Principal Sabbatical Report

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Report on I.C.T. application and use in schools in New Zealand and beyond as part of my Sabbatical Leave and Otago Principal's Association Prestigious Scholarship.

Executive Summary

This report outlines my sabbatical leave granted for term two of 2006 during which time I visited 32 schools in Auckland, Wellington, Christchurch and Dunedin to observe and discuss how they were using Information Communication Technology (I.C.T) to assist them in delivering the curriculum.
As the 2006 recipient of the Otago Primary Principals Association Prestigious Scholarship I was also able to attend two international I.C.T conferences; one in Norway and the other in Ireland. These conferences provided an international perspective on I.C.T use in schools. I also had the opportunity to visit schools in Singapore, Greece, England and Denmark to add to the experience.
With this experience and information to draw on, my task now is to develop my own school five year strategic plan in the use of information technologies to assist curriculum delivery.

My Proposal and Programme:

My initial proposal was to focus my investigation on the use of I.C.T. within the New Zealand context. I was fortunate to be able to visit 32 schools across New Zealand and observe and discuss their I.C.T. usage within the curriculum. I drafted a standard questionnaire to form the basis of my observation and discussion with schools visited. All schools were asked in general terms:

- the scope and nature of I.C.T. involvement in their curriculum delivery,
- the rationale behind such usage,
- the hardware and software being used,
- the strategic planning and professional development involved in the process,
- what they saw the future being for I.C.T. within their schools.

The international phase of the study centred around the attendance at two international conferences focused on the use of I.C.T. in education.
The conferences were in Alesund, Norway and Dublin, Ireland. In traveling to reach these two venues I was also able to include visits to schools in Singapore, Greece,

England and Denmark that enabled me to make further comparisons with what is happening here in New Zealand

Background:

Our school, Arthur Street School, is part of the Hills Cluster of schools in Dunedin. Our cluster, centred on Wakari School, made a successful application to the Ministry of Education for funding from the Information Communication Technology professional Development (I.C.T.P.D.) initiative. Our group will be involved in this national project for the next three years (2006-2008.)

Arthur Street School Board of Trustees acknowledged that we, as a school, are at a critical point in our ICT usage and development. They believe it is important that we develop a strategic plan for I.C.T. to maximize our cluster involvement as well as set a clear direction for ourselves over the next five years

Arthur Street School's Board of Trustees saw considerable benefit in supporting my application for a terms sabbatical leave to investigate current national trends and developments.

Findings

At the beginning of term two, I began my sabbatical by visiting schools in the four main centres of New Zealand.

Schools that were selected to visit varied in size, location and decile rating. Professional colleagues in each of the main centres were contacted and asked to recommend schools that were regarded as places doing interesting and possibly innovative things with I.C.T. I also chose a number of schools at random to provide a more balanced view of the overall scene of I.C.T. usage in schools.

The programme of school visits was to gain a perspective on the nature and extent of I.C.T. application and use in the delivery of the curriculum in New Zealand schools with particular focus on the primary school level.

Over a four week period I visited 32 plus schools in the four main centres.

The visit to each school was preplanned and involved making an appointment with the principal to visit the school and discuss and observe the I.C.T usage in delivering the curriculum. The on site visit involved a meeting and discussion with the principal and / or leader of the information communication technology area. A standardized questionnaire was used to provide a framework for discussions.

The visit invariably included a school tour and classroom visits to see I.C.T. resources, environments and where possible ICT being used in curriculum delivery.

The greater majority of schools visited had been involved, or were currently involved in the Ministry of Education funded Information Communication Technology Professional Development (I.C.T.P.D.) project.

The impact and influence of the I.C.T.P.D. project has been pervasive in that there appears to be a high degree of commonality in how participating school have undertaken

their I.C.T.P.D. development and yet a considerable degree of flexibility among individual schools responses to the process.
The fundamental emphasis on pedagogy as the underpinning philosophy on the use of I.C.T. was obvious.
Most schools visited have collectively and collaboratively developed a whole school philosophy and belief structure on which, they as a learning community, have established the role and function of I.C.T. in their programmes.
The majority of schools see I.C.T. as a set of tools to enhance and promote their schools culture of learning.
A number of schools have been very innovative in organizing their vision of learning and the use of I.C.T. into a marketing package. They have integrated their schools learning culture, including essential skills or key competencies, as well as their schools unique characteristics into an easily recognizable package. Children, staff and parents were involved in the identity building and therefore had ownership and commitment to the belief structures and processes that were produced.
In a couple of instances the complete package with professionally designed logo and or mascot were evident throughout the school and had become part of the school culture and ethos.
Each school had its own unique plant configuration to work with along with varying parental expectations of the schools use of I.C.T. as part of curriculum delivery.
A number of schools had made creative use of capital works budgets to provide more flexible environments for the use of I.C.T.

