Creativity in the New Zealand Primary School Curriculum

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Prologue

The purpose of this article is to inquire into "creativity" in the New Zealand Primary School Curriculum:

- Are we nurturing creativity with our current best practice models?
- Is creativity the key to **gifted and talented** education?
- Is creativity the key to solving the long tail – children with **learning difficulties** and **special needs**?
- What can we do to ensure our pedagogy and practice embrace self-expression, self-knowledge and ensure the lifelong learners we are trying to develop, are indeed "creative"?
- What attitudes and values must we embrace or change to ensure we end up with great citizens?
- What opportunities exist within the New Zealand Curriculum which has a **vision** of growing New Zealanders who are: confident, connected, participants, contributors and lifelong learners - all within a **values** based environment?

Introduction

As a Principal and teacher with over twenty five years of experience, I have enjoyed the opportunity to reflect on the journey both my staff and I have been on for the last ten plus years. Many of the conclusions I have reached are a result of much soul searching to find the best way to improve learner's ability to become truly independent of the education system and its teachers, for the next steps of their learning. The pupil's and staff's varying levels of creativity have always fascinated me as an observer, teacher and leader of change. Thus I have come to ponder often on the above questions, often finding more questions to consider than real answers. I certainly have found that parts of the answers to my inquiries have been well researched and documented, where others have not. I have indeed experienced several 'Eureka" – "Aha" moments during my exploration in writing this report.

A limited, literature and internet review of the topic "Creativity in Schools" has been undertaken. Limited to documents written within the last decade. First defining "What creativity is?" and then "What it looks like in the classroom?" The tensions and dilemmas associated with this valued, yet illusive human trait are now better defined in my mind. At the conclusion of this report I have reflected fully on how best strategically to nurture creativity at Paengaroa School.

A strong focus on Paengaroa School staffs' current understandings and teacher philosophies on creativity have been explored. This has occurred by photographing current learning environments and pupil products, then exploring the teacher's deliberate acts of teaching and the underlying aims and objectives (intentions) behind the end products. This has enabled me to delve into and behind the digital image, with the teachers and children who created them.

The teachers are using a "Learning Intentions –Success Criteria" model of learning and teaching, across all local primary schools visited. I attempt to answer the question "What effect is this having on creativity?"

The use teachers are making of the thinking aspect of the new curriculum has also been explored: De Bono, Habits of Mind, Thinking keys, Blooms Taxonomy, Scaffolding, Information Technology and Information Literacy have been considered against fostering and growing the learners capacity to think creatively.

During many visits to local schools I have observed and talked to staff about creativity and guided staff to reflect on their journey. I have spoken informally to as many teachers as possible. While on a six week overseas holiday, I visited schools aiming to gather wisdom and cultural knowledge around 'creativity'. Visits were made to a school in Hong Kong and Israel, and this was a real challenge due to language barriers and timing. Making sense of this has been an exercise in 'Creativity." This has proved interesting in that the whole body of information around teaching "Thinking skills" transfers across all cultures and all languages and seems to be at the corner stone of all the research about fostering creativity in learners. (Dr Robert Swartz)

Confining my observations and generalisations to Paengaroa School and some local schools in the Te Puke area has been helpful as this is a huge topic. At the beginning I worked with Paengaroa School staff and pupils to determine whether we were in fact a staff who valued and nurtured creativity. What did we believe creativity to be and what conditions were we trying to create to foster higher levels of creativity amongst all our pupils? This has resulted in a clearer set of priorities for ensuring creativity and thinking creatively and critically continues to be pursued by staff. The report concludes with some statements about what is really important for Paengaroa School learners, both pupils and staff.

Defining Creativity and what the Literature States

The Children's Health Encyclopaedia defines creativity as "The ability to think up and design new inventions, produce works of art, solve problems in new ways, or develop an idea based on an original, novel, or unconventional approach."

