

## **Sabbatical Report: Prue Kelly, Principal, Wellington High School, Term 3 2011**

In my application for this sabbatical outlined the following purpose

Purpose<sup>1</sup>.: to improve my understanding of how integrated, technology- rich curriculum can work in a secondary school so that we can take our school up the next step. Currently we are teaching the junior school in what we call our Tukutahi programme; 55 students, 4 core teachers; collaborating in pastoral care and teaching and learning, netbooks the learning tool, eportfolios, some flexibility in the time table and inquiries interspersed with regular traditional subject lessons. Some staff have difficulty removing their subject delivery and cling tenaciously to the hour allocation of teaching time while others are seizing the moment to really try a 21<sup>st</sup> century approach.

It was a delight to hear one of our netbook teachers say the other day *"I take a bit from here, a bit from there and another bit from there etc, actually I am teaching less and the kids are doing more."*

We have to keep momentum - as Sigmoid demonstrated; you start planning the next step before you plateau and begin a decline.

Between being awarded the sabbatical and taking it up I made the decision to retire. An excellent ERO report, the completion of another building programme, the celebration of 125 years of the school, an excellent staff who see themselves as learners willing to work hard to modernise their pedagogy and the completion of 47 years since I began teaching with a Standard Two class at Kawerau North School; all contributed to the decision.

My status changed and so did the purpose of my sabbatical. I became what Fink (2002) calls a leader on an out-bound trajectory and in being so I have to consider my leadership legacy and attend to issues of sustainability of the educational changes we have made before considering the next steps. So the first part of my report briefly considers some issues of sustainability and the second some possible future actions.

Fink's paper, *Preparing leaders for their future not our past*, offers valuable insight into developing leaders of learning. I have worked to develop leadership within the staff and provided opportunities for staff to exercise leadership based on their abilities, interests and willingness rather than the time they have been teaching. My belief is that all teachers have leadership skills and need confidence to share these with their peers. Our leaders have a strong belief in the meaning and validity of the changes that High has already made, so will continue with their work.

The issues of sustainability concern me more. For example a priority for us has been developing staff and modernising pedagogy. We have a focussed programme of professional development and give much more time, non-contact time, to leaders to work on leading learning for teachers and consequently students. This priority could change with change in the executive and possibly adversely affect the fine progress being made. Fink argues that for any improvement to be sustainable it has to: sustain learning not merely change schooling, endure over time, be supportable with available or achievable resources, not impact negatively on surrounding educational organisation and promotes capacity and diversity growth within the educational

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<sup>1</sup> In my application I included plans to travel to schools in Australia and California to investigate their practice. A subsequent unrelated decision to retire from my position at the end of 2011 meant I declined the BoT offer to fund travel as I considered it a waste of their investment and have relied on web research and readings.

community. Although Fink is writing about education systems, I think the changes we have made can meet the criteria of sustainability provided that we are all doing what we say we are doing in the classroom and provided that the school's condition – size and income does not decline.

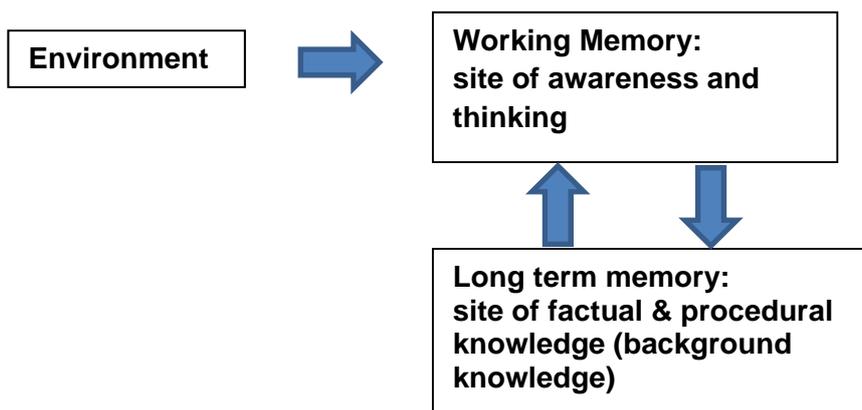
So I have looked at some ways to strengthen what we do to increase the likelihood of sustainability so that we are not merely changing school structure.

