Sabbatical Report 2017

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What is the best practical application of accelerated learning; what is possible and what works?

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ACKNOWLEDGEMENTS

Many thanks to my Board of Trustees, who very willingly encouraged the leave time, knowing the journey we have travelled, the "blood sweat and tears" we have all shed to raise the levels of achievement in the school and to lift the practice and pedagogy of doing that successfully.
Thank you also to my amazing staff – especially those who have travelled with me for all the 13 years – in the fight to bring a passion and a "nothing but the best" attitude; to bring that part of the Mission Statement "achieving at our personal best," to life in the classroom.
And of course, thanks to the steams of student, year on year, who have picked up the challenge of producing their best.

RATIONALE AND PURPOSE

My staff and I inherited a school that was set in another educational time zone. The staff were good, the curriculum as it was, was well managed but the school was under-resourced, out of touch with modern educational practice, but we stepped straight into realm of student-led, just-in-time, inquiry based learning, just as it was emerging. we were set on a road to engage the students in their own learning.
In 2014/2015 as the principal and the lead learner, I wanted to know how many of our students we were accelerating and it resulted in a fascinating Christmas holiday, a piece of in depth data review that I fed back to the staff at the beginning of 2015. It gave us much needed data from all cohorts, target groups and the whole student body. It was information that has led me into a personal inquiry around best practice, strategies, student, teacher and whanau roles in helping students to learn at their peak pace to reach their best possible level.
Within that inquiry, an added interest was triggered in the working of the brain and programmes that might contribute to accelerated learning. I particularly wanted to know if neuroscience programmes worked and wanted to find the best way to trigger an interest and a passion for fast track and rich learning. In the search for other ways to enable student's learning, I was seeking information through neuroscience and have attended the *Learning and the Brain* conferences in the USA and other courses in New Zealand. Alongside this tracked what we used to do well, still do well and what could be improved and added.

AREA OF STUDY

1. What is acceleration? What does "good" look like?
2. What are educationalists saying about acceleration and deep learning?
3. What are the successful components of acceleration – what can a school do to promote acceleration?
4. What works?
5. What can we learn from Neuroscientists, what programmes cost and which ones are successful?
6. How about the use of technologies to aid fast learning?

EXECUTIVE SUMMARY

What do our students need, what is the diagnosis, and having found the answers, what is the best way of allowing them to grow, to accelerate their learning and be able to allow that to happen in a way that is **satisfying, stimulating challenging and successful?**

Somehow the teacher has to meet the academic and social/emotional needs of their students. There are many voices in the education world these days and they can be exciting, powerful, challenging and helpful. But how do we know what works and where to spend our precious budgets.

The research took a turn that was unexpected in many ways. In the quest for some exciting new thoughts and educational twists, hoping in the brave new world of neuroscience and technologies to find the magic bullet of accelerated learning. So it was astonishing to find that I was drawn back to some 15 year old foundations: Assessment for Learning, Habits of Mind, Character development, student learning goal setting, student voice…. I was I have to confess not expecting that these were still at the forefront of effective learning but that was confirmed as I read. However, alongside these came the new psychologies – developing positive mindsets, embracing failure as a step to learning, positive psychology bringing resilience, gratitude and hope. These are the new positives, the new initiatives, because they address the issue we have in our 21st century schools, anxiety and stress in students, and what is not new, in teachers. Research and experience tells us that we do not learn well when our minds are overwhelmed by stress and worry.

So it became clear that this has to be the foundation of any accelerated and deep learning culture in school. It is important to attach to it the old truths of training for character and the key competencies of the NZ Curriculum and Assessment for Learning principles. We have to set these firmly back into the school programme and culture so students have skills to clear the mind and attack the learning. Certainly, while this is embedding, research carefully for any new well researched and proven new programmes both neurological and technological, but the message was loud and clear, search for evidence that demonstrates their effectiveness. Do not spend the dollars until you have that evidence.

FINDINGS

How much more satisfying would it be if teachers found their students were more receptive to the classroom content? How much more empowered would teachers feel if their teaching resulted in better student learning?

This quote from the advertisement for the "*Educating with Neuroscience Conference 2017*" sums up the thinking that started this research of how well my school was doing now and had done over the last 12 years. I wanted to find a way where all our students could – as our Mission Statement says "achieve at their personal best." National Standards highlighted the need for our at-risk students to not just progress, but progress above the annual expectations in the need to catch up, we strove to find the way to make this happen. As we were hearing the push for 85% of students to be at or above the standard, we were also hearing another message. This for example

from Lester Flockton in “NZ Principal Sept 2016. “While acceleration has a solid research base around advancing the prospects of gifted children, its usefulness across a school system for those who fail to reach the levels of age/stage Government standards is not what it has proven to achieve and not what it set out to achieve.”