The extent and usage of I.C.T. resources varied from school to school but the following general comments summarize my observations and discussions.

Hard ware and learning environments.

- all classrooms had access to at least one computer. Most classrooms had several computers. .
- Usually at least one of the computers had internet access.
- An increasing number of schools had sets or pods of laptops available for rotational use.
- A number of schools had wireless internet access.
- A small number of schools were using some form of interactive white boards
- The most common platform being used with integrated programmes was Apple-Macintosh.
- The majority of schools did not have specialist computer labs or withdrawal rooms.
- Increasingly schools were integrating their learning programmes with student management programmes.
- Data projectors were common in most schools

Human resources and professional development

- Strategic planning for ICT implementation was common
- Whole school community involvement featured frequently in the process.

- Staff needs varied and required individualized programming with support and guidance with their professional development.
- Often a collaborative cooperative, collegial culture resulted from the professional development programme.
- A sense of community both within, and beyond the school to neighbouring or participating schools, was evident.

Uses of I.C.T. in their curriculum delivery.

- Primarily used as a tool to support teaching and learning through whole school, inquiry based, integrated approach to curriculum delivery.
- A number of schools using integrated approach to develop whole school or syndicate themes for focus of study and learning.
- Schools organizing learning into authentic contexts relevant to children's experiences and environment.
- Word processing being used for presentations and compositions
- Design and presentation of findings via slide shows and power-point presentations
- Video and still frame manipulations of images
- Internet search for resources e.g Google
- Participation in Blogging and Wikipedia type activities
- E-mailing
- Interactive white board usage for instruction and explanation
- Interactive CD production and use
- Student management systems to collect and analyze achievement data
- Intranet for school communication and exchange information
- Reinforcement activities using various software applications

Positive benefits of using ICT to assist in delivering the curriculum

- Positive impact on student engagement, student motivation and focus.
- Production of high class products children were proud to be associated with as well as pride in their technological capability.
- Children are comfortable with the new visual media.
- Children generally have an expectation that they can and will use current technologies.

Effectiveness of ICT usage

- Evidence often anecdotal where engagement is indicated by student enthusiasm and focus
- There appeared to be little hard data on the effectiveness in terms of learning gains of I.C.T other than anecdotal observations of children's engagement
- In one school there was some evidence that use of I.C.T. had positive impact on literacy skills based on Asstle comparison with national average
- Inquiry learning focus provides authentic contextualized learning for children
- I.C.T. provides medium for children to exercise their creativity

- I.C.T. assists teachers with planning, resourcing, achievement data gathering, analysis and reporting
- Children are surrounded by I.C.T. out of school and thus there is an expectation to use it in school. These are Mark Pensky's 'digital natives'
- Good teachers use all relevant tools at their disposal to engage children in the learning process.
- The issue as to whether I.C.T. is effective or not can be irrelevant to the extent that it is the communication medium of the time and is being embraced by society especially our younger generation with enthusiasm irrespective of whether it is being used in schools.
- The effectiveness argument is a difficult one to argue when any comparison between I.C.T. and non I.C.T. supported curriculum delivery is very difficult to make.
- We are working with the current generation of "digital natives" who expect communication and information exchange when ever, what ever where ever.
- The use of individual e- portfolios where child, teacher and parent can access and interact anytime anywhere enables all stake holders the opportunity for input.
- In one comparative study taken of two groups being delivered the same unit in an I.C.T.P.D. cluster; one through use of I.C.T. technologies and the other by non I.C.T. traditional technologies. The I.C.T. delivered unit produced overall better results than the non I.C.T. group.
- Children today expect to have the same access to I.C.T. technologies at school as they do at home. (98% of one particular schools children had access to computers)
- Student engagement and parental expectations are very much part of I.C.T. usage.

