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COLLEGE**

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SUMMARY

In today's rapidly changing technological world, we need to plan for a diverse, highly skilled, technologically literate work force that can work in non standard ways with a broad consumer base.

ICT is here to stay in society and in our schools. It is a requirement of any education system to prepare its young people for the world they will face. There is also an economic imperative to educate our young people in ICT as well as its intrinsic value to the learning process itself. But issues around safe and ethical use of ICT also need to be addressed.

Innovative practice has always been achieved by visionary teachers. ICT provides widespread opportunities for examples of best practice to be shared through a supportive infrastructure and through technical support, hardware and software. Teacher practitioners need to have access to research which provides an evidence base for sound practice. The present and future needs of our changing society require teachers to educate students to reach their full potential. Change is integral to how our world operates and teachers must embrace change in their practice.

Resistance to change should be anticipated. Managers and leaders need to understand the process of change management and the human emotions which may arise. Planning to support and challenge staff throughout the change process is essential.

The shifts in thinking required challenge accepted notions of roles in the teaching process. Yet the teacher role remains pivotal although changed. The focus continues to be on maximising student learning: that is, keeping the student at the centre of our practice.

The role of the school's leadership is to recognise the development stages of staff and support their learning. The staff need both challenge and support. Challenge to help us see things we did not see, to bump up against. And support to hold us up in stress situations.

Sustained improvement in student outcomes is dependent on teachers having strong theoretical frameworks that form a basis for making principled decisions about their practice and enable them to reflect on effectiveness and implement any necessary changes. This requires teachers to have sound professional self regulatory inquiry skills so they know what they are doing, why they are doing it, does it work and what next? The system of the school must support and promote teacher self review by ensuring that teachers collect useful data and are supported in the analysis of this to improve practice.

Professional development supports change which happens in a cyclical process. Current assumptions are challenged by the demonstration of effective alternative practices, and the development of new skills and knowledge. Small changes to practice occur and then there is the observation of the results in terms of student performance. As the process continues, the teachers come to expect more of their students.

Teachers involved in effective professional development tend to take greater responsibility for the learning of all students. They do not dismiss learning difficulties as an inevitable consequence of the home or community environment. They have greater expectations of their students.

Professional learning communities allow teachers to meet and have rigorous professional debate about what learning has taken place and how to build on this. Its focus is improvement, not blame. In the learning conversation, the teacher is encouraged to reflect and to analyse. Evidence is used to form judgements, without evidence the outcome is merely an opinion. All judgements lead to an action plan.

The opportunity is present for us to develop and sustain Taieri College as a learning community using the capacity of ICT to challenge and change our practice. The outcome will be a community of engaged, purposeful and powerful learners both staff and students.

SECTION ONE: THE JOURNEY

This journey started with the foundation of a new, Year 7 to 13 co-educational rural secondary school. It created the opportunity to establish a school culture focused on continuous improvement.

Ministry funding and support allowed for an enhanced campus and additional staffing and resources. Staff included a core of established and experienced teachers as well as some provisionally registered teachers. The College was fortunate in having a strong infrastructure of electronic technologies. A well managed and integrated system had been built up over the years with the support of local charitable trusts. Board support in terms of teacher laptops, funding allocated to computers, data projectors and other peripherals created a community poised to make the necessary changes for education in the 21st century. The introduction of the revised New Zealand Curriculum gave the opportunity to focus on 'core curriculum'.

Since its inception the College has grown in terms of student numbers indicating community support. NCEA and other standardised results are at, or above, national levels. Emphasis has been placed on developing the knowledge and skills of the staff and it is acknowledged that this is an ongoing process. The objective was to create a professional learning community where students, teachers and the Board of Trustees were all engaged in learning. The College has worked on reviewing the current curriculum in line with new recommendations and has redrawn its Charter. Staff have worked on integrating the key competencies into the Year 7 to 10 programmes.

The provision of a Ministry of Education's three year Information and Communication Technology contract in 2008 focused attention on the shifts in pedagogy needed to meet the needs of students in line with the key competencies in the twenty first century.

Acceptance of a Principal Study Award allowed me to take time out to reflect on the direction the College will take for the next three to five years. I have read widely, discussed ideas and visited a number of schools. This report indicates some of the ideas that will be discussed and refined to meet the needs of students through a comprehensive professional development programme for staff. Information and Communication Technologies will be used to manage both the process of learning and to enhance the learning process in the classroom. The different sections can be picked up on in isolation or read as part of the whole. The list of action points in section 11 is to stimulate debate and discussion. More detailed notes from the variety of schools I visited are found in section 12.

SECTION TWO: WHY EMBRACE CHANGE?

'The World Wide Web has changed our world and it is here to stay'.
(Tony Ryan in a presentation to the Kareti Cluster, March 2009).

Twenty first century living has produced opportunities and threats which require its citizens to be proficient in collaborative, creative problem solving. Such citizens will live and work in constantly changing environments with a diverse range of people. The changes in the technological world have altered how individuals socialise and how they learn, work and play. Tony Ryan (<http://ict.school.nz/digital-pedagogies>) describes these changes as a *'new world of communication'* with a worldwide audience

Changes in the World of Work

'In our rapidly-changing world, having a highly-skilled workforce isn't an optional extra: it's an economic necessity'.
(www.dius.govt.uk, 'The Leitch Review of Skills'. Page 7. 2007).

Professor Paul Spoonley, a demographer at the Auckland campus of Massey University, gave a presentation on future trends in employment at the Secondary Principal's Association Study Tour, 2009, (www.NZSPC.org.nz) He suggests that we are undergoing a significant change in employment opportunities which have enormous implications for education. He believes the issues we have had to contend with until now will become much more problematic in the future.

As an example of the scope and rapidity of this process he refers to the significant change in the structure of the USA car industry. The major car producers of the US are now based in Mexico leaving an uncertain future for Detroit and US based car manufacturing industry in general. In New Zealand and in the school's local economy, the whiteware firm Fisher & Paykel Appliances has relocated to Mexico and Thailand from its Mosgiel centre.

It is not just the magnitude of the changes but also the pace of them which compounds the opportunities and the challenges in the twenty first century. For example;

- It took forty years for radio to gain an audience of fifty million but only fifteen years for a similar number of people to use personal computers, then only four years for fifty million US citizens to use the internet.
- Jobs in the finance industry have dropped 43% in last six months.
- Developed countries are increasingly going offshore to manufacture their goods; e.g. to India and China and this trend is leading to a change in the nature of work-forces worldwide.
- In recent years the number of 'call centres' has grown enormously and often these are based overseas.
- Primary industries, e.g. the farming sector are increasingly using innovative technology and employment in these areas is shrinking dramatically.

Professor Paul Spoonley sees China as the power house of 21st century and states that it has: -

- 10% growth in all areas.
- Intellectual property and emerging technologies developing strongly
- Produced 24% of all published science papers in 2004.
- Patents that have increased 23% each year since 2000.

Professor Spoonley also claims China is the world's second biggest spender in research and development.

There are also significant changes in the demographics of New Zealand and its work force. For example by 2016, Auckland will be composed of:

- Pakeha 860,000; an increase of 40,000
- Maori 183,000; an increase of 40,000,
- Pacific Island people 260,000; an increase of 80,000
- Asian 400,000; an increase of 200,000

www.immigration.govt.nz. Professor Paul Spoonley presentation. 5 October 2007.

In 2009 New Zealand has 66% of its employees working part time, in fixed term contracts, in portfolio jobs or through third party employers. As jobs become less secure, people tend to work harder, more intensively and for longer hours. After Japan, New Zealand has the largest proportion of its people working more than 60 hours per week in the developed world. This is indicative of the changing nature of New Zealand's work force. It is increasingly difficult to find a job which does not use technology, and often sophisticated technology. This has significant implications for the work force and for the education service that feeds it.

The Impact of these Changes on Schooling in New Zealand

The linear progression from primary school to secondary school, to tertiary education and then on to work no longer applies. On-going education and training are necessary to address the changes inherent in the modern work place and also to address some of the deficits endemic in the New Zealand's present work force. The Leitch Report, (www.dius.govt.nz, 'The Review of Skills, 2007'), highlights the enormous increase in productivity as a result of developing literacy skills in workers. The importance of this on going education of the work force is recognised in Switzerland where every employee is entitled to two weeks professional development leave or retraining leave each year. This leave can accumulate.

Spoonley, (www.NZSPC.org.nz, 'Transitions' Study Tour, 2009), refers to the development of 'employability'. This is not just the ability to get a job, but is also the ability to move between jobs because of generic or 'soft' skills such as attitude, flexibility, and communication rather than job specific skills. Such generic skills are best taught in simulated work environments and employers often believe that schools, polytechnics and universities do not prepare students for this and the real 'world of work'.