From the loudest, most powerful voices though, we are urged to accelerate our student’s learning and it comes from all manner of sources – the Education Review Office, Ministry of Education, educationalists, Communities of Learning and most importantly, our own drive and passion to see all our students achieve to their potential. All passionate teachers hold these ambitions for their students.
We are besieged with resources to help but we often have no idea if they work and then in many cases we have no idea how we are actually doing in the acceleration push in our own schools. We all acknowledge that there are students in our classes who urgently need accelerated learning to make up for lost time but it is possible to drown in the plethora of strategies, targeted students, resources – sometimes conflicting ideas – timetabling to cater for acceleration groups etc. Without doubt, all schools and teachers want the best for their students and want to help them succeed. In this study, the need to push through the myriad of insistent voices and find what works in our setting, with our students. It takes planning, reading, experimenting, inquiry processes, reviewing and experimenting again.
In the readings, I could not avoid the obvious that make up the new technologies. When I began the study, in my planning I had not wanted to research the use of technology but as I read on it became obvious that this could not be ignored.

So it all becomes so difficult when we have a demand for literacy and numeracy, growth in science and yet a wide and vibrant current, relevant teaching model. We are asked to accelerate learning and yet be innovative, to be successful and we have to prove it. It can feel, as Fullen and Donnelly express it, as though we are “Alive in the Swamp.” They ask one very simple question – ‘what does good look like?’ they answer the question by providing an index, a way of assessing any digital innovation in learning, which stresses all the elements needed for system impact. For example, in addition to improving learning outcomes educational technologies must be “delightful to use and easy to implement.” So any discussion around acceleration must look at new technologies and rich learning while acknowledging the necessity for satisfying the demand for increasing literacy and numeracy in students.

As teachers and principals, we understand that pull and we acknowledge the justification of the two sides of this debate, we want vibrancy in a future-focused curriculum AND we understand and feel the need for very literate and numerate students.

So What is acceleration?

- Mechanics: to change the velocity of (a body) or the rate of (motion); cause to undergo **acceleration**. to reduce the time required for (a course of study) by intensifying the work, eliminating detail, etc. to move or go faster; increase in speed. OR
- to cause faster or greater activity, development, progress, advancement, etc
- to cause to happen sooner than expected
- ERO identifies acceleration is shown by moving a student past the levels of the national standards - - from “below” to “at” the level for example in a year.
- E-asTTle – results from Feb to Nov show growth of more than a sub-level in a year

So from these we can take the keys: Accelerate by reducing the time, intensifying the work or increasing the activity in order to cause success sooner and deeper than expected within a year but that is another story.

But this is just a definition. From the definition we can see the desired goal – advancement, progress, success but we need to navigate a road for students that will encourage learning without reducing the vibrancy of the New Zealand Curriulum.

For this research, I was keen to reflect greatly on my own school's experience and walk with accelerated learning. If I was to start that journey over again, what would I do or not do and what help might I give to use the experience to take others on the journey. I want to presume that we know and have experienced the benefits of things that most educationalists do agree on. Good rich learning comes by:

- Establishing a positive learning environment
- Engaging and Involving the learner – allowing students their voice and choice
- Allowing the learners to collaborate and share ideas
- Giving variety in the programme – allowing for different interests, ways of learning, student styles
- Ensuring that the learning is contextural – "just in time" learning, real life activities that the student can see and adapt to their now and future world.
- Embracing new technologies and new research

However, the bottom line is that to be successful there must be accelerated results. It is possible to have great relationships in the room between teacher, families and student, but unless acceleration occurs it becomes just an enjoyable experience for a student. Students in a class may love the teacher, enjoy the nurturing of the class culture and yet not shift their learning in any great capacity. This is not total failure, because good class culture is essential, but may not result in the student moving learning in any great way and they may end the year saying that they had a great year, confess that my teacher was my favourite of all time – and yet add, I still cannot read really well.

WHAT ELEMENTS THEN, ARE NEEDED FOR ACCELERATION AND DEEPER LEARNING TO HAPPEN?

1, SET THE MINDSET FOR POSSIBLILITIES

In our school strategies for acceleration, this was not included but as I have read and refletced, I realized that it is probably the most important and vital beginning to the process. I had a most powerful experience recently. A student teacher came into my office very downcast. When I asked, she told me that she had just completed a most unsuccessful lesson, and I could see it had really shattered her confidence and she was doubting herself. She told me that the class teacher had intervened several times to help her to rescue the learning. Having just read "The right Mindset for Success" I assured her that failure was the start on the road to success because she could now tell me clearly what she would and wouldn't do next time and that her failure in this one instance was setting her on the road for future success in lessons like this. We agreed that we needed to rejoice in mistakes because we learn best that way. She now was clear what had not gone right and she knew how to change. I encouraged her to write down in her reflections exactly listing explicitly she would do differently. She left my office with her head up and smiling. I must admit, I felt positive myself – in a new way. We had reset both our mindsets!