Negative impact of ICT on schools and learners

- Limitations of teacher's imagination and perceived need to be in control of children's learning.
- Reluctance of teachers to allow children to explore and experiment.
- Problems in provision of sufficient hardware and suitable software for computing.
- On going capital resources and depreciation of equipment
- Keeping hardware updated.
- Cost of producing own resources very expensive hence a reliance on donations or sponsorship.
- Commercially produced material not always suitable or tailored to users needs.
- Need reliable network system to work consistently.
- Staff receptiveness to new technologies.
- Lack of flexible learning spaces.
- Limitations of the technology
- Availability of sufficient funding
- Use of I.C.T. for I.C.T.'s sake.
- The latest equipment not being fully utilized.
- Budget deficit and staff anxiety of expectations
- I.C.T. doesn't engage all the senses
- Anxiety about the purpose and use of student management software.

- Monitoring of individual progress and the authenticity of ownership of work presented.
- Isolation factor of children working alone on I.C.T.
- Learning curve for some staff seen as daunting.
- Teachers seeing relevance of use of I.C.T. in their class programmes.
- Equity issues of access in low decile schools

Where schools saw the future of ICT in the delivery of curriculum

- Maintaining momentum and enabling increasing access to I.C.T. resources.
- Continuing development of inquiry learning and incorporating new key competencies as part of the school philosophy.
- Continuing to integrate I.C.T. into inquiry learning approach.
- Ensuring the use of I.C.T. for the right reasons including effectiveness and efficiency.
- To keep pushing the boundaries. Digital portfolios?
- Interactive whiteboards?
- I.C.T. integrated into learning.
- Better student management through new systems
- Access to better student achievement data bases
- Digital classrooms where every child has access to a portable computer.
- Greater emphasis on inquiry and individualized learning
- Self regulated seamless learning readily transferable
- Multi media learning, pod casting, blogging.
- Building staff and children's capacity to use various forms of I.C.T. in authentic contextualized learning situations.
- Ever increasing faster, smaller more transportable I.C.T. equipment.
- A more holistic approach to teaching and learning.
- Expand the integrated curriculum across the school employing the confident use of I.C.T. resources.
- Web based e-portfolios to bring home and school closer together in partnership to support children's learning.
- As teachers gain confidence in the technologies increase their use in curriculum delivery
- I.C.T. is part and partial of today's society therefore parents expect it to be part of their learning.
- Our own school on stream T.V channel sharing locally, nationally and internationally with other schools
- Expand intranet usage for management and administration.
- Pupil, parent access to school student assessment and resource data.

ICT Conferences attended:

International Federation for Information Processing (I.F.I.P.) conference "Imagining the Future for I.C.T and Education" held in Alesund Norway 26-30 June 2006

I attended this conference to find out what the international developments and trends are for the use of I.C.T. in the delivery of school curriculum. The conference was attended by approximately 100 participants from around the world who were involved in many different ways in the use and development of I.C.T in education. Many were from university faculties researching into I.T. applications in the education setting from classroom practice to teacher training from pedagogical theory to hardware applications. There were some participants who were leaders in the education system and others who were educational practitioners.
The conference was held at Alesund University College in the city of Alesund on the north west coast of Norway. Ninety presenters delivered approximately fifty papers, workshops and discussion groups over the five days of the conference.
Participants were provided with a wide range of topics to choose from during each day and within each session.
From the sessions I attended the following are a summary of some trends and developments:

- Access to I.C.T. is not consistent across the world or, in some instances, with individual countries.
- There is a digital divide between those who have, and do not have, access to I.C.T. thus creating issues of equity.
- In high tech societies I.C.T. use in education invariably lags behind the society or community use of it.
- I.C.T. is often oversold and underused in schools. Many current education or structures or systems do not provide the opportunity for using the full potential of many I.C.T. applications.
- Teacher confidence and competencies in use of I.C.T. is a significant factor for its use in school.
- If teachers can't see a direct benefit they won't use new innovations.
- Need to look more closely at teacher professional development and pre-service training in I.C.T.
- In the use of I.C.T. there is a tension between technical skills and capability, and the pedagogical philosophy underpinning its use.
- Maybe the visionaries for I.C.T. usage are out of touch with the classroom and school realities.
- Often an over-emphasis on technological wizardry to the detriment of knowledge acquisition and skill development.
- New technologies forcing us to look more closely at teaching and learning.
- Technologies are by their very presence in schools determining educational practice and requiring educators to consider new ways of looking at teaching and learning