CONCLUSION

In today's rapidly changing technological world, we need to plan for a diverse, highly skilled, technologically literate work force that can work in non standard ways with a broad consumer base.

SECTION THREE: A ROLE FOR INFORMATION AND COMMUNICATION TECHNOLOGY

Michelle Selinger writing in '*Teacherless classrooms*' (in 'Issues in Teaching using ITC', ed. Marilyn Leask, Routledge, 2003), identifies three main uses for computers in classrooms:

- computer as pupil, e.g., using the computer to construct data bases
- computer as tutor, e.g., using the computer to develop skills in multiplication
- computer as resource, e.g., using the computer to find out about autism.

The teacher needs to identify which use they wish to make of the computer in performing a particular task and explore how best to utilise these functions. This can only occur when the teacher has developed their own computer skills as unlike their students, most teachers have not grown up with computer technology.

Our students are very familiar and comfortable with technology especially the mobile technologies. However, these are primarily used for social purposes. This is their world: but there is a real danger of exploitation by software producers and distributors whose commercial interest takes precedent over other issues. The openness of the system also means there is little if any editorial control.

Computers in schools need to have a wider use than that of social networking. But, putting a student in front of a computer is not enough in itself: the role of ICT in the school needs to be carefully thought through and key questions asked. Marilyn Leask ('*Electronic professional networks for teachers*' in Issues in Teaching ICT, ed. Marilyn Leask. Routledge, 2003) has identified four key questions of using ITC in schools:

- What can ITC add to what is already available? For example, data, information, access to curriculum applications and on-line communities
- What resource deployment is actually appropriate? ie., recognising that the opportunities for endless web creation and for 'play' can get in the way of ensuring relevance, quality and value for costs are a high priority
- What procedures are needed to ensure quality is delivered monitored and the material on the network is relevant to teachers and regularly upgraded?
- What monitoring systems are appropriate to protect adults and students from internet addiction and access to inappropriate materials?

The Implications for Teachers

Our challenge as teachers is to use information and communication technologies to engage our students through authentic and connected learning and create opportunities for exponential growth in their learning through connectivity with others. This will address some of the concerns of employers

and also some of the dissatisfaction and alienation of some students who see little relevance in formal schooling.

The same students may in their futures be unable to meet the needs of the modern workplace or have the necessary skills for world citizenship. As schools, we also need to teach the skills of critically reviewing web-based material using higher order thinking skills so users can locate, analyse, manipulate, reflect on and reuse the information they access. A daunting task: but not one in which we are alone because as professionals, we have access to enormous information and support from a truly worldwide community of teachers. (See www.treadwell.co.nz. 'Teachers Toolkit', for an extensive list of recommended free resources .www.michaelfullan.ca/articles and www.marzanoresearch.com for educational debate).

Through ICT, teachers have the ability to personalise student learning and make learning opportunities more relevant and engaging. Tools that can be used include:

- Interactive whiteboards
- Digital classrooms
- Class web pages
- Multi media interactive learning projects

ICT and Special Educational Needs

Computer technology and software offer the opportunity for teachers to access more resources to help them meet the learning needs of atypical students and to apply their professional creativity to best motivate their students to maximise student learning. The challenges posed in schools: dyslexia, Down's syndrome, autism, ADHD and ADD etc. In addition, there are suggestions for best practice from a wide learning community. In the United Kingdom, a site called 'SENCO Forum' offers a fund of useful information as well as discussion threads.

'The computer as tutor' aspect of ICT for special needs works best in areas where repetition is used to build skills and instant feedback both visual and aural can be given. The computer has unlimited patience, can structure skill development and gives the user a sense of control over their own learning. Glendon Franklin, (2003) asserts that ITC cannot be used as a substitute for teaching in reading recovery but needs to be part of a wider structured programme.

In terms of spelling, ICT is effective. The computer has the capacity to tirelessly work at drills in a fun way. For visually, hearing and physically challenged students, the computer can empower them in ways not before possible. Voice activated software for students with mobility restrictions and the dyslectic allows students to produce written work of an acceptable standard thus supporting their inclusion in mainstream programmes.

Numeracy is another area where skill training using computers has a role to play. At a basic level, the breakdown of content into sequential steps and allowing students to practice to become competent in skills and processes lend themselves to computer programmes.

The teacher still has a part to play in developing more complex mathematics concepts and in teaching the application of higher order thinking such as finding patterns, formulating rules, applying problem solving solutions, evaluating data and forming generalisations.

ICT has ability to assist teachers and schools to manage the learning process and to extract useful information to enhance the teacher's effectiveness. It also offers opportunities for teacher professional development through the internet which are '*without parallel in our history*' (Leask, 2003, op cit). The challenge is to harness the potential of the technology and not be its slave.

'Let us walk together along this path of change'

14th International Conference on Education. 'Bridging Worlds: making connections in education'. University Of Brunei. Darussalam. May 2009.

Cyber Safety

Cyber citizenship is a concept not yet fully understood. Young people have become inducted into cyber citizenship at an early age without any guidance from adults who may themselves only just be coming to terms with the new technology. Many issues arise such as computer fraud, cyber stalking, inappropriate use of the technologies, privacy, validity and accuracy of data, data overload, the potential for abuse and addiction to name a few.

Much of young people's use of the cyber world is through gaming. Dr Kathleen J. Revelle who is involved in international teaching of cyber-safety to teachers and other adults, raises awareness of which games are being accessed and how much time is spent in gaming. In a recent presentation ('Bridging Worlds: making connections in education'. May 2009), she postulated that in 'on line' games violence predominates, and uses 'Man Hunt 2' as an example. In it the player murders someone. Another game, 'Grand Theft Auto 4' is also very violent. Dr Revelle believes that the more violent the game, the more popular it is. The effects of such games seem to be an instant adrenalin rush followed by a lessening of excitement. Dr. Revelle however cites a November 2008 study which shows more long term effects from prolonged exposure to such games. Addiction to gaming is similar in many ways to drug dependency and this is an area that needs further study. The cost of gaming has to be measured not only in terms of the initial financial cost but additionally the cost of lost opportunities such as social interactions not developed and qualifications and job earning capacity lost.

Social networking, while possibly a positive development may also have some negative consequences. '*Nothing is ever private and nothing is ever deleted*', P 27 Pachler, (2003), a phenomena he describes as 'dataveillance'. As technology has developed society have lost sight of some of the impacts it has on our lives. Yet, it is important that we remain alert to the implicit aspects of the new technologies. Through this awareness teachers can ensure that students are 'emancipated users of the new technologies and prevent students being abused by the new technologies' Pachler (op cit).

CONCLUSION

ICT is here to stay in society and in our schools. It is a requirement of any education system to prepare its young people for the world they will face. There is also an economic imperative to educate, our young people in ITC as well as its intrinsic value to the learning process itself but issues around safe and ethical use of ICT need to be addressed.

SECTION FOUR: THE CHALLENGE OF CHANGE

Teachers tend to be conservative. They find a process that they feel works well for most students and with some refinements, replicate it over the years. Often, a subsequent lack of success for the process, is attributed to changes in the students, their families or the *'way things are nowadays'*. Current research into the practice of teaching and its impact on student learning has high-lighted the critical factors that influence learning outcomes. Current research shows that teachers can and do make a difference. [See John Hattie, 'Teachers make a difference: What is the research evidence?' and Alton-Lee 'Using best evidence syntheses to assist in making a bigger difference for diverse learners'. (www.educationallleaders.govt.nz)

Reeves, (2008) refers to teachers who claim they cannot influence student achievement as *'walking, talking examples of learned helplessness'* (p10). Often students in lower socio- economic groups are not expected to perform at a similar level to, for example, decile ten students. Yet the data shows *'the relationship between poverty and student performance is essentially zero, and that it is not possible to predict the performance of students and schools based on poverty'*. (Reeves op cit)

Improvement in students' learning outcomes can often be attributed to changes in teacher practice, and such improvements can also be evident, system wide. Sceptics however, continue to claim that changes are a result of exceptional situations and claim, *'results cannot be replicated'*, (Reeves, op cit). Reeves quotes Edmonds, (op cit, p13) and asks, *'How much evidence is enough?'* Teachers need to accept that change is necessary and need to act on what the evidence tells them.

Any change is painful and as teaching is such an intensely personal experience, individual teachers have a lot of themselves tied up in their practice. Reeves, (op cit, pp21 – 25) identifies key factors for successful change to occur:

- Aiming for short term gains
- Recognising effective practices simply and clearly throughout the year
- Making the case for change compelling, and associating change with moral imperatives rather than compliance with external authority.