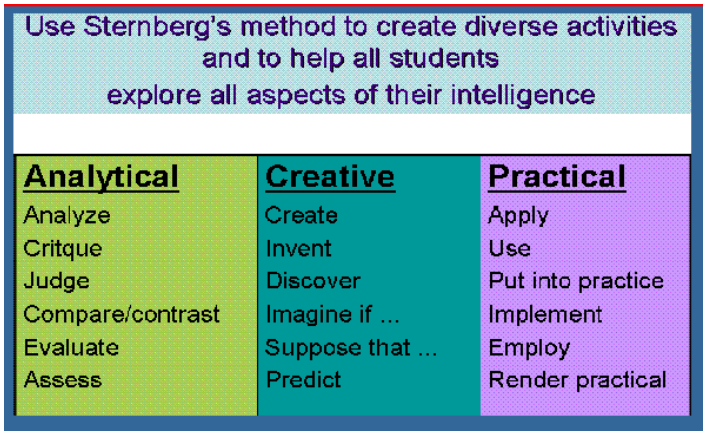
The Encyclopedia Britannica defines creativity as the "Ability to produce something new through imaginative skill, whether a new solution to a problem, a new method or device, or a new artistic object or form. The term generally refers to a richness of ideas and originality of thinking."

Sherry Minnard Rappaport, MSc, CIO (Chief Innovation Officer) uses Amabile, 1988 to define creativity as "The ability to consistently produce different and valuable results. There are three basic components that contribute to your creativity level: skill in your domain, skills in creative thinking and intrinsic motivation. If any one of these components is low, the overall level of creativity will be low."

Robert Sternberg provides some wonderful insights into how parents and teachers can understand creativity in children. In his book "How to develop student Creativity" (1996

ASCD), Sternberg and Williams propose that creativity relies on a balance between three types of thinking, which can be learned and enhanced by teaching.

- Synthetic/Creative ability – divergent thinking, thinking or generating new, novel and interesting ideas. Including the ability to make spontaneous connections between ideas, or groups of things, ones that often go unnoticed, or discovered by others.
- Analytical Ability – convergence of thought, requiring critical thinking, analysing and appraising thoughts, ideas and possible solutions. This helps to sort and sift good ideas from not so good. This type of thinking allows one to consider implications and project possibilities, problems and outcomes.
- Practical Ability – The ability to use practical thinking, translating abstract theories into realistic applications. An example of this is the ability to sell or communicate ones ideas, works, or products to others as valuable, different, useful, innovative, unusual or worthy of consideration. Finding a potential audience for ones creative work.



To this list Charles Kettering adds the trait of being Persistent. It is through persistence that truly creative people manage to bring their ideas and dreams to fruition, often taking years or even eons before others can truly see the value of the creation. Whether it be a painting, a poem, a sculpture or a piece of music, often a life time of persistence has resulted in these works.

Anna Craft writes a superbly researched book on Creativity titled '*Creativity Across the Primary Curriculum: framing and developing practice'*. In this book she draws together research from Howard Gardeners Multiple Intelligences and Honey and Mumford's 'learning styles' to create a wider description of where creativity capacity comes from in individuals. She argues that we all have varying intelligences and dominant styles, giving all people the capacity to be creative. She also agrees that some individuals have a greater disposition towards creativity than others and that teachers can increase pupil's capacity to create by good teaching practices. She goes into a lot more detail than this, but it is important here to acknowledge her work as its influences seem to be permeating through both British and New Zealand Curriculum development.

Creativity in the New Zealand Curriculum Context

The NZ Curriculum draws its inspiration from Government Policy and from researchers, academics and observers with a keen interest in our nation's education and future. The foreword, written by Karen Sewell, Secretary for Education, contains the following;

"*The New Zealand Curriculum* is a clear statement of what we deem important in education. It takes as its starting point a vision of our young people as ***Lifelong learners*** who are ***confident*** and ***creative***, ***connected***, and ***actively involved***. It includes a clear set

of principles on which to base curriculum decision making. It sets out ***values*** that are to be encouraged, modeled, and explored. It defines ***five key competencies*** that are critical to sustained learning and effective ***participation*** in society and that underline the emphasis on ***lifelong learning.***"

The New Zealand Curriculum states succinctly what each learning area is about and how its learning is structured. The sets of achievement objectives have been carefully revised by teams of academics and teachers to ensure that they are current, relevant, and well-defined outcomes for students. A new learning area, learning languages, has been added to encourage students to participate more actively in New Zealand's diverse, multicultural society and in the global community."
The NZ Curriculum's purpose is set out on page 6, "the principal function is to set the direction for student learning and to provide guidance for schools as they design and review their curriculum."