We are well embarked on curriculum journey to embrace the intent of the New Zealand curriculum which is to create powerful learners who are confident, connected, actively involved life-long learners as school leavers. In the junior school we are moving from segregated subjects, covering set content and ad hoc themes to a more holistic, integrated learning maybe at the moment more what James Beane (1997) would call multi or inter-disciplinary rather than integrated. Julia Aitken argued at a Core Breakfast presentation that to achieve this we have to shift the way we think about learning and that at secondary schools subject expertise should be used to enrich the learning of colleagues as well as learners –that is a key focus of the Tukutahi programme.

I believe it is the creation of powerful learners that is the real challenge. While the pathway we have begun, developing the key competencies and using learnings from Guy Claxton's Building Powerful Learners work seems to be achieving our goals, we may have missed a vital component. That is a real understanding of how children learn and what makes them learn.

Cognitive scientists have been studying how children learn for some time now and although much of what they say may have registered somewhere in our readings and learnings before, Daniel Willingham(2009) has set out the necessary conditions and processes to ensure children can become powerful learners. He argues all children are naturally curious but they are not naturally thinkers and will avoid thinking unless the cognitive conditions are right. For the cognitive conditions to be right children need factual knowledge. He has a simple diagram of how the mind works (Figure 1).

**Figure 1: Willingham's simple diagram of the way the mind works.**



The working memory is the part of the mind that combines and manipulates information. He argues that the working memory can hold about seven pieces of items so draws on factual knowledge in the long term memory. That factual knowledge (stuff stored away) is closely intertwined with critical thinking, reasoning and problem solving. For example this background knowledge is critical for reading comprehension. It provides the meaning for words that are decoded, allows readers to bridge gaps that writers leave, allows chunking (grouping together of different bits of information) and allows the reader to interpret ambiguous sentences. It is seen as

the reason some students are good decoders but do not progress beyond the mechanics of reading. It is probably the reason students from underprivileged (as judged by the cultural capital used in schools) homes fail to thrive beyond mechanical reading, and just as the rich get richer the underprivileged become more underprivileged as time at school increases. The *deficit theory* from another perspective – maybe instead of making kids practice comprehension we should be reading the paper with them to increase their background knowledge so that the factual knowledge – building blocks – are theirs too.

He argues thinking logically is not possible without background knowledge and that knowledge permits imagination and imagination is most important.

Willingham outlines the implications for teaching from the cognitive scientists findings.

Factual knowledge makes cognitive processes work better and the factual knowledge that gains the most cognitive benefit can be gained from the newspaper and from books and programmes by lay people explaining science and politics.

However for factual knowledge to end up in long term memory students have to think about the concept because memory is the residue of thought. Thinking must be provoked and practiced and that is the teacher's job. He also argues that children are more alike in terms of how they think than they are different – they may like different things but there are not categorically different styles of learning. He adds that all one can say about the importance of visual, kinaesthetic and auditory learners and the results of many tests, is, the results are mixed. He acknowledges Garner's multiple intelligences as having some validity – sees them more as talents - and argues that they are not interchangeable. For instance writing a poem about golf won't make an artistically talented child play golf better nor will a child drawing a comma learn when to use one.

Yes children do have cognitive ability so differentiation must be for ability – teaching carving will not help mathematics. He also argues that background knowledge explains most of the difference in intelligence. So cater for the smart kids - give them harder questions. For the others their general intelligence can be changed by:

- Praising students for effort not ability
- Make sure they know hard work pays off – so practice
- Paced practice is better than cramming
- Makes sure they know failure is a part of learning and we learn from failure
- Teach study skills
- Don't praise mediocre work – praise completion and makes suggestions for improvement

Of course 300 words do not give the learnings in this book justice but the message is clear without a lot of added resource and effort teachers can improve students learning by getting them thinking. To think they need factual knowledge. Then, teachers can get them thinking by asking appropriate questions geared to pique their curiosity.

However Willingham also argues that teaching, like thinking, needs practice and teachers work hard for five years developing their skills and then after that they have well-established habits that are seldom changed because it takes lots of effort. He advocates practice with peer and self-review so that the focus remains of learning and thinking.

Graham Nuthall (2000) after years of study of the standard routines and rituals of teaching argues that they contribute little to whether learning occurs and that, teachers were more interested in test

marks as an indicator of success. He argues that student success is more related to how much background knowledge the student has and the extent to which s/he shares the purpose and culture of the teacher. He believes we have to pay much more attention to actual learning or else we will keep producing the successes and failures that the myths expect.

We know teachers' change and development is challenging and requires on-going commitment and practice on the hard bits. At High we have teachers talking to students about their learning but do they all know enough about how learning occurs to make sure students are able to do the thinking that will enable learning.