Reeves, (op cit, p 15), also identifies factors and aspects of teacher strategies that impact on student achievement. These are:

- Writing and note taking
- Aligning curriculum, assessment, instruction and standards
- Displaying exemplary students' work
- Sharing ideas and essential questions
- Monitoring performance in frequent and visible ways
- Including metaphors, similes and analogies in daily practice
- Using questions, cues and 'advance organisers'
- Monitoring, measuring and analysing feedback weekly.

These findings are similar to those of Robert Marzano in 'Classroom Instruction that Works'. A simplified version of the nine strategies that Marzano advocates can be found at www.middleweb.com.

These practices are well known to most teachers and the most effective teachers use them regularly. Instead of searching for a 'new' way of teaching, we need to continue the quest to deepen the implementation of what we know to be effective. The question is; *'How can we best expand and extend the most powerful teaching and leadership strategies?'* (Reeves, 2008, p16).

Sharing Effective Practice

ICT creates opportunities for teachers to share and explore best practice in a wide community at a time that is convenient for them and where they see situations as relevant and real. Much like our students we need our learning to be authentic and connected. Teachers can collaborate with others to devise meaningful and engaging activities and examples which will create excitement and interest for students which will stimulate student learning. Selinger, (2003) explores the authenticity of school based tasks. She believes that many students do not see the need to find the answer to problems posed at school. Students may also feel that they have to apply school based processes of solution finding rather than other informal methods they have picked up or devised for themselves. This further isolates the tasks at school from what students perceive as 'real life' and authentic learning. Selinger notes the educational theorist Bruner, who views education as *'aiding young adults in learning to use the tools of meaning making and reality construction, to better adapt to the world in which they find themselves and to help in the process of changing it as required'* (Selinger, page 79 op cit.).

CONCLUSION

Innovative practice has always been achieved by visionary teachers. ICT provides widespread opportunities for examples of best practice to be shared through a supportive infrastructure and through technical support, hardware and software. Teacher practitioners need to have access to research which provides an evidence base for sound practice. The present and future needs of our changing society require teachers to educate students to reach their full potential. Change is integral to how our world operates and teachers must embrace change in their practice.

SECTION FIVE: MANAGING RESISTANCE TO CHANGE

Michael Fullan has written extensively on change and its management. www.michaelfullan.ca/articles. As stated earlier, teachers invest emotionally in their practice and their emotions must be addressed in any change process. Barriers to change are notoriously difficult to overcome. As Reeves states, (2008, p29) *'the power of comfortable convention frequently exceeds the attraction of potential benefits to change'*. Advocates for the status quo are frequently articulate and powerful; such people as *'parents whose children are successful in school, college educated professionals who are deeply vested in present practices and competitive and winsome students who are well served by (the) system'*.

To be successful change must be transformed from an event to a system as individual responses may minimise or negate any need for more change for example:

- *"Sure there are some problems but my class is fine"*
- *"So last year's grades were down, but those kids have moved on and it's too late for me to do anything now"*
- *"You have a new initiative for me! I outlasted the last ten and I will outlast you."*

(Reeves, (2008), suggests that there are three main reasons used in support of the status quo: -

- Blame – *"Its the kids, the family, the community"*
- Bureaucracy – uneven enthusiasm for change leaves islands of excellence languishing in isolation
- Baloney - *The 'unappetising combinations of ingredients including superstition, prejudice and deeply held convictions, all unburdened by evidence. The culture of baloney is the polar opposite of the culture of evidence' (Reeves, 2008, P 68).*

CONCLUSION

Resistance to change should be anticipated. Managers and leaders need to understand the process of change management and the human emotions which may arise. Planning to support and challenge staff throughout the change process is essential.

SECTION SIX: SHIFTS IN THINKING

Understanding the Pedagogy

Tony Ryan defines pedagogy as 'the art and science of learning for four to eighteen years'. (cited in ict.school.nz/digital-pedagogies). In a presentation in March 2009, he claims that 20th century learning was behaviourist / constructivist / cognitivist. We use concepts and experience to bring meaning to our world and our behaviour. We interpret events in the light of this world view.

21st century learning is constructivist / metacognitivist / connectivist. We recognise that we construct a world view through our interactions and relationships with others, but also that this is shaped by our experience so we both reflect and construct this world view. In the process of reflection and interaction with others we appreciate that truth can change yet still be truth.

Ryan sees the pedagogical shift needed as 'significant' and believes that: -

- The new delivery mechanisms in teaching are virtual learning environments
- The speed of learning delivery is that of 'twitter'
- Teaching is multimodal
- Teaching is interactive
- Learning is random access rather than step by step
- Learning is play orientated
- Teaching is connected rather than individual
- The learner needs to be highly literate visually.
- The emphasis needs to be on discovery/inquiry learning.

Norbert Pachler, (2003) argues that the digital age requires citizens to be furnished not only with the basics skills, 'but also (with) the higher order skills required to take part in the fundamentally different ways in which members of our society are beginning to work, shop, play, form relationships and communicate'. He proposes an expansion of our traditional notions of literacy to include critical media literacy, visual, electronic/information literacy and global and cultural literacy.

What this means for teachers is that they must not only teach the basic skills but also:

- Develop inquiry based digital assessment tasks.
- Base teaching units on intellectually challenging focus questions.
- Explore visual literacy applications.
- Use visual images for resources, where possible, such as 'youtube', 'Online Image Libraries', 'slideshare.net' etc.
- Use graphic organisers or other visuals aids for short term memory

However, the purpose of all the changes mentioned is to improve student learning outcomes. Reeves writes (2009, p75) '*Establish the classroom as the*

central unit of analysis in all nationally generated data, professional development plans and teacher leadership initiatives.'

What is a Teacher, What is a Learner, What is a Classroom?

The new pedagogies mean changes in the teacher / student relationship. In this new collaborative process, ideas and information are shared. Pachler (2003, op cit), believes that the teacher remains central to the education process as a coach and facilitator. The teacher also works to ensure that the experiences and work of the student are connected and are coherent. This may mean helping to plan an investigation, finding resources, evaluating them, synthesising the information and applying it to help address the critical questions posed. This structural and sequencing role is essential in order to develop the higher order thinking skills necessary to '*understand fully the social, cultural, political, ethical and moral issues which are often only implicit in new technologies and their use*' Pachler, (2003, op cit).

Useful sites to explore;

- twentyfivedays.wordpress.com
- [generation we](http://generationwe.com)
- stumbleupon.com
- tonyryan.edublogs.org
- del.icio.us/

CONCLUSION

The shifts in thinking challenge accepted notions of roles in the teaching process. Yet the teacher role remains pivotal although changed. The focus continues to be on maximising student learning: that is, keeping the student at the centre of our practice.

SECTION SEVEN: FACILITATING TEACHER DEVELOPMENT

Finding the time for teachers to undertake the critical reflection and data based inquiry into student learning has always been problematic. Cathy Cook identifies, '*the critical issue for most teachers is the question of time*'. (www.ncrel.org 'Finding Time for Professional Development'. Cathy Cook. North Central Regional Educational Laboratory. 1997).

School improvement requires teachers to study, implement and assess student outcomes but also to provide meaningful engaged learning opportunities (cognitively, socially and culturally) for a very diverse student population. In working towards change teachers need support through professional development. This requires that time is given and a cooperative approach is used. Michael Fullan, (Cook, 1997) identifies that time is THE factor. McDiarmid, (Cook 1997), writes that the changes in practice go to the core of what it is to teach and that teachers will require considerable time to achieve them

Is PD just going on a Course?

Professional development is not just what happens in a professional development event but should be part of the daily work of teachers in the classroom, as well as in groups doing relevant action research, coaching others and planning together; critically reviewing their own and others practice.

This places professional development as a central part of teaching. Parents and the community must be on board, recognising that professional development is essential and not an 'add on'.

Some educators recommend that 20% of a teacher's work time should be devoted to professional study and collaborative planning. If professional growth is to be taken seriously and seen as an essential component of the work of teachers, then schools must create time. The administrators and managers must look at providing time and using technologies to support and broaden professional learning communities.

Connectivity

The ICT contract has resourced three years of professional development. This opportunity allows us to explore the significant shifts which are part of 21st century education. As suggested by the research on best practice, we have set up a network framework rather than a linear one. Where there is a connection between teachers, this is a node. Where networks connect there is a hub. Super hubs are where exceptionally large numbers of nodes and hubs connect. We have the technology group as one hub, with each person setting up a mentor group. In parallel is the Collaborative Classroom group (CC), which focuses on improving practice through sharing ideas. These two hubs need to connect. It would be most useful if someone from either the 'Tech' group or the 'CC' group was in each curriculum group. In this way, we can begin to form a critical mass of innovative, reflective practice leading to continuous improvement.

