out-of-school lives, students may learn faster, and may even operate differently cognitively.^{vi} We don't know this yet, but there seem to be some indicators that this might be so.

Sector improvement

A very powerful reason for adopting information and communication technologies in schools in a more systematic and connected way lies in the evidence from other industries and sectors that things can be done differently, and as a result more can be achieved.

The digital world is a world of ones and zeros, where activities and processes that have developed over time as bundled and integrated can be unpacked, examined in the light of current needs and, reassembled, recombined, re-aligned and repackaged. We can track more, link more and exchange more. This opens up the possibility of doing all sorts of things differently. We can, in a different language, re-engineer our business processes. This is why the response that ICT is 'just a tool' is an evasion. The tool opens the possibility of doing all sorts of things differently.

Most of our education applications to date are substitutions – Google for a library catalogue search, software program for a text, electronic record for a paper record. While this is a good start, the big benefits of technology to the economy and to society have been in application to business processes, the removal of intermediate steps, the linkages to processes in other industries (e.g. linking ordering processes to delivery processes, linking permissions to operate to online training, linking photography

business to security processes, the electronic linking of processes or people to create both efficiencies and new possibilities., the conceptualizing of a whole value and a whole work chain in the light of digitization – the capacity to dis-assemble and reassemble in different ways.

Trends

Thomas Friedman in *The World is Flat*^{vii} looks at this from a particular perspective. He talks of ‘flatteners’, which create new opportunities for collaboration and consequently shift the balance of power in relationships between players, whether they are countries or companies, sectors or organizations, individuals or groups.

He argues that these are the trends that have enabled countries like India and China to participate in industries in Europe and the USA (and Australia) using technology to exploit their time zone and their cost-structures to perform parts of processes, thus reducing the costs for companies in industrial countries and creating well-paid jobs for locals.

At least five of his ‘flatteners’ present opportunities for education: uploading, work flow software, outsourcing, off-shoring and supply-chaining.

Uploading enables communities of interest to create and share significant knowledge, including applications and tools, as opposed to downloading them – receiving or taking information as presented for consumption. Apache servers, Netscape browsers, Wikipedia, Moodle, the open source and creative commons movement are all products of uploading. Uploading allows ‘geeks’, enthusiasts and skilled amateurs to build collective intelligence^{viii} and generate services of widespread significance.

Work flow software links processes, requirements and transactions so effectively and automatically that steps are eliminated and new options created. The publishing industry has used work-flow software to good effect, resulting in faster, cheaper and self-publishing options.

Outsourcing allows specific functions of an industry, event or process to be performed by an agent more expert, proficient or efficient in that process then integrated back into the work-flow. We think about outsourcing in relation to large government-owned bodies, but its greatest success is in small and medium enterprises where it allows expensive expertise to be focused on areas of greatest productivity by contracting processes such as bookings, equipment maintenance, catering and cleaning to specialist companies.

Off-shoring is the removing of a whole presence or business to another country from which it can be done no less efficiently. We are familiar with car manufacturers moving a factory to China.

Supply-chaining activates horizontal collaboration to create value that did not exist before. Businesses such as Amazon.com and e-Bay use collaboration between suppliers of goods, transport companies, banking services and credit card companies to provide services that did not exist before.

Education has been indifferent and resistant to these movements – even scornful. We have embraced applications that give us an additional option (content) but resisted, or

politely declined to think about, the possibility of more widespread applications. The test of the next few years is our willingness to go further and consider the application of some of the 'flatteners'.

There are some beginnings. British GCE examinations are now set and marked by three private companies. Schools, indeed, subject heads, can choose the company whose examination their students will take. The papers are written by students in the traditional way, then scanned and distributed to markers in electronic form. Some forms of answer require specialist teachers to mark them – history essays, for example. Others, such as a section of a science paper with short answers, can be marked by literate, intelligent people from a range of backgrounds, particularly graduate students, after an intensive training period on the topic and syllabus section. The markers mark online. They are in touch with a group of markers and a moderator. They begin with knowledge of the expected variations and how to cope with them. As new queries arise these can be dealt with instantly and the agreed standard circulated to all markers. The reliability of the markers can be monitored through the inclusion of 'standardising' papers.

The markers can be anywhere. In 2004 20 000 GCE papers were marked in Melbourne by this method. The students can eventually view their marked paper and all the notes regarding why some answers were or were not accepted.