It is time for a respite in our curriculum journey (Aitkin, 2011) to ask ourselves: Is this what we are doing? Are we creating people able to learn? Are our lesson deliberate acts of teaching designed to get students to think so they can learn? Is everyone doing it? And, Can they show that? If the answer is yes to each of those questions then we can proceed with caution. If not, we need to empower those who have not made the leap to the needs of the New Zealand Curriculum. The real essence of the curriculum is the development of individual students though the contexts of different subjects, values and competencies. We must practice the hard stuff until as a staff we can answer yes to each of those questions.

Were the school wide focus and funding for staff learning reduced then Heads of Faculty would need to prioritise teacher learning as their key focus if school development is to continue. An increase in teaching load for HoFs could create opportunities for real change. Budgets, resource management, results processes – all those non-productive administration jobs could be given to retrained support staff and HoFs could devote their time to teaching and learning. I believe the New Zealand Curriculum document provides a framework for HoFs to lead their faculties (pages 36-36). The conditions set out as an ideal learning environment for students are also one for leading learning teachers (*See Figure 2*).

**Figure 2: Effective pedagogy- actions promoting learning**

Students learn best when:	Teachers get the best out of students when:
There is a supportive learning environment	The faculty is friendly ,well resourced, inclusive, cohesive everyone has a job and plays an important part
Reflective thought and action are encouraged	Teachers have time to discuss, design, develop programmes critically - so meeting times should focus on curriculum not administrivia
The relevance of what is being learned is known	Teachers have a good understanding of how their programmes fit into the school plan as a whole, how they are helping to move the school in a strategic direction
Facilitate shared learning	Everyone tries things and shares their success and failures – bring & brags, they have identified peer reviewers or critical friends giving teachers opportunities to be leaders of learning
Make connections to prior learning and experience	Have a good understanding of what other faculties teach and deliberately build on each other's programmes and learnings - avoid duplication and increase collaboration
Provide sufficient opportunities to learn	Teachers get PD – not one off days outside the school - time to work together to learn new ways and ask themselves those five questions – visit each other's rooms and peer review
Inquire into teaching-learning relationships	Look at how successful what you do is, examine research and best practice to improve, prioritise outcomes for a focussed inquiry.
ICT and pedagogy	Make sure modern technology enhances teaching and learning, you can turn kids onto learning and it is an effective way to differentiate

So I would urge the continuation of a focus on the development of leadership and for a pause in the curriculum shift while the five questions, derived for Aitkins work, are examined and the answers determined and demonstrated. I am confident that should the condition of the school resources decline then other ways can be found to maintain the learning journey for teachers as they change their pedagogy to ensure the essence of the New Zealand curriculum is met.

So how can we extend pedagogical changes into the senior school to build on the clear focus in the junior school on learning to learn and personalised pathways?

Pathways in the senior school have been formalised to some extent by the classification of NCEA standards into five major industry pathways; social and community services, primary industries, construction and infrastructure, manufacturing and technology and services. It is promised that when NCEA results are returned the notice will include a pathway of strength (given the results) and link to an appropriate website so that students can look ahead and begin to plan their future focus. There is something about this pigeon holing that seems not quite right and where do the arts students go? The category of other seems inadequate. But the classification must be given a chance and WHS should try and capitalise on it.

Perhaps it can be the beginnings of a reshaped Yr 12 programme. Currently many schools in the states and some in New Zealand (Albany Senior College, Sir Edmund Hillary Collegiate) have a different day, off formal timetable day for their students. These schools have found that their NCEA completion results improved despite students doing fewer standards. Wellington High Yr 12 students could rotate through a day or half day a week spent in four 8 week modules; work experience, volunteering, collaborative project – producing something, and research an issue. Some of these could all be tied to the Duke of Edinburgh, Crest, Enterprise or other awards. Committed teachers and students from High do excel when they work on these awards – obvious examples are the Crest and physics students.

The imperative for this type of experience comes from several directions. Firstly teachers themselves are struggling to cover the content that NCEA demands and acknowledge that they are relying on traditional *open head and pour in knowledge* learning – rote almost to meet the demands of NCEA. Secondly influencers are asking for students to have challenging experiences. Sir Paul Callaghan at the March 2011 Strategy New Zealand conference argued that's NZ needs to produce people who can think differently so that they can manufacture weird stuff ,that New Zealand's future is not in the service industries but in the manufacture of expensive light stuff that fills a niche no one else sees and that this can turn us into a rich little country where talent wants to live. Thirdly we need to our students to become active citizens in their own communities who have learned to value their own learning and their own minds.