Some conclusions:
There is an acceptance of the inevitability of the use of I.C.T. in our education system thus the questions of its effectiveness and efficiency are somewhat irrelevant. These technologies are available to our students outside the school setting and have become, or are becoming, a normal part of their lives. To ask the question how effective or efficient are they in promoting learning is begging the question, in that they are already part of young peoples lives. As educators we need to develop ways of maximizing the potential of such devices to promote and support learning. The new technologies are requiring us to review our pedagogy and in some cases develop new learning theories that better explain what's happening or about to happen in our schools.
In many instances we still seem to be trying to accommodate new technologies into old structures and systems and wondering why they don't appear to be working.
Many of our current curriculum, organizational, managerial and physical structures are not conducive to maximizing the benefits of our new technologies.
This was particularly evident when visiting schools both in New Zealand and overseas. The schools with the smoothest I.C.T. integration within their operations were those that were recently built with the new technologies in mind or those who were fortunate enough to have funding to undergo significant remodelling.
Another conclusion I came to was the lack of any significant research into the impact of this increasing I.C.T. use on the learner. The increased use of computers and exposure to these types of devices by children both from a sociological and physiological perspective does need to be investigated.
Children's exposure to television and the impact on brain development has been the subject of research by Aric Sigmund from Britian. A similar study into computer exposure would be very interesting. Sigmund argues that a child's physical brain development is influenced by the extent of their exposure to television screens. We do not know the long term impact and exposure to computers on children and young adults.
The potential accessibility of vast resources of information will require learners to develop new skills in filtering what is relevant and what's not in their search for answers.
The ability of the learner to manipulate, recreate information, and present it as their own, raises issues of authenticity, authorship and ownership. How does a teacher determine if the work presented to them by a learner is the product of that learners efforts? The whole issue of assessment, evaluation and accreditation are problematic if we use existing processes and procedures to evaluate student s work. The whole area of authentic learning takes on a new meaning in this new technological age.

International Association for Development of the Information Society (I.A.D.I.S) Conference July 13 -16 Trinity College Dublin Ireland.

This conference was held at the historic and beautiful Trinity College in Dublin.
The e-Society and Mobile Learning held a co-joint conference under the I.A.D.I.S. umbrella. There were two programmes being run concurrently where participants could choose to attend an extensive selection of paper presentations or workshops.

The conference presented some 120 papers and workshops along with several keynote addresses by leading world authorities on information communication technologies.
The e-learning section of the conference addressed the following topics:
Collaborative Learning; Curriculum Content Design & Development; Delivery Systems and Environments; Educational Systems Design; eLearning Organisational Issues; Evaluation and Assessment; Virtual Learning Environments and Issues; Web-based Learning Communities

The co –joint IADIS Mobile Learning Conference 2006 received 118 submissions from more than 25 countries.
The mission of this conference is to publish and integrate scientific results, thus acting as a catalyst within the emerging area of research on Mobile Learning
The conference called for original papers, full or short contributions, and posters.
Submissions were accepted under the following sixteen topics:
- Mobile Learning
- PDAs in the Classroom
- Remote Group Simulations
- Science Teaching and PDA Field Experiments
- Joint Data Acquisition
- Mobile WWW-Connection
- Learning Teacher Networks
- Knowledge Sharing
- Distributed Expertise
- Mobile Consult
- Access to Learning Communities
- Collaborative Learning
- Mobile Video Conferencing
- Corporate Communication
- Content Formats for PDA Distribution
- Service Providers for Mobile Networks

These two concurrently run conferences provided a varied selection of papers on a wide range of ICT topics.
The use of new technologies in the classroom are taking time to be integrated readily into curriculum delivery. Teacher acceptance and adoption is influenced by the manageability and perceived utility of such new devices. Issues of authenticity of products of learning as well as valid and reliable methods of assessing students progress and achievement are areas still needing to be adequately addressed.
In many countries, the structure and delivery of the curriculum, as well as the assessment and evaluation of learning ascribed to individuals, is such that the true potential of the new technologies are not being realised. Many new technologies are often being used to replicate existing pedagogical methods while failing to unleash the much vaunted potential that they promised.
The capacity of much of the new technologies is so underutilized and therefore over supplied in many learning situations. Do learners in primary classes need the capacity of

a modern computer at their disposal? There is a school of thinking that is suggesting that educators should be determining the specifications of the technologies they require rather than being the recipients of what the manufactures think they should have or what will sell best. In many instances educators are having to modify and adapt both hardware and software to meet their particular students learning needs.
The need to rethink the pedagogy to reflect the introduction and application of the latest technologies is long overdue.