What is useful PD?

'Teachers have strong views on what constitutes useful professional development' Vince Ham, www.educationcounts.govt.nz, ('What Makes for Effective Teacher Professional Development in ICT?', Education Counts. 2002), outlines some of these ideas. Teachers value material which concentrates on personal skills development, practical ideas for classroom use and the development of sound theoretical or pedagogical rationales for the use of ICT. Further, they want to come to grips with ICT and have substantial time to access collegial support. Again there is the issue of time to allow these things to happen.

Adult Capacity to Learn

Recent research into brain function has produced the concept of brain plasticity, the idea that the brain can be encouraged to grow and develop in adults. This has arisen mainly from work on brain damaged adults but it fits with the work being done on adult learning. Just as Piaget identified stages in development of cognitive functioning in children, there is now some idea of adult learning in stages.

Garvey has written in SET (Jennifer.GarveyBerger@nzcer.org.nz) about how we can support 'grown ups' in school to be learners. She sees that teacher learning is important as it helps students to learn and to try through seeing it modelled.

It used to be thought that the majority of learning happened 0 to 30 years, and then there were periods of plateau and a gradual decline. Recent work means we now see that there is more learning over time, a plateau period and then more growth and this continues as a cycle. Additionally, certain activities can stimulate the brain, ('brain gym') and this has come from work with brain damaged individuals and with older person determined to maintain a high level of functioning physically and mentally in their retirement years. Tony Ryan (Taieri Hub, 2009) concurs with this saying that '*age related memory loss seems almost certainly reversible with the right mental exercises*'. Learning new stuff is not just a benefit to the teaching and learning profession but it adds to the quality of life of the learner. '*To keep the mind alive requires learning something truly new with intense focus*' (Tony Ryan, op cit).

Garvey, (www.NZSPC.org.nz), contends that we don't just learn new 'stuff', we can expand what we now know and think about it in a different way, giving us a different perspective. In this process we as individuals become changed by the new perspective. Garvey, (op cit), calls this '*transformational knowing*'.

In the process of becoming more 'grown up', we develop the ability to step away from something, seeing one's self as separate from the matter. This is a major step in putting something into perspective. It allows the individual to think about the issue, develop plans and to manage it. This movement from being 'subject' to the matter, to seeing issue as an 'object' means we can put it on the table and consider it. This is essential for teachers so they can critically review what is happening in their classrooms. It allows them to depersonalise the interactions and outcomes in the learning environment and to consider their teaching practice and to make professional decisions on 'what next?'

There appears to be several stages in the process to being fully 'grown up' and they are defined by the capacity for perspective taking. The journey takes time, and can arrest or pause at any point.

As young adults we have a sense of autonomy but in many situations we give authority to those outside of ourselves, deferring to others perceived expertise. Garvey calls this the '*socialised mind*'. A number of adults spend lot of time in this stage.

However there are seminal moments when we question authority. It may be that we simply transfer to another authority which leads to no real growth to adulthood. But for others we hold the authority to ourselves, we become a '*self authored mind*': we have perspective, have personal authority and strength.

Many adults can stand in these two worlds but the hope is that over time we will become more 'self authored'. The switch between perspectives can often occur according to contexts, e.g. the car mechanic, the surgeon, when we readily give expert status to another.

The final stage is the '*self transforming mind*'. This is where the individual is able to hold the tension of paradox and ambiguity which is part of daily life. They question assumptions and accept that in life there can be more than one truth. The connections between people are recognised and are seen to continuously grow.

The self transforming teacher can work with negative and positive socialising networks, debate what the curriculum might be or can be, exercise complex professional judgements even in times of stress, to self evaluate and create a professional development plan.

CONCLUSION

The role of the school's leadership is to recognise the development stages of staff and support their learning. The staff needs both challenge and support. 'Challenge to help us see things we did not see, to bump up against. And support to hold us up in stress situations' (Garvey.2009)

SECTION EIGHT: PRACTICES THAT SUPPORT GROWTH

The process of professional development should try to build teacher knowledge on pedagogy as well as the subject discipline and link these alongside their knowledge about their students. Teachers need to look at what constitutes deep knowledge along side a willingness to reflect critically on their practice. Teachers have used Blooms Taxonomy to assist in building deep thinking. SOLO is another tool. (www.tki.org.nz, 'Quality Questioning Using the SOLO Taxonomy, an online workshop'). This requires a level of self awareness - the 'self transforming' person referred to by Garvey.

Teachers can build their understanding of good classroom practice and self reflection by using a number of strategies:

- Video of teaching sessions
- Teacher observations
- Asking why?
- Teacher blogs
- Visit to other schools
- Journals
- Vivianne Robinson's www.educationalleaders.govt.nz suggestion of SMT visits to classrooms, written feedback on what impressed them and one or two questions for reflection.
- Engaging in professional debate. www.shiftingthinking.org.nz

In a workshop on ICT PD, (Tony Ryan, presentation, Taieri Cluster, March 2009), suggests asking:

- What ICT skill set do you already have?
- What would you most like to understand about digital learning applications?
- What are the best examples of quality practice that you have seen?

Emotional Investment

As has been identified, teachers invest a great deal of themselves in their practice. To ask them to critically review this practice, to look at evidence and apply this to their understanding and maybe contemplate change means dealing with the very real emotions that will arise.

Stoll, www.educationalleaders.govt.nz (Teachers as Learners. Louise Stoll et al. Educational Leaders. Ministry of Education), recognises that emotional wellbeing influences teacher's psychological states. *'neglecting interpersonal and psychological processes leads to teachers behaving defensively to protect themselves from innovations. Valuing individuals as people and valuing their contribution enhances teachers self esteem and builds trust'*

Some Practical Suggestions

As with all learning, using images to create a picture helps. Stoll, op cit, refers to using the metaphor of chess. Like the queen on the chessboard, the teachers with the greatest repertoire of skills are capable of the greatest influence. Teachers work with their skill set, trying out an activity, reflecting on this, drawing meaning from the data, reviewing and adapting, planning for the next time. This is action research, do it, share it. This forms the community of learning, where new knowledge is created. This concept of knowledge as a verb, a constant state of the process of knowing as opposed to the old idea of knowledge as a noun is expounded by Jane Gilbert. (www.nzcer.org.nz. Catching the Knowledge Wave. 2005.)

For other practical ideas using key teaching strategies and incorporating ICT look at [Marzano's Instructional Strategies](#).

What is Knowledge, What is Knowing?

Cochrane-Smith and Lytle identify three levels of 'knowledge'. (*Relationships of knowledge and practice: Teacher learning in communities*'. M. Cochrane-Smith and S. Lytle. (1999) Review of Research in Education, (24), 249-305).

- Knowledge **for** practice - knowing more of the content enables the teacher to use effective teaching strategies for creating learning opportunities for students.
- Knowledge **in** practice –the artistry of teaching in practice. Teaching is an uncertain and spontaneous craft which develops to respond to every day classroom situations. It is wise action in an uncertain and changing world.
- Knowledge **of** practice- knowledge generation and use is essentially problematic, what is it, who decides what is knowledge, who holds it, how is it used etc are all open to discussion. Knower's and knowledge are explored through systematic inquiry and are linked to social and political agenda.

Through these practices we become involved in a process of 'knowing' generation, gathering more information and extracting knowledge from it which is applied to current practice: transformational knowing.

Some ideas that support teacher reflection and collaboration:

- Keep a weekly journal on two student's one underperforming, one which needs challenge beyond the current curriculum. Ask what did you try? What worked? What did not? What next? Share your thinking with a trusted work colleague or invite someone from the wider community of teachers through the world wide web.
- Keep curriculum and subject meetings announcement free zones. Put all administration and notices on email or blog. Keep all meetings focused on professional sharing.
- Create a 'best practices' club with students who post practices that positively affect student learning. Monitor the site postings to ensure that only positive experiences are posted.
- Allow anonymous sharing of best practice, stories, challenges, and questions. Use the intranet.