Ken Robinson (2011) argues that traditional classes alienate more than educate and there is a need to produce divergent thinkers. Divergent thinking decreases as children age because the system knocks it out of them but that great things can happen when groups collaborate and are given a chance and challenge to grow. Allan Luke argues that the development of a critical disposition is essential. Mark Treadwell (2011) argues for an interactive inquiry approach and cites a study at British Columbia University which tested the effect size of pedagogical approaches. The effectiveness of tradition teaching by an experienced lecturer was compared to an interactive inquiry approach by an inexperienced teacher. The difference was 2.4 a huge effect in favour of an inquiry approach. The list goes on but the message is clear and I believe the unstructured but directed time is needed so that the students have the freedom to experiment and perhaps fail

without blame and shame. No extra staffing or funding would be necessary just teachers with a willingness to guide. Some may argue that more standards are what kids need but I think the lesson from America is quite valuable. After 40 years of national standards they are as efficient as they can be and there is no room for improvement in overall results if they keep doing what they are doing. I think it is the same for us and will be while we use a book based technology. For the last 17 years at least, we have been trying to lift academic results through improving standards results. It is time for some change in approach.

We need to continue the use of individual digital learning devices in the junior school and extend it into the senior school - every student in the school with a netbook. Essential here is the wireless network infrastructure of the school so our resources must be directed to this. It is helped by the SNUP report which found our infrastructure to be superior and we will almost certainly have a Ministry funded upgrade. There is no doubt that well-used technology is a powerful approach to learning and exposes students to situations that they would not have otherwise have access to; simulations, research tools, opportunities to collaborate and discover, dissect and discuss issues. Moodle, on-line experts, the integration of student work with applications such as wikis, blogs, social networking, bookmarking and digital repositories are all practices that continue to expand and are almost the norm.

The role of the library then must be expanded to include teaching students to use and optimise technology based social media. Libraries can teach safe behaviour and give youth the necessary knowledge and skills to protect their privacy or engage in responsible speech. Instead of restricting access, we must educate children to participate responsibly, ethically and safely. Students then may learn in the online environment they operate in beyond school where they collaborate, and create knowledge, knowing it is accessible to the world.

Pedagogy must however drive technology use. I think that it could be used to strengthen students self- management, time management, and a wide range of skills if we built in significant opportunities for remote learning – structure the programmes so that students could choose to learn in class or through moodle at school or at home. Same course, same learning outcomes, different contexts. The possibilities are expanded when cross school learning through the Loop and the Virtual Learning Network are considered. With two conferencing facilities in the school possibilities are huge to share staff and expand the choices for seniors. It would take some work, negotiation and changing attitudes to who owns students and their work for this to occur. The Basin schools are well placed to try this but would they?

Even though we have discussed it for years and made little movement I still believe that modular – at least semester- courses are the way to maximise attendance and achievement. Such a move could be helped by the definition of the five new pathways and it would give students more choice about when and where they studied.

I would like to see some movement away from the pretty rigid horizontal grouping we have for classes. Groupings are based on the idea that all aged kids are at a given level but we know that is not true – it is the traditional factory approach. The secondary futures work argued for student centred learning and that year level grouping did not necessarily meet the diversity of student needs and development levels. They found evidence supported a shift in learning that put teachers, caregivers and communities responding to students within supportive inclusive networks that nurture and facilitate student needs and co-construction of knowledge. We need to know and

understand each student's abilities and talents better and place them in classes accordingly. Why subject children who have been learning instruments for years to Yr 9 Music or very good mathematicians to average year nine stuff. I am not suggesting vertical pastoral classes, I strongly believe that at school students should socialise with age equal peers, but vertical learning classes or activities where age is irrelevant especially as children all learn the in the same way and the best way to deal with students with talent is to give them harder stuff. We could then put the resources we currently use for gifted and talented students into creating opportunities for those with limited factual background knowledge more opportunities to acquire build that necessary knowledge – read the paper, watch and explain the news common everyday things that some kids take for granted – maybe roopu is the time for newspapers.

We can refine our plans, talk to our community and do all these things and maintain the school roll over the next five years (or we could adopt a school uniform, double the size of the school and keep doing what we are doing). I remain concerned that the school system is not changing quickly enough from a book based technology that has reached its peak efficiency and that no amount of juggling student engagement resources and realigning NCEA will alter this. But transformation to an information based technology will provide improved engagement and achievement to meet the needs of the knowledge age. We can think globally but act locally and make sure Wellington High students are equipped for their futures.

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