So, we don't want to be an exam driven system. And we want teachers to know and understand their students' work and marking their papers has been an onerous but essential part of achieving this. But is it the best way?

Imagine, for example, a parent enrolling a child online in pre-school, having daily access to information about the child's activity, eating, achievement, highs and lows, choosing to carry that into school, archiving parts of it along the way but enabling the student to carry significant parts into adult life and learning. We can imagine time saved by teachers accessing parts of such records, to plan programs for individual students, including resources, activities. They would assess progress, diagnose and reprogram, review resources, obtain test results, obtain advice, consult with colleagues, draw in a specialist, report to parents, plan programs.....

We could paint a picture of a school based around processes that focus on progressing the learning of individual students, by engaging teachers who design learning for individual students within a context of collaboration and socialization, using their individual skills in teams and outsourcing many parts of the process – for example, excursion organization, marking, supervision, enrolments, attendance, transfers, after and before school programs.

Technology's capacity to disaggregate data – and to reassemble data in different configurations, has not been applied to schooling as yet in any widespread way. Some schools, particularly Independent schools, are beginning to realize the potential here and to experiment. While on the one hand, systemic schools have the advantage in the new world, of being part of system and therefore at an advantage when it comes to electronic system delivery, increasingly the independent sector is learning to use its advantage – the flexibility of small units in a digitized world if they can learn to network and link in new and creative ways.

Education providers and governments are already moving away from reliance on importing students from overseas to exporting expertise, setting up systems for overseas governments.

There are other trends we might look at. Eliot Massie, an educator who has long worked in the vocational sector, produces an online newsletter. In a recent newsletter he identified four top trends that educators should consider.

Self-service

Massie says employees and customers are moving rapidly towards a comfort and even assumption of self-service for transactions. We might consider what processes in schools could be managed electronically by parents and students directly. Money transactions, enrolments, forms to be filled out, lunches to be ordered and course choices to be made come to mind. Maybe a percentage of time-tabling and group allocation could be self-service.

Peer-validated knowledge

People are increasingly balancing or combining expert knowledge with peer validation and ratings. We might not like this much, but we have to find ways of balancing our expert knowledge about learning with the knowledge of up to date subject experts, the knowledge of both our student cohorts and our parent community. They will exchange user knowledge amongst themselves anyway. Our students and their parents vote for their idea of the best ballroom dancer, singer, wilderness survivor, watching their views balanced out against expert opinion. They belong to on-line support groups for a range of health conditions or user groups for equipment and share their opinions about products, books, music or film. We are better off harnessing this and finding forums for combining our knowledge rather than working separately and at odds. Surely we want to support a 'knowledge commons', fostering the growth of knowledge, using and building on the results. To do so, we need to let go of our control – and a lot of our rhetoric.

Search versus Menu

Free text search process is now more used than menu-searching. What does this tell us about the way we need to engage with our communities? What does it mean for the way we offer services or deal with our communities on a daily basis? The willingness of our community and students to accept the way we present choices both online and off-line may be short-lived.

Media time-shifting

Sophisticated home recording creates an expectation of time-shifting in media watching, information and entertainment. Does this impact on the way we work with students? The way we deliver programs and courses? Are we still expecting all students to move through learning programs in the time we stipulate, both in and out of school? ^{ix}

All the applications we have made of technology in schooling are terrific and need to be supported and extended. I hope we write the histories of the pioneering teachers and principals who have spent the hours trying out new programs and technologies, providing their own support, struggling with timetables, booking computer rooms, sharing equipment, learning the hard way. I also hope we tell the stories of the system and sector CEOs who manoeuvred and shaped public policy to get long term change and benefit.

The biggest shift of all – the organising unit

Finally, it seems to me that all the research and thinking about the use of ICT in schooling, and the literature about pedagogical change, is saying a very simple thing about the organization of schooling in the twenty-first century – the organizing unit is the child.

Printing enabled mass education, took schooling from the preserve of the rich or the monastery to the citizenry. Schools were the institutions that delivered this. Classes and cohorts were the organizing units that made it possible. By grouping students and training teachers to work with those units we achieved, at least in western countries, universal primary and close to universal secondary education. It supported and drove the industrial revolution and the mass production and distribution of goods and services, along with market economies and capitalism.