The Role of School Leaders

The school leadership needs to look at how its own practices can support a learning community. (Cochrane-Smith and Lytle. 1999. P78 – 81)

- Recognise excellence
- Emphasise freedom to use judgement
- Listen and act on teacher ideas
- Provide feedback and coaching
- Value people as individuals
- Provide a sense of being included
- Appreciate diverse perspectives, ideas and work styles
- Encourage free expression without fear
- Listen to and fairly handle complaints

CONCLUSION

Sustained improvement in student outcomes is dependent on teachers having strong theoretical frameworks that form a basis for making principled decisions about their practice and enable them to reflect on effectiveness and implement any necessary changes. This requires teachers to have sound professional self regulatory inquiry skills so they know what they are doing, why they are doing it, does it work and what next? The system of the school must support and promote teacher self review by ensuring that teachers collect useful data and are supported in the analysis of this to improve practice.

SECTION NINE: FORMING COMMUNITIES OF PRACTICE

If good teachers already have good practices, then by sharing these ideas the good practice will flow out. If the process of collaboration creates the conditions which support a high level of creative problem solving, then it makes sense for teachers to connect with other professionals. Teaching has been essentially a lonely activity, one teacher holding important information in a room with 25 young people who apparently need and want to acquire this information. But no one teacher can hold all knowledge, and it is through collaboration that the process of knowing emerges. Teachers need to engage in professional learning communities. They can exchange ideas, debate critical issues consult content experts, learn from experienced practitioners. In fact learn from the best through the world wide community.

ICT can enhance professional learning communities through ease of access enabling 'just in time' learning as well as in depth reflection and debate on critical issues in teaching and learning. Web pages are available for Julia Aitken, Mark/Marc Prentsky, Mark Treadwell, Wesley Fryer, Robert Marzano, each offering opportunities for vigorous debate and useful articles. The teacher is free to access the network at a time and place convenient to them. The questions and dilemmas can be addressed to professionals far removed from the individual's colleagues or the community can be those teaching in the same school, department or class. Its flexibility allows for the professional learning to be personalised, meeting the current needs of the teacher.

Helen Timperley starts from the premise of the importance of the teacher in the learning process, '*student learning is strongly influenced by what and how the teacher teaches*' (www.educationscounts.govt.nz , 'Teacher Professional Learning and Development'. Helen Timperley. Educational Practice Series-18. 2008). But the process of building and strengthening teaching practice through professional development needs to address a number of factors. She recognises teaching as a complex activity in which teacher's moment by moment decisions about lesson content and practice are shaped by multiple factors eg. what is important to teach, how students learn, how to manage student behaviour, external demands? In addition any professional learning is impacted by the context in which the teacher practices, usually the classroom and this is in turn influenced by the school culture, the community and society in which it is located.

Support

Support is essential in order to develop even more effective practice or the result will be blame and non learning. Teachers need professional knowledge and skills which are evidence based and have withstood the rigour of debate and review by professional bodies. The context must resonate with participating teacher practice. Not only must theory and practice be integrated; there must also be recognition of teacher prior knowledge and how they view existing practice. Again, there must be an appreciation of the personal by accepting diversity both in the teacher and in the context they operate.

Communities of Practice - To What End?

In the end, any professional development should lead to improved learning through more effective teaching. This a process which is usually measured based on criteria which evaluate value. This is a way to define success. *'Success needs to be defined in terms not of mastery of new strategies but in terms of the impact that changed practice has on valued outcomes'*, (Timperley. 2008, op cit).

So the question is: *What is valued? Who defines this?* There must be a common understanding of what successful learning outcomes look like. Without this consensus any professional development aimed at improving student outcomes will result in little difference. This debate needs to occur at a school level and also at subject, year and class level. Current pedagogy has student voice involved. At the class level, this means a discussion with the student and collaboration over a matrix which identifies success criteria. Robert Marzano has written setting specific learning goals. (www.marzanoresearch.com). The Ministry of Education site has subject specific exemplars and matrices at www.tki.org.nz, 'The New Zealand Curriculum Exemplars'.

Critical Self Review

The key question for the inquiry process into what constitutes good effective professional development is *'what do we as teachers need to learn to promote the learning of our students?'*

This requires that teachers have the self regulatory skills to enable them to monitor and reflect on the effectiveness of the changes they may make. Teachers need to assess the success of their teaching approach in terms of student learning outcomes. So assessment information must be used in a different way, focusing on what the student achievement information tells one about the teaching process. Traditional concepts of assessment are not conducive to a self regulatory process: teachers are unlikely to participate in an inquiry process in an open and meaningful way if a less than desirable outcome puts their job, pay or reputation at risk.

Changing practice and developing skills of professional inquiry require in depth understanding. Teachers need multiple opportunities to absorb new information and change it into practice. Again the issue of time is critical. Learning is a cyclical process but ICT can support multiple learning opportunities and create flexibility in terms of timing. (www.treadwell.co.nz 'Teachers Toolkit').

Best Practice Models

No evidence supports one particular process of professional learning to be more effective than another although modelling and coaching is receiving considerable attention. Substantive learning takes time. It takes one to two years for teachers to understand how existing practices and beliefs are different to those being promoted and to build the required pedagogical content knowledge and to change practice. It needs a climate of trust and challenge because change is about emotions as well as knowledge / skills. Teachers need to feel that their honest efforts will be supported and not belittled.

Involvement in professional development can be voluntary or mandatory. There is no real difference in engagement levels and positive / negative outcomes for students. What the evidence does show is that successful professional development needs first a rationale for participation and secondly that learning important content is done through engagement in meaningful activities.

CONCLUSION

Change happens in a cyclical process where current assumptions are challenged by the demonstration of effective alternative practices, and the development of new skills and knowledge. Small changes to practice occur and then there is the observation of the results in terms of student performance. As the process continues, the teachers come to expect more of their students. Teachers involved in effective professional development tend to take greater responsibility for the learning of all students. They do not dismiss learning difficulties as an inevitable consequence of the home or community environment. They have greater expectations of their students.

SECTION TEN: PROFESSIONAL LEARNING COMMUNITIES

A professional learning community (PLC) is not simply a group of colleagues working together. The community must be focused on becoming responsive to students otherwise the outcome can be entrenching existing practice. The PLC must build on and engage with existing understandings. The discussions are on how existing ideas differ from ideas being promoted and the impact that new approaches might have on students.

Existing assumptions about curriculum and what particular groups of students are able to learn can prevent teachers from examining how effective their practice is in promoting student learning. So there must also be critical review and questioning to challenge the 'taken for granted' aspects of practice. One idea is to make available seminal articles from www.tki.edu.nz or www.shiftingthinking.com, and create time in structured professional development time to read and then further time to discuss any issues arising from these articles.

Four key principles stand out:

- Focus on valued student outcomes
- Teachers learn worthwhile knowledge and skills
- Integrate theory and practice
- Use assessment as the basis of professional inquiry

The development of a cohesive group of self regulating, data driven professionals takes time. Many groups working within a school will be on the continuum at various stages. Recognising where one's own group is at is the first stage in planned development.

The seven stages of professional learning teams

Stage One	Filling the time – what are we supposed to do?
Stage Two	Sharing personal practice –what is everyone doing in their classroom?
Stage Three	Planning-what should we be teaching - how can we share the load?
Stage Four	Developing common assessments –how do you know the students have learned?
Stage Five	Analysing student learning – are they learning what they are supposed to?
Stage Six	Adapting instruction to student needs – how can we adjust instruction to help those struggling and those exceeding expectations?
Stage Seven	Reflecting on instruction – which practices are most effective with out students?

(Adapted from 'One step at a time', Parry Graham and Bill Ferriter. Journal of Staff Development. Summer 2008, Vol.29, No.3, P 38. National Staff Development Council).

Learning Conversations

Conversations in these forums need to be learning focused. It is not enough to talk about the problem, it must be purposeful, guided, evidence based and solution focused conversation. Learning conversations:

- Need a purpose
- Need a time slot
- Need a common language
- Use action research model
- Feedback learnings

Doctor Stephen Greene, a Co-ordinator for Professional Development, has explored this concept of professional learning communities focused on student learning.

'PLCs differ from "traditional" schools in that, in a PLC, administrators and teachers make a commitment to work together in a culture devoted to "our kids." Every student is expected to learn; every teacher is expected to make sure that learning is happening and everyone is expected and empowered to work together in the service of learning'. ('A Cornerstone Strategy for Change'. Volume 3, Number 4. September, 2006).

Professional Learning Communities which support and encourage professional growth are quite different from workshop-driven sessions. Teams are formed with a collective interest in inquiry into student learning. The teams meet on a regular basis and operate with a commitment to the norms of continuous improvement and experimentation. The school's culture evolves around some of the following questions:

- Does every teacher understand what each student should know and be able to do after completing the unit of instruction, course, grade level?
- What systems are in place to monitor each student's learning on a timely basis?
- What happens when a student is not learning?
- What systems are in place to provide these students with additional time and support?

Greene offers some descriptors that identify the qualities of professional learning teams.