This excerpt comes from an interview with Carol Dweck, professor at Stanford University and author of *Mindset: The New Psychology of Success,* in an interview with Sarah Green.

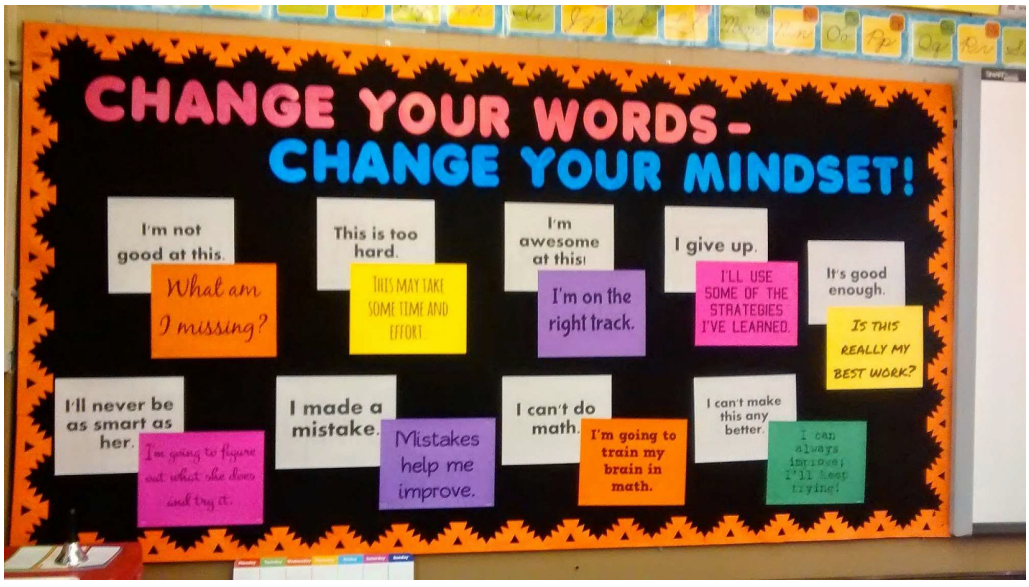
We've always produced creative people, the mavericks. And I'm worried now, with all the emphasis on high stakes testing, doing well on the test, getting perfect scores, that we are subverting what we've always been good at. I think the message has to go out in the educational system, and I'm working really hard with leaders to do this,

that the name of the game is learning. We actually have a program for students that teaches them that they're in charge of their brains, that their brain is kind of like a muscle that grows stronger with use, and that every time they stretch themselves to learn something new, their brains form new connections, and they get smarter over time. We want to empower students to be motivated to grow their brains, and that's done by stretching, by being passionate about something, by learning new things, by welcoming things that are hard, by seeing a period of confusion as a period that's going to create new neurons.

This is what John Edwards calls the learning pit. Just like that student teacher in my office, the learning pit is unpleasant and uncomfortable but it is essential and leads to success if we tell ourselves that "we can do it, mistakes help me improve, is this really my best work…. *The Change your words Change your Mindset* chart produced free in the website *www.teacherspayteachers.com* should be in every classroom, staffroom and principals' office.

So it is creating a mindset for success. Changing negative attitudes that may have existed in families for generations and passed on to the students in our classrooms. The "you'll never amount to anything" or one I hear often" don't worry I was no good at maths" mind trap. These hinder learning and certainly do nothing to grow accelerated learning. Developing a growth or a positive mindset has to be the first step in the process for accelerated learning. In setting learning goals students can be daunted by the size of the required step up. A positive mindset will allow them to say " I can't eat the elephant one bite at a time but piece by piece and I will get as far as possible."

Dweck goes on to say in that interview that when school success comes too easily, these successful students believe that they "just have it" and when older they become afraid of failure, apprehensive of a tarnished image because they never ventured out of their comfort zone, never had to struggle. We all need to be able to say we are not sure. but as Dweck says, we can talk and think about it - feel our way through the problem. "Just having it" without the struggle and the ups and downs, does not build those new neurons and when failure has never or rarely been experienced there is no way to grow.



CHARTS LIKE THIS SHOULD BE IN EVERY CLASSROOM
www.teacherspayteachers.com is a free download

Real success comes when we fail but try again and learn from the experience. This is the mindset we need to instill in our students before we even think about the

complex and worrying depth of promoting accelerated learning. It is the first and possibly the most important foundation. For those schools and communities striving to accelerate learning, that first step should be to establish in the staff, the whanau and students right up to the Board of Trustees, a positive mindset, not afraid of failure but a love of learning, re-learning and growing, of plunging into the learning pit and clambering up, falling back but step by step getting to the top.

Having our students taking on the challenge of new learning, not being afraid of battle failures, we will have gone a long way to establishing deep, rich and accelerated learning. This growth mindset attitude walks hand in hand with Costa's *Habits of Mind* and while these were clear in our school it was always better in some classes than others and yet it is so sensible and so empowering and so do-able on a daily basis!!!