As a document that brings together strands of work from all over New Zealand and abroad, it is exciting and empowering to school leaders, educators and their wider communities. I have heard it referred to as a "Training manual for the 21st century teacher and their communities." or as "A social engineering experiment!" One could argue that the NZ Curriculum document is in itself an example of 'creativity' in a NZ setting. School leaders are challenged to retrain their staff in 21st century pedagogy for little to no extra cost to the taxpayer. This is an ongoing challenge to me and others in my role.

The New Zealand Curriculum's main principles highlight the overall outcomes for education to include people who are able to learn, to be lifelong learners, confident and ***creative,*** and who are able to communicate and receive information. Students require a sense of being connected to a place, to other people, to time, as well as the internet. The Curriculum describes students who get involved and show a commitment to our planet, society, community and its well being, its problems and its challenges.

It sounds to me as if education is the key to solving all of societies' problems and challenges. Yet I would argue that it is in fact an amalgam of all of the above, with creativity at the heart of the solutions we seek to find. Creativity is critical because it is something we can all possess, nurture and improve at.

The NZ Curriculum sets out five "Key Competencies" with the heading ***Capabilities for living and lifelong learning.***" For the purposes of this paper let us just accept the wisdom of the writers in what they have chosen as the key competencies. They include: Thinking, using language, symbols and texts, managing self, relating to others, participating and contributing.

The document states that key competencies are "More complex than skills, the competencies draw also on knowledge, attitudes, and values in ways that lead to action. They are not separate or stand-alone. They are the key to learning in every learning area."

From Paengaroa Schools staff point of view we have been unpacking the Key Competencies for many years and have been privileged to have had our thinking - learning journeys influenced by such educators as Eric Frangenheim, Lane Clarke, Ian Jukes, Peter Sheahan (Generation Y), Michael Fullen, Professor Art Costa (Habits of Mind), Edward De Bono, Tony Ryan, Benjamin Bloom's Taxonomy revised by Lorin Anderson, Michael Pohl, Howard Gardener (Multiple Intelligences), Lev Semenovich Vygotsky (Scaffolding – working together to learn), Sir Ken Robinson, Jamie McKenzie, Joseph Renzulli (Gifted and Talented) and others like David Warlick.

Paengaroa School staff have achieved a culture of thinking, in which staff aim to challenge our pupils to think more critically, solve real, rich and relevant problems and work both in groups and individually to achieve better solutions. We are indeed ensuring that the requirements for creativity are in place.

The ongoing challenge has been to maximise the opportunities for higher order thinking, in effect creating more chances for creative responses. Adopting De Bonos 'Thinking Hats' and Tony Ryan's 'Thinkers Keys' along with Bloom's revised 'Taxonomy' (which have a strong emphasis on meta cognition, questioning and inquiry skills, supported by Vygotsky's scaffolding ideas) has enhanced the potential for creativity in all curriculum areas.

The Pedagogy and teaching practices of the staff is based on much of what the 21st century learner is expected to explore. Developing inquiring minds and a questioning / pondering nature is an outcome the staff strive for and certainly value highly. The pursuit of core values is a feature of all schools now, but Paengaroa has been doing this for more than a decade. The staff now understand what David Warlick was talking about when he shared the following with the staff at a recent conference.

"As little as we know about the future for which we are preparing our students, it is clear that it will be a place that is governed by information. Accessing, processing, building with, and communicating that information is how we will all make our livings. Being literate in this future will certainly involve the ability to read, write, and do basic math. However, the concept of literacy in the 21st century will be far richer and more comprehensive than the 3 Rs of the one room school house, a legacy that still strongly influences today's education environment." You only have to consider the current Minister of Educations current innovation called "National Standards" to realise that we are still being forced back into the 20th and 19th century with such thinking based on fear about an uncertain future.

The NZ Curriculum is guiding our staff and the staff of our local schools, down a positive path - a path that includes creative thinking and creativity in the arts. We are looking at inspiring different ways of seeing things and breaking the established patterns of thinking as well as encouraging freedom in self-expression and a change of attitude towards being different.

Making the learning rich, real and relevant while also encouraging an inquiring style is the essence of ensuring all learners, staff, pupils and parents are engaged in thought provoking conversations. Making connections, finding patterns and discrepancies is also important. In essence, going beyond the known and remembered into the realms of possibilities, and as such, building new understandings and being creative in the solutions.