PROFESSIONAL LEARNING TEAM	TRADITIONAL TEACHER TEAMS
Have regular meetings focused specifically on student learning and only on student learning.	Have regular meetings that may be focused on student learning but not usually.
Have high levels of trust between group members, allowing for productive conflict to occur in a safe environment. This level of trust leads to consensus and commitment on the part of all team members.	Have inconsistent levels of trust between team members. Teachers may engage in collegial conversations, but tend to avoid conflict.
Seek to identify and amplify instructional strategies that work. Members are willing to rethink what it is that they do in the classroom based on the collective work of the group.	Rarely expose teachers to the instructional practices of their peers. Members tend to rely on their own professional experiences when making decisions for their students.
Members see themselves as interdependent, sharing ownership for the success of all students.	Members see themselves as loosely connected colleagues. While they may share a common group of students, teachers largely act as individuals when making instructional decisions.

Again the question of time comes up. PLCs require that the school timetable will be organized in such a way that there is common planning time to meet.

CONCLUSION

Professional learning communities allow teachers to meet and have rigorous professional debate about what learning has taken place and how to build on this. Its focus is improvement, not blame. In the learning conversation, the teacher is encouraged to reflect and to analyse. Evidence is used to form judgements, without evidence the outcome is merely an opinion. All judgements lead to an action plan.

SECTION ELEVEN: RECOMMENDATIONS

- Strengthen the hubs that already work, the 'Tech' group and 'CC' group, by publicising their work.
- Encourage Curriculum Areas to have at least one person attached to either of these hubs and give them time in CA meetings to share ideas.
- Encourage Curriculum Directors to look at joint planning of web based activities where two or more teachers are working with the same unit of work.
- Have all CA meetings focused on professional debate by eliminating any administration, notices from its agenda.
- Encourage CD's to use data to form the basis of learning conversations about student learning and continuous improvement.
- Plan a series of interesting readings to form the basis of professional discussion.
- Encourage other staff to share interesting articles, web sites, resources and ideas through an intranet site.
- Put all meeting minutes and all notices on the intranet.
- Review Careers Pathways, putting in place a Personalised Plan which is held over time either in hard copy or using Ultranet.
- Review the introductory unit on IT in the junior school and integrate more aspects of modern technology.
- Look at setting up more leadership opportunities in the school using blogs and web pages to communicate and enthuse.
- Consider reviewing the form teacher role to one of mentor, using all available staff to keep groups small.
- Use the Revised New Zealand Curriculum to encourage students to take ownership of their learning and to self review, recording their learning journey on their personal log.
- Review parent / teacher meetings encouraging student active participation using their learning log and other hard data.
- Plan to give teachers release time to enable them to focus on high quality parent teacher interviews.
- Review CD reporting to the Principal, focusing on two or three identified credits in the senior school and some element on testing in the junior school.
- Review Principal reporting to the Board of Trustees giving NCEA results in graph form covering gender, ethnicity, comparison to previous years, to same sex and co-ed school and to deciles. Include a summary of CD reporting to the Principal.
- Plan for ongoing professional development by looking at a late start one day a week.
- Encourage SENCO and Learning Support Centre to use technology assisted programmes in spelling and core numeracy.

- Encourage the junior technology department to look at expanding its work at Year 7 and 8.
- Encourage the international area to look at the ideas put forward from the Brunei conference.
- Create and deliver a cyber safety programme to all students.
- Consider using an application process as outlined for requests for additional technology.
- Debate what is an appropriate amount of teacher time to spend on creating web based programmes and responding to students 'on line' requests.

SECTION TWELVE: INTERESTING IDEAS

Professional Development: A Question of Time

The issue of time for professional development must be addressed. Most schools I talked with use an early closing or starting time one day a week. This model gives importance to professional learning by providing for it in the timetable. Using an early morning slot allows staff to bring a fresh mind to the sessions. Bus difficulties and family commitments would need to be managed. The Monday after school slot needs to be professional learning time focused on their particular learning area. As already suggested, this should be an announcement, notice free time. All of these matters should be communicated using intranet, or a blog site.

One Auckland based state single sex school has their staff professional development time on Wednesday morning, starting the school later. The staff are formed into learning teams and use a common language of inquiry. In the faculties, each Head appoints a Learning Team Leader to keep the meeting focus on student learning. Members of the Senior Management meet with the Heads of Faculty to advise and support the inquiry process.

The Use of ICT in ESOL Teaching

English as a Foreign Language using ICT to expand resources and as tool to encourage language development and global citizenship.

'Connecting the EFL classroom with local and global communities'

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Professor Al-Jarf explored the difficulty of accessing appropriate reading material for 'English as a second language' (ESL) students; one which combines young adult level content with beginner level fluency in English. Her proposal is to use ICT to help bridge this gap.

In her practice, the teachers connect, collaborate and interact on line with their students. She uses current issues and events which are available on line to encourage the students to write and share their writing with the teacher and the other students. This type of programme not only develops English but also awareness of local and global issues. The programmes she uses are [moodle](#) or [Nicenet](#) (Free).

There is a need to assess the students' use of computers, but usually they are competent or can they can pick it up very quickly. Using [Nicenet](#), the students register then they can access the programme at home or school. It can be a supplement to class work or can be the class work. In addition, Professor Al-Jarf selects appropriate articles and posts these. The emphasis is on writing something. She will comment on the postings and encourages the other students to do so.

The teachers prepare work collaboratively, identifying the web sites they want the students to check, finding video / music clips.

In the first week the students introduce themselves. After this the teachers pose a discussion or forum thread and ask the students to respond using a certain grammar point, or skill, or tense. The teachers also use web sites for skill development, exercises, quizzes, documents on study skills and on course content.

Global themes can be integrated:

Global systems	education, health, justice, politics
Human values	conflict resolution, volunteer work
Global issues	war, peace terrorism famine, drugs, homelessness
Global history	international relations, religion, conflicts, wars, space race.

One discussion thread is posted maybe once a week. The teachers give a short response as a model. They do not correct grammar or spelling in order to encourage responses. The students are encouraged to post their own links, topics, threads.

Eventually they find that the students will self correct. But comments on the postings encourage others posts.

Individual Career Pathways

A case study from a small rural state coeducational school using data to inform their practice with regard to timetable structure.

This school looked at the school leaver data and analysed it to see what career paths their students took. They also investigated future employment opportunities and took into account changing work place patterns. They looked at what proportion of their student body goes to University and what proportions of the senior courses offered are academic. From this, they rewrote their timetable, giving most students a full programme but with more options and more choice. They have found that having more subjects and no study periods better meets the needs of their students. Those who are University bound have been identified through their careers interviews. The timetable is worked to give them a full four hours per week of five academic subjects. The rest of the school have three hours per week of eight options. The senior programme works because of a flexi timetable. As this is its first year, there is still some reflection and review needed. Seniors work flexi time on five subjects, for example, Year 13 get four hours per week by having an 8am to 9am class, lunch class and after school. At Year 12 they can split subjects with high content requirements, e.g. physics, into two lines to get them ready for Level Three NCEA.

At Year 11, English, Mathematics, Science and Physical Education are streamed. Teachers offer approximately 12 credits, choosing to drop the one they or the students did not like or were not successful at.

At Board and whole school level they decided that the Careers department would be the centre of their school, a resource for the students but also for their small town and wider community. This was built into their Charter. In Careers Education, they built a unit called 'Daring to Dream' integrated into the social studies programme and linked into vocational subjects. When the students reach Year 11 they go onto an individual plan called the 'Pathway Programme'

Careers Guidance is a central part of the students' school life. At senior level, there is a Pathway structured interview with each student at the end of Year 10 to set them up for Year 11 developing their career path. This interview is complemented by another two throughout the year and another at end of year to check progress and the next step in the plan. These interviews are done by the Careers Advisor in Year 12 and 13. At Year 11, the Careers Advisor is assisted by a Dean with careers' qualifications and interest.

Each student has a folder which is kept in the Careers Centre. The school keeps these as a paper file. This is a build up of all qualifications and career interviews. For students with little clear idea about their future plans, the school uses 'Career Builder'. This is a programme for skill identification which gives a computer print out for the individual student. It is used by the Careers Advisor in the Career Centre and takes about one hour but students do need help to interpret its findings. The Career web site can be used for juniors.

Independent Learning Plans

A case study from a large state coeducational city school using Ultramet and Independent Learning Plans.