Set high expectations

In Dweck's book*, Mindset: How You Can Achieve Your Potential*, she tells of a researcher (Falko Rheinberg,) who studied how students' academic progress was being influenced by the teachers' mindset about the group's ability. He discovered that when teachers believe they know a student's ability, they predict the outcome and that expectation follows - the students do or do not achieve according to that expectation. However, when teachers taught with a growth mindset all the students achieved. What setting high goals does is to set the mindset to what is possible – as St Francis of Assisi said; *start with the necessary, then do what's possible and before you know it you will be doing the impossible"* (This advice was given to me when I felt overwhelmed by the huge amount of change needed in our school 13 years ago.) We have to set high expectations for every student and a mindset that reminds us that that achievements usually come through two steps forward and one back.

Dweck lists the criteria for setting high expectations:

- Conveying confidence to students. Letting students know that you believe in them and speaking positively about students to other staff.
- Giving opportunities to contribute.
- Giving specific and individualised feedback.
- Providing high levels of support.
- Using what she calls the "Goldilocks principle". This means providing tasks that are not too easy, not too hard, but just right - i.e. setting achievable tasks.

2.TRAIN STUDENTS IN THE 16 HABITS OF MIND REGULARLY

These have been around for a long time since Art Costa ***Habits of Mind*** intrigued educators in 2000. He describes the habits as "knowing how to behave intelligently when you DON'T know the answer. It means having a disposition toward behaving intelligently when confronted with problems, the answers to which are not immediately known: dichotomies, dilemmas, enigmas and uncertainties…" This was put well by Jean Piaget who said of students who succeed they *"know what to do when they don't know what to do."*

The 16 Habits of Mind identified by Costa and Kallick 2000 include:

- Thinking and communicating with clarity and precision
- Persisting
- Managing impulsivity
- Gathering data through all senses
- Listening with understanding and empathy
- Creating, imagining, innovating
- Thinking flexibly
- Responding with wonderment and awe
- Thinking about thinking (metacognition)
- Taking responsible risks

- Striving for accuracy
- Finding humour
- Questioning and posing problems
- Thinking interdependently
- Applying past knowledge to new situations
- Remaining open to continuous learning

These go hand in hand with the growth mindset and work well as a constant focus in the classroom because they open the door (and keep it open) to great mind habits; what to do when you don't know what to do. persistence, taking risks, not fearing failure. In teaching the habits of mind alongside developing that growth mindset, we set the foundation for accelerated and rich learning. If I was to begin again, I would make these two facets the starting point – it should start every academic year and continue throughout their school life. The focus of a positive mindset and developing strong mind habits, we set the scene for removing past barriers to learning and introduces great skills for life-long learning. Character education works alongside this - but more of this later.

3. SETTING INDIVIDUAL LEARNING GOALS WITH STUDENTS: involving the student and the parents in the learning and making the learning clear

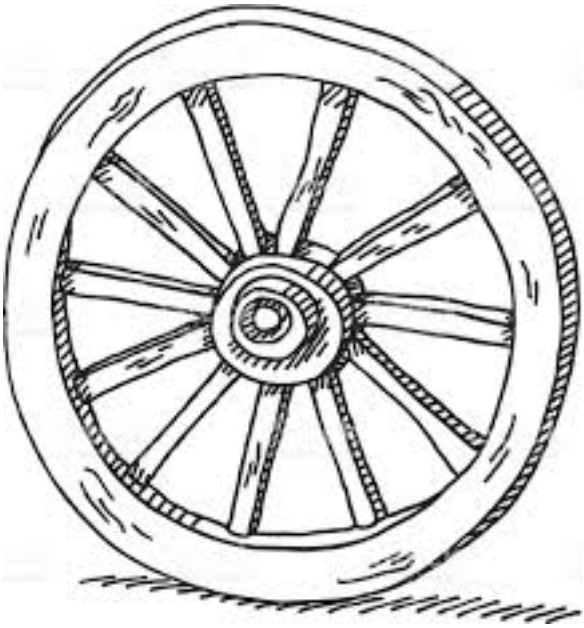
After establishing that growth mindset and the healthy habits of mind, it seems somewhat formal to talk about e-asTTle and PAT assessments but they are a great way of acknowledging our intermediate-aged students and their love of competition and when it is with themselves, it is healthy and it is fun. But at TAI, e-asTTle is used as part of the diagnostic tool rather than just an end piece of data. The huge difference between current learning practice and the kind of learning from decades ago, is that we can no longer allow all students to learn the same things over and over again whether or not they needed to. Just like a doctor of medicine, we need to diagnose the situation before embarking on the cure. There wouldn't be a teacher alive today who doesn't remember sitting in classes listening to the same teaching we mastered last year.