Visits to schools outside New Zealand
During my travels to the above two conferences I was fortunate to be able to visit schools in Singapore, Greece, England, and Denmark.
The International Family School in Singapore, with its 2500 students ranging from 4 year olds to 18 year olds delivering the International Baccalearate curriculum ,was very much into using I.C.T. for the planning, delivery and assessment of their curriculum. This privately run school has extensive resources to enable them to utilise the potential of the digital age.
The small rural school on the island of Paros Greece had computer technology centred in their library and it apeared to be mainly used as an information access and management system .
The school visited in rural Lincolnshire England was well equiped with I.C.T.resources including interactive whiteboards which were used to access internet based resources. The inquiry learning approach was very much in evidence in the classroom programmes.
The Danish school visited exhibited little evidence of I.C.T. usage in what appeared to be a traditional approach to curriculum delivery.

Conclusions
One of the things that impressed me about what I saw happening in New Zealand schools was the focus and priority the I.C.T.P.D. projects were putting on the need to look at the pedagogy while attempting to integrate I.C.T. into their curriculum.
The process of whole school, ownership of the schools fundamental pedagogy packed into an identifiable and unique expression of a school culture, is both powerful and productive.
The schools who had developed a clearly articulated set of learning principles for their learners supported by well integrated technologies, were the ones whose children were engaged and motivated in the learning process. They were producing some amazing products as a results. New technologies will continue to appear whether we want them or not. What was very evident was the students active engagement, motivation, focus and commitment. They were enjoying the learning process using the new technologies. This indicates that the current generation of what Mark Pensky calls the “digital natives” are comfortable with their digital environment. They will continue to be influenced by the world outside the school and bring that knowledge and skill into their place of learning. It is up to us, as educators, to see and maximise the potential of these new technologies and apply them appropriately to the teaching and learning process. This may cause us to rethink our own ideas on pedagogy and if necessary change them to better reflect the reality of the situation.

The recently circulated new draft curriculum framework provides New Zealand schools with an advantage many other educationalists in other countries would envy. The document is designed to enable flexibility of delivery to best meet the needs of the children in each individual community without compromising the provision of a well balanced education.
The recent release of the ICT Strategy for New Zealand schools will hoefully be a very useful guide over the next four years to government policy and support for the development of ICT within our education system.

Implications for my own school.
Having had the privilege of looking both at New Zealand and overseas developments of the use of ICT in delivering curriculum there is a need to consider what relevance these findings and experiences will have on our schools development.
The first consideration is that the whole process requires involvement by all of the key stake holders in the school. Like any significant effective change it needs clear vision, shared ownership, sound underpinnings and positive leadership.
We, as a school, will review our current beliefs and understanding of how we expect our children to learn as stated in our school charter.
These will need to reflect current thinking and theories of meta- cognition and learning styles. Also to be added into this equation are the two recently released Ministry of Education documents :The Draft Curriculum Framework and the Enabling the 21st Century Learner (An e learning Action plan for schools 2006-2010)
Our aim will be to package these fundamental beliefs and understandings in such a way that they are recognized , accepted, understood and embraced by all in the school community.
These common underpinnings are also reflected in both the organization and management of the schools curriculum and its delivery.
Teachers will need to be given the necessary support, guidance and time to acquire the skills and knowledge enabling them to comfotably use the new technologies within their programmes.
They will need time to explore the possibilities and share their ideas with colleagues in a genuine community of learners.
There will need to be obvious and immediate payback for the time and energy committed to such new technologies.
We will need to rethink our concepts and understandings of how children learn and be in a position to provide the necessary support and guidance required for essential skill and key competency development.
I believe we are embarking on very exciting and challenging times as schools in the digital age. I believe the key components are present in our education system to enable our schools to maximise the potential of I.C.T. and to use that potential to prepare our children well for the future.

Acknowledgements:

I would like to acknowledge the following organizations for enabling me to undertake this sabbatical leave and subsequent travel around New Zealand and beyond.
The experience has been very rewarding and stimulating and I am extremely grateful for the opportunity afforded me by:

Ministry of Education Sabbatical Leave Scheme
Otago Primary Principals Association Prestigious Scholarship Award
Arthur Street School Board of Trustees and Staff.