Using Ultramet, the new Year 9 students create a 'Facebook' entry at the start of year covering questions about what they did at primary / intermediate school. It gives an account of their interests they can include photographs; they identify hobbies and interests, any clubs they belonged and any sports they played. The teacher can access this data and this gives them a picture of what the student is like. It also gives a frame of reference for sports and cultural involvement. The teacher can direct the student's attention to suitable activities that match their interests. In this way, the school hopes it can keep the student connected and engaged with the college, something which can fall away after primary or intermediate school. The teacher checks this material to see if they are falling off in reference to 'engagement'.

They also use Ultramet for tracking student achievement and engagement. The focus of the Individual Learning Plan (ILP) is not just grades and achievements etc but also the student's personal goals and their involvement in school activities. This school has decided to use an electronic record rather than the paper record. As this process is just starting, they have no clear idea about what to do with the extensive information they will have in the system at the end of the year.

Gateway and Career Exploration.

A case study from a large state coeducational city school.

This school which is smaller than Taieri College has 70 students in Gateway. At times they will pull a student out of Gateway for couple of weeks to catch up on missed work. Gateway is also used for Year 11.

In order to meet all these needs, there is staff of three. The Careers Advisors co-ordinates Gateway / Careers, co-operatively plans career education and conducts career interviews. There is a Careers Assistant who does all the administration and data entry including NCEA data entry and manages the STAR budget. The Careers Assistant also organise all text book purchases. The provision of 70 Gateway places mean the school employs a Workplace Coordinator for 25 hours per week who does all Gateway and other work experience placements. Section 71 is used for alienated students.

All students complete a First Aid course and level 1 and preferably level 2 Health and Safety standards before they go out. All youth apprenticeship students must have had a successful Gateway placement before they can do a youth apprenticeship placement.

Supporting Learning Partnerships

A case study of learning conferencing at a large city state coeducational college.

The college had re-organised its parent reporting system to create a stronger partnership and to focus on data and what it means.

The Principal put significant planning into preparing the ground for this. The intention was to hold Academic Conferences (AC) for all students late in term one using hard data. The Form teacher would host the conversation with parents / caregivers and the student. In preparation, the staff were given training in interpreting the data and holding these collaborative conferences. Parents were also informed about the process through a series of letters explaining the process and outlining its benefits. The interpretation of the data was also explained and discussed with students in preparation for the AC.

In week nine of term one, they held Academic Conferences (ACs), for all students. The first conference is taken by the Form Teacher who shares data on asTTle reading and writing, STAR, PA results and also student self review on three key competencies. At this College these were: self management, relating to others and participation. They also included a review of the goals student set at the start of the year. For seniors the information would look at NCEA data, any self selected goals and possible work experience reviews etc. In the conference the parents are given the information about levels of ability and the self review. The parent looks at the goals and considers what they can do to support their young person's learning. Parents set their own goal(s) on what they can do to support the student. These written on a small card on a fridge magnet to remind them e.g., *see that Fred does 20mins reading each day, see that Mary is out of bed before I leave for work.* Subsequent interviews are held with subject teacher.

Leadership Opportunities

Providing leadership opportunities at a large city state coeducational college. To ensure that there are a wide range of activities at school this college uses its Prefects system. The Head Prefects run a school executive. This has a number of councils, e.g. academic, to ensure competitions, awards etc, social, environmental, formal, charities etc. The council has representatives from across the school to make things happen. These councils meet weekly usually in intervals at lunch, some after school and in holidays. There is always a member of the executive present. A member of the Senior Management Team meets with an executive member weekly.

Individualised pastoral care

Managing individualised learning plans at a small rural state coeducational college.

In order to meet their stated goal of having all students on a personalised learning plan, the college decided to look at giving each student a mentor to replace the old form teacher role. This person would enter into a relationship of mentor or guide throughout their school life, getting to know the student really well, and form positive partnerships with the whanau / family.

The student's progress through school was likened to a journey. The school is located on a fertile plain with a river running through it. The metaphor of the school journey as a river, a place of movement and forward progression was chosen. The mentor was named the River Guide.

The River Guide has a group of 12/13 of mixed ability same age students with a Year 13 co-leader. The River Guide works in partnership with the student and their family to plot the learning journey. All teachers have a River Group unless they teach less than .6 EFTS. Deans also have a River Group. At this College, other non teaching staff can opt to be River Guides and the Careers Administrator and the Librarian as well as some teacher aides and office staff take on this role. Non teaching staff are paired up with members of the Senior Management Team as co guides. Meetings were held on Monday and Friday (20 minutes each session), and on Wednesday for the first half of one period. At risk students are carefully placed.

The proposal was discussed for about six months and a programme developed with a handbook for each. The College has 50 River Groups and each have own place to meet. After one term of this system, the staff are asking for more contact time with their River Groups.

Using Data

A case study at a small rural state coeducational college.

The key concept is that it is not just where you are going, but what you are putting on the pathway now.

Each student has a portfolio set up on Ultranet. On this is entered school data e.g. e-asTTle in English and Mathematics. The students are helped to understand what the scores mean for them and what the next step is. The school found E-asTTle much easier to use and to extract useful data from. The teachers use the data to adapt their teaching to meet the students learning needs. Each unit of work is planned around the learning intentions. Students also identify which teaching strategies assist them in learning and these are used as resource for teachers.

Careers Expo

A case study from a mid size coeducational state city college.

This college decided to run its own Careers Expo so that it could better meet the needs of its students. The Careers Expo for Years 12 / 13 takes a morning. There are eight lines each 30 minutes long for individual presentations. The presenters are given a time to come and the students selecting which to go to. Each line is carefully planned so that there is not a clash. For example, building trades would be spread over the time slots. In the library they have static presentations. The Expo has run for several years and presenters are very comfortable with the process. Having a specific time slot suits employers well. They contact the College to make sure they are included in the programme. The students enjoy the variety of presentations. Year 10 students are involved in hosting the presenters.

Reporting for Accountability

A mid size, state co-educational city school has reviewed its reporting to the Board of Trustees so as to give them manageable data to identify trends and provide adequate resources. The data on NCEA is aggregated across the cohort and compared to national, decile and previous years' data. An analysis of variance is provided. Each curriculum area also identifies two Achievement Objectives (for the junior school) and two credits area (the senior school). These are reported against set targets and an analysis of variance provided.

Monitoring student learning

A mid size, state co-educational city school has a SALT (student achievement learning) team – the intention is to keep the focus on learning. The team looks at what factors have led to students not achieving and analyse trends, then come up with ideas of what to do to fix it. The emphasis is on looking at the data and drawing information from it. The team consists of the Principal and Academic Dean (old DP) with others pulled in as needed.

Creative use of Lunch Time Detention

A Work Centre run at lunch time is for students not doing their homework or not doing best work in class. It lasts for 30 minutes and students can eat their own lunch there. It is another duty for staff. The teacher nominates the student and says what work to do there. It needs to be immediate.

Junior Diploma

A number of schools have a Junior Diploma using the key competencies. In one example, students can get 20 credits over 5 areas. They must get at least 2/3s of the available credits. If they get over 85% they get an excellence endorsement and over 75% they get a merit. If they fail they have to repeat some Year 10 courses until they reach the core minimum.

One school gives medals, nominal bronze and silver, but if it is gold, they actually get medal. The students strive for these awards which are presented at junior prize giving.

Changing Pedagogy in Practice

Some ideas from a co-educational state city middle school.

One teacher and her class are strongly into using the pedagogy of shared ownership and responsibility for learning. Each group has a book which tracks its learning intentions and any assessment. The students comment on what teaching strategies worked for them, giving the teacher some feedback. They also self assess. The comments are written by the group in turn and are available for the teacher to view. The teacher will also write comments about learning and also behaviour which may help or hinder learning. The intention is to make learning a shared responsibility between teacher and student.

In Mathematics, the student profile is built up on the Numeracy web site. Along with the Mathematics PA results, this data is analysed to find learning goals for year. Useful material is on GLOSS and Ikan on the web site New Zealand Maths.

For reading, the school uses 'Key into Inferences' as a teacher resource from Triune Initiatives. This fits in with Probe.

Other useful sites are:

- www.bubble.us
- www.langwitches.org
- www.NUMBERNUT.COM
- www.BBC Skillswise
- www.Tki.org.nz/wick_ed
- www.tv411.org/lessons_on_summarising
- [Stuff.co.nz crosswords](http://Stuff.co.nz/crosswords)
- www.mrmussbaum.com word and writing games.
- www.aplusmaths.com
- mathszone.co.uk
- goanimate.com site to help writing comics web 2.0 tool.
- [Spelling spellingcity.com](http://Spelling.spellingcity.com)
- Gamequarium.org
- www.algebasics.com

- www.mathsnet.net/algebra
- tutpup.com
- www.coolmath-game
- www.xpmath.com

The teacher is the lead person for ICT PD. The model she prefers is try out an idea and if successful to share this with the staff and encourage them to try it out. She acts as coach and mentor.