To Suzy Pepper Rollins, educator and very experienced teacher, the true answer to supporting struggling students lies in acceleration. In *Learning in the Fast Lane*, she outlines eight aspects of learning that promote acceleration. Many of these are very familiar when planning a curriculum to promote acceleration. Her thoughts will be very familiar to schools who have embraced *Assessment for Learning* and e-asTTle.

- Make standards and learning goals explicit to students.
- Increase students' vocabulary--a key to their academic success.
- Build students' motivation and self-efficacy so that they become active, optimistic participants in class.
- Provide rich, timely feedback that enables students to improve when it counts.
- Address skill and knowledge gaps within the context of new learning.

The T.A.I. (Te Atatu Intermediate) story, 2004 – now The Assessment for Learning programme started our school on a goal setting race based on using e-asTTle as a diagnostic and teaching tool, as a formative assessment tool not just for data gathering and it was as though someone had switched a light on. Students could see where they were in relation to the rest of NZ students of like age and the best part was going through the areas in which they did well and the ones that needed work on by using their individual pathways – and so could their parents. There does need though, to be time spent in class, moderating the sometimes complex, vocabulary and translating it into "kid-speak." This is valuable though because it adds time for teachers to explain the concepts that need work and to put that kid-speak into the child's portfolio as the term's goals. Today we couple it with every child's *Maths*

Buddy subscription (paid for by the Board of Trustees) so parents and students can work on their goals at home. Teachers assign the work and can through the on-line programme, check to see the progress.
Using e-asTTle in reading, writing and maths enabled the school – yes even in 2004 when we started – to begin setting school-wide goals for ourselves. (National Standards were not a challenge for us because we were already setting e-asTTle goals and school-wide targets even then, aiming to lift most students at mid to upper level 4 to be ready for college. These goals were then reported to the Board who then understood what the problem was when a big number of our year 7s were coming to us in level 2 and low level 3s.



On an individual level, students chose a pattern – a wagon wheel for example – and they recorded specific goals that they would work on through the term, most from their e-asTTle individual learning pathway. These were put into their portfolios and the learning goals went home and were talked and reported on to their parents. As they were achieved, the student can colour them off and revisit them from time to time. We ran a live student-led conference with one of our Board members and her son to an enthralled crowd in the school library, to show parents how to respond and make the most of the student's talk about their learning. To this day our students write their script ensuring that parents know where their child is at and what the next learning steps are.

For teachers too, grouping effectively is directed effectively by using the group learning pathway. Teachers can see their class and the gaps and can target effectively. This excerpt came from the e-asTTle website: e-asttle@tki.org.nz

Teachers can use the group learning pathway from the e-asTTle data and can see the needs of the students in their class and can group from the information.

One of my teachers had up on his wall the learning groups he had for the tem with the goals across the top and the students' names underneath. He used the groups for targeted learning. One principal told me of a child who approached her teacher and asked for her help one day because she had an incomplete goal and the term was running out. It is wonderful when students are involved in their own learning and success.

I was thrilled one day when my five year old granddaughter came home from school one day with the story of her math's learning goal. When asked what her goal was,

she enthusiastically told us she was learning ‘what comes before and what comes after.” Great for her parents (and grandparents) who supported the learning by driving everyone mad by asking her what came before in all sorts of contexts. Even at five the learning can be set in steps and it is very satisfying to gain that step – even if as young as that. Her mother told me that all the students in the room had their math’s goals on the wall.

On a school level as the principal, I was able to send our year’s data along to Evaluation Associates and for a number of years they would calculate for us our effect size. How effective the teaching was in that year. This was mind blowing – we could see how well the students had shifted over the year and the results reported to parents. One year in error I sent the data off in classes and they arrived back per class as well as school wide. That was interesting for each teacher and sent them off to discover what they were doing that worked and what was not working and why - the early version of teaching through inquiry and evidenced-based teaching and learning. Good for me as a principal too and the curriculum leaders, because we could see where profession development was needed and could discuss it during appraisals when results were discussed, but I must say a little nerve wracking for each teacher.

Today, we use e-asTTle as one of the several indicators of achieving the standard for their year but it remains a fantastic formative tool across the year. From the website:

- *It gives teachers a realistic picture of how well each student, class, or school is doing compared to the national average and the curriculum requirements (including curriculum levels). It allows comparisons to other groups such as gender, ethnicity, English as a second language, or "schools like mine".*
- *e-asTTle provides rich interpretations and specific feedback that relate to student performance (rather than simply providing a score). It identifies areas of student weakness and strength that may otherwise go unnoticed.*
- *e-asTTle presents the results in visual ways making it easier for teachers to discuss performance and the steps they're taking with students, parents, and boards of trustees.*
- *e-asTTle supports teachers by giving them direction and access to extensive and relevant Internet resources (“What Next” on the Assessment Online website) for raising student achievement more efficiently.*