Peter Sheahan is a leading authority on Generation 'Y'. He identifies an ongoing shift in demands and expectations from generation 'Y' as both customers and staff. Generation 'Y' (our current pupils / children and some young teachers) need to have authentic real relationships. He challenges all teachers and principals to build closer nurturing relationships – make connections. Stating that Generation Y wants "Fast..."Fast food, fast internet, fast sport, fast money, etc. To be "Connected..." cellular, broad band, technologies that shrink the world and make it possible to maintain friendships across the world. (Blogs, wikis, U tube, my space, Bilbo, Facebook, etc.) Learning and life to be "Stimulating..."capturing their imaginations, their creativeness, challenging them, giving them opportunities to shine.

This is exactly what 'Ka Hikitia' - the current initiatives for engaging Maori pupils -managing for success - is all about. It is about relationship building and respect for cultural differences. It's about all educators and learners stepping up to the challenge of ensuring we make the journey of learning a positive and rewarding one for all, especially Maori. "Maori learning and succeeding as Maori" - in a connected, stimulating and fast paced delivery. Ka pai Peter Sheahan or was it Peter Sharples?

The New Zealand Curriculum empowers teachers to pursue creativity with much rigor, especially when you read the first key competency definition about 'Thinking'.

"Thinking is about using creative, critical, and metacognitive processes to make sense of information, experiences, and ideas. These processes can be applied to purposes such as developing understanding, making decisions, shaping actions, or constructing knowledge. Intellectual curiosity is at the heart of this competency. Students who are competent thinkers

and problem-solvers actively seek, use, and create knowledge. They reflect on their own learning, draw on personal knowledge and intuitions, ask questions, and challenge the basis of assumptions and perceptions."

Phrases like "metacognitive processes" simply means having learners think about thinking, thinking about what they know and what they don't know and how to tell the difference. Making judgments and knowing the difference between facts and opinions is all part of the thinking competency. In terms of encouraging creativity, the thinking competency, combined with the other key competencies is certainly a formula for empowering creativity.

Developing Creativity in Schools

I have spoken to many teachers and all believe that the most satisfying results from creative exploits has been when they have set quite a strict design brief , with some levels of what the end creation must be able to perform like. 'Performance Specifications' is the description an architect or engineer would use. They have reported that this style of creative endeavor helps to focus the individual or group, while also allowing divergent and critical thinking.

An article by Riina Vuorikari in "*Teaching Expertise"*, April 2005, summarises six pre requisites for developing creativity in schools.

1. Create an environment in which pupils feel safe to take risks and get things wrong.
2. Develop a habit of always looking for the second right answer, and the third...
3. Encourage pupils to regularly re-visit and re-examine all the rules, and change them if appropriate.
4. Find the right balance between teaching skills and inspiring creative expression.
5. Learn to suspend judgment.
6. Allow the 'slow thinking, dreamy, playful mind' the time it needs to come up with new ideas.

Sir Ken Robinson is an avid believer in creativity being the way forward for the well being of all societies. He debates the observation as to why it is that at five years of age children seem to enter school as very creative and imaginative pupils and eleven years later leave with less creativity than when they arrived. His analysis shows that in western education we have a 'fast food model' of education. Processes and products are all standardised like at McDonalds.

He argues that we need a customized food model, one where the food can be personalized to the individual's current needs, tastes and desires. We need to change our metaphor from an industrial - linear education system to an organic one. One in which we set the conditions for growing to the maximum so that thought and talent and spirit can all prosper and grow well, just like a farmer does to make his crop as productive and profitable as possible.

Using Vuorikari's six pre-requisites for developing creativity in schools we find that younger children are more likely to take risks and have a go, not worrying about getting it wrong. They often look for solutions beyond the obvious because they have not had life's experiences or knock backs to make them think in a particular way. Younger learners are more willing to take a chance. Sir Ken Robinson would argue that we are educating the creativity out of our young learners. This process of having right answers versus incorrect answers leads learners to stop thinking divergently. To overcome this as educators, we must foster a more personalized set of growing conditions that allows pupil's individual talents to be fostered and grow, for their passions and interests to flourish and for their spirits to be lifted. Yet our system of education places our curriculum areas into a hierarchy of valued priorities versus less valued skills and knowledge. We find that writing, reading and mathematics are at the top of the hierarchy, while sciences are in the middle and the arts are at the bottom. Music and painting are also emphasized more than drama and dance. Yet some children are naturally talented dancers, others are great actresses, some are gifted musicians, while others are readers and writers.