There are three staff who have joined her to show and share ideas. However the process is slow.

These three teachers have set up class blogs, called 'learning caves'. The students can access these blogs from home. They contain the current work and access to various sites (as listed above). One teacher uses the digital camera on a regular basis during class work and puts these images on the blog. This encourages parents to look at the blog.

Technology Education

In a large city state coeducational middle school the lead technology teacher has reviewed the classroom programme for the Year 7 and 8 and the visiting full primary schools. The technology time is about the same as Taieri College but produces a lot of completed projects. The teacher has cut out lots of the note taking. The unit information is on data projectors and he spends about 10 15 minutes going over this and then students get on with their practical work. Each unit's writing and reflection tasks are completed over the time of unit.

The unit on electricity has them design a house and have up to ten bulbs in it. They build the house from card.

For computer technology the Year 9 /10 have three hours per week in the media suite learning core digital skills. They are encouraged to build up a personal profile, adding photographs, music and other images. There is a check list for the skills they need to develop.

Timetable Structure to Support On Going Teacher Professional Development

Case study at an integrated single sex year 7 to 13 boarding school.

To meet the subject needs of the student they have a six day structure. They create their own teacher planner book and all whole school activities, eg. swimming or athletics, are called day 0. Each day number is highlighted on this teacher plan book. The seniors get five hours per subject over six days. Period three on a Thursday is dropped out each week and an alternative programmes are offered.

Once a week they have chapel. During this time professional learning groups meet. One team is always rostered on for chapel whilst the other teams meet. Once a term the staff have a half day, with school closed, for PD. This is when the professional learning teams would report back.

The Deputy Principal led the drive to professional learning groups and the use of ICT. She stresses that there is a need for a 'big picture vision *'or the technology can become the aim itself, a matter of 'the technology wags the dog'*. In a school of about 600 students, there are about 11 learning teams.

Ideas from a year 7 to 13 school

The school has used Ultranet for five years.

In the ICT plan there are three prongs, students, teachers and community learning. But it is acknowledged that the work is a continuum. The staff have undergone professional development in core ICT skills. They used the image of Passport and aimed to get staff to have completed all steps of their passport. New staff are taken through the programme as part of induction. They use the metaphor of a passport.

Professional development is 'just in time' training, but it is important to let staff know what it is they do not know. Presentations were given in staff meetings about how they could use ITC in class. 'Then someone gets interested and thinks *'mm I can do that'*. They offer workshops in PD days. An IT Coach is available to demonstrate and to trouble shoot for seven to ten hours per week.

One problems that emerged was with parents accessing the Ultranet site through the student ID. They were able to view student managed pages which are 'student to student' and they may not be slick or professional looking .

Each teacher has a virtual classroom for each class They are encouraged to plan with other teachers taking the same programme. So, for example you can have the three English teachers at Year 11 setting up a common virtual classroom using group planning etc and so no one class is more advantaged than another.

Some pages are identified as 'Public' these are free and open to parents and have daily notices on these. A log-on is needed to get access to other pages. A teacher is allocated a supervisory role for the various pages.

'My dashboard' is monitored by IT technician. Each class undertakes a unit on cyber safety. Students are encouraged to report abuse through an alert button. A useful site for resources and presentations is www.cyberquoll.com.au/index.html.

There has been considerable discussion on how much space would be needed for individual learning portfolios especially if it is cumulative. The school has explored the possibility of down loading it each year or preferably a back up snap shot and then starting afresh. Another idea is to accumulate previous year's data on a terabit 1000kb external hard drive.

The learning portfolio is a task to be completed at start of each year. They identify their interests, strengths, talents and set out some possible long term goals and that year's learning goals. To this is added their three best pieces of work and goes to the teacher of the form class. These files accumulate in the form teacher's saved work.

Reporting for Accountability to Principal and to BOT

At Year 7/8, the school sets targets on STAR and asTTle and reports on these.

Home learning is required; it is not home work. The expectations are set down in a home learning booklet that goes to all families.

Ideas from a Full Primary School

Full primary, single sex boys private boarding city school.

The pedagogy was '*overhauled on teaching and learning*'. The senior staff saw it as important to engage the teachers in the change

As with our experience, they set up a management team for ICT. There were four schools in the cluster who met twice a term. They developed two parallel programmes; the movers and shakers who needed to have lots of discussion about having ICT as an integral part of classroom programme. The other group needed professional exposure to the ideas and mentoring to try out new things. This amounted to a huge amount of ICT PD.

However they were adamant that they did not want all lessons to be 25 students sitting on a computer and no interaction.

In order to get staff familiar with using ICT, the school decided to put all meeting minutes on the network for staff. This also included daily notices, sports notices and any information.

Readings from current educational thinkers were put on line: Julia Aitken, Mark Prentsky, Wesley Fryer, Mark Treadwell. Faculty leaders were encouraged to have discussions with their staff on these articles.

Staff now ask for new tools and technologies as they begin to value what it can bring to the classroom. The question is always asked, '*What difference will this make to student learning?*' The teachers submit a proposal for the new technology and have to say what understanding they have of it and how it will assist their teaching and student learning and what professional investigation they have undertaken.

Any PD day has a strong structure; usually they have range of workshops run by staff. (Similar to our Learning Circles). There is always time at the end for the group to come up with key questions. These are revisited the next time.

One phrase that is used is about the purpose of schooling; are we '*Preparing the kids for their futures or our past?*' To start the thinking on this, the school planned a PD day with a provocative speaker and questions arising what will they need for the future thinking about skills. From this they got into Art Costa's 'Habits of Mind' and developed a common language to use.

They also looked at the social and co-operative skills needed to cope with change and technology. '*When we cannot predict what the future will be, what will be the skills the students need to cope in an ever changing world?*' These ideas are explored in Jane Gilbert's book which is summarised at www.JaneGilbert-CatchingKnowledgeWave.ppt

Staff are encouraged to go into the www.tki.ed.nz sites and look at the discussion threads and to add their contribution. These ideas can be shared in faculty groups. This strengthens and widens the learning community of the school.

Ideas from a Large Middle School

Large state co-educational middle school.

This school has completed the three year ICT contract. They found the U-learn conference to be really good and used this as place to vet speakers to bring into school (very much as our cluster did with Tony Ryan).

They now support one teacher full time to support teacher ICT development (NB this is a decile 9 school). All rooms are on interactive boards (Promethean Active boards). There is PD twice a term when the school closes at 2.30pm. With the dedicated staff member, there is 'work along side' PD. The teacher freed to be the IT mentor works alongside teachers at their shoulder, 'just in time learning'. With one reluctant teacher she set up a teaming programme. When class was timetabled into the computer suite, she taught the first half of lesson, then building on the coaching she had previously, left her to take second half.

The IT programme for the students empowers them and they in turn help the teacher.

Each class goes through a core IT module covering a range of essential skills. On one rotation which is particularly enjoyed the students use scratch.mit.edu, an animation tool.

E portfolios grew naturally from the work of the music teachers and specialist teachers who have a large numbers of students rotating through. They use [School gate MS](#) stored on internet for 'My learning journey'. All teachers have a scanner so that hand written work can be loaded. A piece of work must be supported by genuine reflection and be linked to the learning intentions they set. Some success criteria are known before hand. The students are involved in setting the learning goals and to create rubrics using success criteria and learning intentions.

The after school PD sessions were individualised across staff groups. Prior to these they ran PD on leading PD groups; on how to lead learning and what would learning look like for teachers. Teachers are given a non contact time for reading in a rotation.

In terms of literacy development, the Deputy Principal has had time as a Literacy Advisor and taught Literacy development to teacher trainees. She recommended [‘Mechanically Inclined’ Jeff Anderson Stenhouse Publications.](#) And [“Teaching Reading Comprehension. Alison Davis. Learning Media.](#)

All staff have a cell phone provided through the school Vodafone account. This enables them to take photos or videos and blue tooth these. All school phone numbers are paid by school.

Ideas from a Rural Middle School

This school set up a ‘digi’ rooms six years ago. The selection criteria for entry is: a high RA, internet at home and no behaviour issues. There is a fee and a scholarship for those who cannot afford fees. Each student in the class has access to their own computer. The school has finished its three years in ITC PD. The teacher who led ICT PD has left. All staff meetings have an ICT PD element led by different staff. A committee provides readings.

All notices sent electronically and there is a secure section for staff only. The expectation is that staff will the intranet check twice a day.

APPENDIX TWO. SOME READINGS

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