The school data has improved year on year as we all experiment and get better, not just on using the tools we have to assign the appropriate leaning goals, but how to interpret the data and find the school-wide needs. The entry tests we do for our enrolled students in year 6 from Canterbury University are also invaluable in letting us know what the incoming cohort needs are for the next year.
From our school documents the Education Review Office quoted; *the students know their levels and what they need to do next in order to progress in reading, writing and mathematics. The learning levels and next steps are visible in the classrooms. Individual achievement is celebrated in assemblies and with whanau.*

3. THE NEW TECHNOLOGIES – Or Looking for new ways

There is no doubt that the stats coming from National Standards show slow progress and most schools find that their own statistics increases are also slow. We need acceleration but in the seeking of it, we need to look for new ways. The students we have in our classes today are very different from classes of even the late nineties.

There are some fascinating and exciting new research and ideas coming to the classroom and it can become a smorgasbord of ideas and strategies. Examples of these innovations are for example the "flipped" classrooms (I would love to try this) or MOOCS" (Massive open On Line Courses) all the Neuroscience tools like Arrowsmith programme, Cogmed, Feuerstien, Fastforward, Lexia, and other digital technology. It is easy to spend huge amounts of money on these programmes and yet not know if they really produce results or even contribute to accelerated learning. We can feel really good as teachers using these new tools, but we have to know if they really work.

WHAT ABOUT APPS AND DIGITAL TECHNOLOGY? AND OTHER THINKING!

This swamp of ideas which can bewilder and confuse and make navigating the accelerated learning road troublesome. When it seems hard and confusing, the search for acceleration slows or stops as we put new ideas in the 'too hard' basket. We want to be 21st Century thinkers but get absolutely swamped with possibilities. For the younger of us this seems exciting. I watch the difference between my son and me when we get new phones for example. He is wild with excitement and I sigh and know I am now in the learning pit – he loves it and I hate it. And yet as the lead learner I have to lead the school, in this digital revolution. Finding good people is the answer when our own skills are lacking.

Katelyn Donnelly and Michael Fullan, the authors of *Alive in the Swamp* (2013) and *A Rich Seam: How Deep pedagogies Find Deep* Learning (2014) recognized this and asked one very simple question – 'what does good look like?' This could be our simple question at the Board of Trustees/ Principal level: what should we or could we try, how much will it cost, what benefit will there be. Fullan and Donnelly then help us with finding the answer the question by providing an index, a way of assessing any digital innovation in learning. They provide an evaluation and a simple key to assess the value of each. An example they use is that educational technologies must be *delightful to use and easy* to implement and that they must be successful in achieving increased outcomes for the students. Schools who are looking for more than the simple goal setting, developing positive minds, intensive group teaching such as ALIM and ALL promote find themselves in that a swamp in trying to evaluate what to try. The National Report Summary produced by the NZ Education Review Office in May 2013, says that in their reviews of schools, only 23% of action schools take are "highly effective practice that students need, to catch up with their peers." That is depressing.

Fullan argues in *Statosphere* (2012) that if pedagogy were the foundation, then technology could be the enabler and a tool to create deep learning and he goes on to say that if this were the strategy it would be powerful but that it would have to be done in a way that meets the policies of the time and the needs of the public. It is a relief to read this acknowledgment that we have masters and that we have to meet the demands of both our school community and our educational 'masters."

In his book Fullan gives three forces that lead to high learning in the 'stratosphere.' These forces he lists as effective pedagogy, change knowledge and technology as a learning accelerator. Fullen and Langworthy they define the new pedagogies as:

New Learning partnerships- students and teachers in new learning partnerships. Creating these new learning partnerships means teachers must be innovative in connecting learning to our student's real lives and aspirations and it is this partnership that makes the new pedagogies so appealing for students. Learning becomes relational and exciting. In the gifted and talented class at Te Atatu Intermediate, a group of students became very involved in adding solar panels to our

school roof. They had to research. The question to answer was “Will solar panels be an economically sensible option for TAI?

They interviewed the experts, they compared the power accounts of the principal to the pre-solar ones she had received and they had to cost it and make a business model from their interaction with the solar companies and the school’s power company ready for their presentation to the Board of Trustees - who had also become enthralled. It was demanding maths, it was new science, but it was practical, and relevant and exciting! When students excel like this, Dweck encourages teachers not to praise the student’s intelligence, but rather for their effort and strategies. We had to remember that too.

Deep Learning tasks- students becoming leaders of their own learning with clear learning goals, and ones that include the student’s interests and the needs of the curriculum. Using the *Assessment for Learning* principles of clear success criteria, rich feedback and formative assessment practices. (*Unlocking Formative Assessment: Practical Strategies for Enhancing Students’ Learning in the Primary and Intermediate Classroom (Clarke, Timperly and Hattie*) These are very familiar to New Zealand teachers –very practical and they work! In addition, learning should relate to the child’s current knowledge but finding new knowledge not just regurgitating other’s work. None of these concepts are new and are found in most effective NZ classrooms, but it is also true that we can still find copying and pasting which is low level learning. Today this copying and pasting can still happen even with the use of digital tools – in fact it is easier. In the example above, those students had to calculate power usage, learn very complex maths, engage finance principles ….. They could not just copy and paste because they were handling one off data and contexts. They were totally engaged and carry this new knowledge with them to college.