The promise, however, and the challenge of digital technologies, is a more unitized, flexible, disaggregated model. Industries such as Finance and Banking, Publishing, Film, Health have transformed by moving from universal, standard provision to more locally assembled models. The standards still apply – in fact even more than before – but the standard protocols and systems operate behind the scenes, like electrical voltage that supports thousands of appliances provided they adhere to the standard.

This world requires education systems that are similarly unitised, flexible. And the unit is the student, the individual. We haven't begun to think what this really means, and how our existing organizational structures need to change. How a school or a system or a state meets its responsibilities in this environment may be very different from what we have known and assumed.

We are strong on rhetoric, orthodoxy and dogma in relation to pedagogy. We are assured of certain certainties, as T.S Eliot said of another generation. We know we should strive towards outcomes, using constructivist, student-focused activities that acknowledge different learning styles and engage more than one form of intelligence. We are less able, however to answer the question, exactly what is needed to take this child's learning of a particular concept or body of knowledge, or skill set, forward, today, tomorrow, next week, next month? How can we use this technology grid to help us, for every child, every community, every time?

It seems to me to follow logically, that a schooling organized around the unit of the student is dependent on the skills of the individual teacher in ways far beyond schooling as we have known it. We can, and must, produce much better infrastructure, support structures and tools for teachers, for parents and for students – our future depends on it, but while these might take work away from teachers, if we apply some of the trends of other industries, they increase the professional responsibility of teachers, and make good teachers the platinum of the system – and increase kids' learning capacity.

Everywhere else this seems to have proved true. While teller jobs have declined, financial analysts are thriving, in demand and head-hunted. In medicine, doctors are in short supply and required to interpret more information, work with more informed patients, consult more specialists, integrate more knowledge. Even in the hospitality industry, where bookings for US restaurants can be made by phone or online through

services in India, the roles of the chef and restaurateur are more expert, more sophisticated, more demanding, not less.

I know all the 'yes, buts'. Schooling's reliance on government funding, both state and federal, constrains its flexibility. The traditional polarization of employer and union is a barrier. Individual teachers feel powerless and small in the system. Duty of care is a mighty brake on innovation. Dealing with every student in a society with high levels of social security is seriously debilitating. Pay rates and conditions don't reward enterprise and pioneering.

I think, however, the logic works. Schooling will organize, or be reorganized around the base unit of the student over the next decade. Technology systems and supports must be built. But the teacher is the premium resource. Already good teachers are poached from one system to another, one school to another, one country to another, and indeed, one industry to another. Either the profession identifies the opportunities, fights for them (and in the process has the courage to bid farewell to many things in our comfort zone), or others will shape it for us. But a pioneering profession needs the courage of adieus.

What is it we want to achieve? How might we do that if we aren't constrained by some of the things we now take for granted? There will be a price, as there always is. But we have the chance to be pioneers – to break thru.

Table – some examples of what our profession might consider.

LET GO	REACH OUT	HANG ON
one size fits all	child as the base unit of organisation	Education: <ul style="list-style-type: none"> • for all • as a public good • for egalitarianism & civil society • for social improvement
Simple division of public and private	redefined 'public'	
'they' culture	combining perspectives	the intent of 'free, compulsory and secular'
expert control	partnerships	knowledge creation and transmission
'certain certainties'	specialisation	National standards and consistency
Power of One	mixed models	public accountability
Our world vs real world	flexible models	
	value chain building	

Conclusion

The last letter Thomas Kettle wrote contained these words:

We are moving up tonight into the battle of the Somme. The bombardment, destruction, and bloodshed are beyond all imagination, nor did I ever think that

the valour of simple men could be quite as beautiful as that of my Dublin Fusiliers. I have had two chances of leaving them—one on sick leave and one to take a staff job. I have chosen to stay with my comrades.

It is a moving and noble story; caught in the dilemma of his passionate belief in local values but his equally passionate belief in their place in a bigger picture, he is killed in a war not of his own country's making, in a failed attempt to use the war in Europe to further the Irish nationalist cause. He chose to say *adieu* to life, rather than to his comrades. As a pioneer of Irish nationalism he appears to be a failure. Unless, of course, we take the view of a century, and consider the position of Ireland today, and its relationship to the EU.

I hope none of us is called on to make such a choice. For us the personal stakes are not so high. I'm glad I've remembered his words for 45 years. Education is a place for pioneers, and if we want our profession, our calling, and our industry to survive we must now seriously embrace the *implications* of technology, actively transforming our profession and taking the initiative to farewell props, processes practices and assumptions that no longer serve either the child or our society's future.

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