Under Key Future Skills, Fullen lists some key future skills that should be embedded into deep learning tasks:

- character education
- citizenship
- communication
- critical thinking
- collaboration
- creativity and imagination

Character education is not an approach frequently mentioned in pedagogical discussion around accelerated learning, but when students – and teachers – reflect on their values and ethics, their society and the part they want to play in it, you can see the necessity for making well thought out personal choices in life and in our society. The Foundation for Character Education NZ lists the necessity for our students to reflect on character, because *character questions are among the great questions of life and that character is communicated through relationships.* The ability to evaluate our own behaviour, values and ethics, involves so many futurist skills highly sought after: critical thinking, problem solving, collaboration, creativity, communication and citizenship. The foundation acknowledges that *character is a team effort involving the home, the school – trustees, principal, teachers, support staff students – and the community.* It is easy too, to see the link for example to persistence and listening empathetically for example in the Habits of Mind as part of positive character values. Developing character values for life also demands a good deal of problem solving and assessment.

Digital tools and resources

In Fullan’s *A Rich Seam*, he says that research findings (he uses John Hattie’s

research) seem to indicate that technology based interventions tend to produce lower levels of improvement when compared with other approaches and he lists approaches such as peer tutoring or any other intervention where there is immediate feedback for the student. Fullan goes on to point out that it is not so much the type or range of the technology, but rather how it is used and how well it is aligned to teaching and learning – so the "how and not the what." So it follows that the technology should follow and support the goal setting and not be an end on its own. In "Navigating the Swamp" his five recommendations as to technology are to:

- use the evaluation index he has developed and outlines in his book, to help you. This evaluation tool is to help teachers evaluate the efficacy of a tool and help to answer the questions around assisting new learning and will support the curriculum. It helps to measure efficacy. (I must say that I found the evaluation tool very complex.)
- keep good pedagogy in the driver's seat, develop capacity with respect to system support – leadership, assessment and the use of evidence on student learning.
- Focus on scale and embeddedness, don't get awed by "shiny new apps and gadgets, but spend time and money on the innovations that will really transform.
- And lastly be open to surprises. This whole technology field is disruptive and unsettling with new exciting and bewildering ideas exploding daily, so allow for trial and failure.

In selecting technology, it should enable the student to access and discover not just local but global views and it must put the student in control of the learning. Fullan urges teachers **not** to begin with the technology, but to start with the pedagogy of good teaching and learning and then see how the technology can support that learning. It is possible to be so enthused about the technology, the new apps and sites, that the technology becomes the learning and the outcome is not gained. However, that same technology can connect the student to the world in a way that generations past could not and it should allow the students into exciting, deep and highly relevant new knowledge. This new knowledge can then be translated across the student's world. They can do things and they should use the technology that is available to them. Schools must provide that technology because it translates into a knowledge of the world, that needs changing and what their place in the world is. They can relate it to work and justice and citizenship. People often jibe teachers and tell them they do not live in the real world, but … school **is** the real world and the students through the use of technology can be translated to anywhere in the world that fascinates them (as can teachers.)

The important part for educators and board of trustees is that they have to closely evaluate what technology is best, what produces innovation and creativity. This is why Donnelly and Fullen have created the evaluation index in *Alive in the Swamp*; to take us back to evaluating whether or not the tools we are using are leading to the rich learning, to creativity and imagination and to the deep learning tasks that lead to accelerated learning.

Donnelly and Fullan warn us to be prepared for surprises and their five recommendations are helpful.

4. THE PART NEUROSCIENCE PLAYS

The commercial component of neuroscience programmes is massive – worth, Auckland University's *The Brainchanger* says, $80 billion dollars annually and is unchallenged in claims and completely unregulated. So rather like the *Alive in the Swamp* with the intricacies of technology, the area of what neuroscience

programmes can do for a student can be just as confusing and very expensive. Rigorous, informative research is needed to find what works. We all hunger to find almost magical new tools that will help our learners, especially those of our students with learning needs but we must also be responsible in ensuring that – just like technology – we don't fall for the inadequately researched and minimally effective. So what information is out there for parents with children who have learning difficulties and schools wanting to do more for their students. In the search for such information here is some easily found information to start the search.

Thanks to www.learnfastforschools.co..au a simple overview of neuroscience educational programmes available to NZ schools is evaluated. Thy looked at each one and produced a simple chart listing each one under the following components;

Main focus
Program duration
Program load per day
Student delivery medium
Teacher student
Teacher training
Training Cost
On-going support and training

This is good on a very basic level but gives no indication of whether it works or not.

1. A recent article on the learning & teaching site, ascd.org, five ingredients essential for quality neuroscience based programmes have been suggested:

Both high & low level tasks are included
High level tasks require a high degree of speed and accuracy. Low level tasks work on the ability to perceive similar sounds or images.

Exercises must continuously adapt to the student's ability
So the degree of challenge is just right, not too hard that it discourages the student, and not so easy that they become bored.
Highly intensive training
This means the student is required to do hundreds or thousands of repetitions on a daily (or multiple times per week) basis.
Attention grabbing
The exercises must grab and hold the student's attention
Timely rewards
Feedback (was the student correct or not) and rewards must be provided immediately the training task is completed, not at the end of a block of trials or the end of the training session.

While this basic information is useful too, there is no evaluation of how much research was done for each cognitive programme or how effective it is. Auckland University's Centre for Brain Research (CBR) in the light of a lack of data for parents and schools have robustly researched and evaluated the programmes commercially available in NZ today. These can be accessed at *www.cogaudits.org.* In the audit, the programmes were assessed under the following headings:

- What claims does the company make / what does the programme target?
- Evidence for efficacy
- Evidence against efficacy
- What it involves
- Price

The websites addresses are included in the easy to read sections and of course the references used to answer the questions. Because it has been written for parents and teachers who would be unlikely to be able to access the original scientific articles

because of a lack of knowledge to deconstruct the difficult texts, the audit material is clear and easy to understand. Schools and parents should always – just like the use of technologies – do the background work to ensure what they are spending their money and time on, is well researched, peer moderated and tested. In the quest I guess for magic bullets to fast learning, it is easy to be seduced by educationally fascinating new programmes.
In this audit you will find the cognitive programmes that are available in New Zealand. An excellent overview can be found on that site also.

Arrowsmith
Brain Gym
BrightStar Learning
Buzan Mind Mapping
Cellfield
Cogmed
Danks Dyslexia
Davis Dyslexia
Dore
FastForWord
Feuerstein
Incredible Years
Interactive Metronome
Lexia Reading
Lindamood-Bell
Luminosity
Orton-Gillingham
Reading Plus
Reading Recovery
Slingerland
Steps
Swingle Clinic
Tomatis

All parents, teachers and schools want their children to achieve to the best of their ability, and for some there is only a limited time for catch-up to happen. We need tools in teacher's hands that will assist in bringing our children to their very best and in some cases this may need extra tools to make it happen. What we don't need in cognitive programmes, as in new technologies, is money and time wasted in using tools that have not been thoroughly researched, tested and tried. What Auckland University has done is to give us a great starting point. At Te Atatu Intermediate, we had already trained a teacher in the Feuerstein (FIE) method and so it was with bated breath that we read the audit of all neurological education programmes. It was one of the few that came in with a positive review, having a large body of research behind it and the essential peer review supporting the intervention. It was found to effective, particularly for culturally disadvantaged or slow achieving adolescents. We will continue to use it but to continually assess its efficacy for our students.

In conclusion
It is in the quest then to find effective arrows toad to the educational bow, to accelerate learning and try to catch up target students, that we need to keep an open mind to all possibilities. We must also retain our critical eye. This means that in the areas in which teachers and principals are not completely trained – the new technologies - the difficult but exciting new areas of cognitive programming for example, we must take care to add the new technologies whether they be digital or neurological, wisely and not without our own research inquiry. After due inquiry and review many of these programmes can be of real value and we must keep an open mind to incorporating them.

So then, what is most needed is a close evaluation of what works, retain strategies we have gleaned and trialed from programmes like Assessment for Learning, e-asTTle, ALIM and ALL because we know they have aspects that really work. Sometimes in the excitement we throw out the old tried and true but only when we have really done our research, checked the accuracy of the promises, **then** we add in the well-researched technologies. We need to have the strength to not only try new things but to be cautious about jumping in too soon, the school budget at the ready, at every new App or programme until we know they work. Neither should we throw the baby out with the bath water.

At TAI we have brushed up our Assessment for Learning skills, we will be revisiting our Habits of Mind routines and further developing the Key Competencies because we know their value. We are addressing the *Positive Physchology* of Graham Watts webinars and Carol Dewcks Mindset both for staff and students to reduce the anxiety and stress that modern living seem to produce even in our students – and staff!. This will be the foundation along with our character education programme, for resetting students to recognizing failure not as a negative thing, but as a step to success and strong learning; to develop resilience, strength of character, perseverance etc in life and learning.

On this foundation, we will tackle digital fluencies and where possible and with due care, neurological programmes to drive us into our learning future. After all, we have moved on from 20th Century learning and must embrace 21st Century skills and with wisdom and care, move our students to reaching their potential and where needed through accelerated learning.

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