I agree with Sir Ken Robinson that schools need to foster the whole child and help them to find and exploit their talents, passions and interests.

The New Zealand Education system seemed to be on a convergent path. Over the last eight to ten years the decisions being made by school leaders and the guidance of policy makers and visionaries, was pulling or pushing schools to a more personalized education system. Added to this has been the vast increase in accessibility to information and communication technologies.

Paengaroa School's pedagogy regarding treating the whole child and assisting all learners to become life long learners and thinkers, reflects the same type of journey many of New Zealand's Schools staff have come to embrace. Empowering and motivational ideas about teaching and learning have rekindled the inquisitive nature of our staff, their pupils and created a desire to question and ponder.

The Ministry of Education seem to have taken huge leaps forwards in creating fertile opportunities to grow learning communities, then taken the hope and dreams from under these, by slashing all funding in the Extending High Standards Across Schools and reducing the Information and Communications Professional Development Budgets considerably. The Minister of Education is using a model of blame and shame to legitimate policy that will not solve the real fear in all our minds about an uncertain future. A future that is yet to be created by our school pupils of today, but one that they have the ability to dream up and create. One that today's technologies will allow them to test and critique before it becomes reality.

More recently the NZ government has thrown another huge spanner in the works by trying to force schools back down an industrial, 'fast food' model of education, by introducing National Standards. One can only empathize with the teachers who have committed so much time, passion and energy in getting to know and understand the 21st century learner. Having set the conditions for growth in an organic way, the teachers are now being told to concrete over the fertile educational environment with an industrial set of policies that only aim to standardize the product. Teachers know that their pupils are capable of so much more than the standard, so long as the conditions for growth are not minimized while the teacher tries to turn a dancer or an actress into a mathematician or a writer.

Great teachers and wonderful parents all know the talents individual children have. The challenge is to help exploit these talents, exploit the creativity we all have within us.

At Paengaroa School we believe that for the majority of children we can simply have children's learning journeys run clear over the standard set by the ministry and not even need to stop to admire the accomplishment. To read, write and count is important, but to think and create is more important. To dance, sing, act, paint, sculpture, publish, and so on are often more satisfying real and relevant to the learner than simply complying to some external demand that has us all looking backwards into the industrial age, when we should be looking forward to the future. Our children will create a positive and satisfying future for themselves, despite our best efforts.

The vision, principles, values and key competencies in the New Zealand Curriculum document is empowering for our schools to create fertile organic learning environments, while aiming to capture the dreams and aspirations of the learners and their communities.

As educators we must find ways to maximize our learner's talents, capture their interests and passions, feed their spirits and grow great citizens. Through knowing what motivates our learners, what excites them and inspires them and by fostering the right attitudes and values, we can customize the learning. By personalizing the learners' education, created by their schools and community we can fulfill our hopes and dreams for their future.

As Sir Ken Robinson so eloquently shared at the American TED conference;

" .... they spread their dreams beneath our feet, as teachers we should tread more carefully."

Creativity in the Classroom

The staff of Paengaroa School and other local schools I have spoken with, all use a "Learning Intentions – Success Criteria" approach to their planning, teaching and inquiries. The aim is to take the mystery tour out of the learning opportunities and to increase the learner's metacognition by encouraging them to talk and reflect on knowing when they have achieved some new learning. Thus many staff were observed, having the children discuss and create what the successful outcome would look like. Some staff used a graded system where the pupils rate their growth under headings such as "beginner, journey man, proficient, expert". In order for pupils to become better learners they need opportunities to revisit their learning, to allow them to move from beginner to journey man, or proficient to expert.

According to Amy Tan an accomplished novelist, learners often find some or part of the answer and often never the whole answer without a lot more questioning and searching. It is the intention of the creative person that often helps in the final creation. Hence the need for a clear design brief, a focus on a set problem, once defined, solved and then solved again, looking for not just the first solution but the second and third. Thus encouraging multiple answers and critically analysing these to decide on the best solution or course of action. One key aspect of all that I have read about creativity is that creative people are 'questioners', they don't take things for granted. They query, question, ponder, looking for answers. +

Michael Absolum in "Clarity in the classroom" goes into great detail about the need to build good learner focussed relationships. He states that the ownership of the learning is with the child, not the parent or teacher. Thus the best person to talk about the learning is the learner. If a student has really learnt it, they should be able to describe, demonstrate or in some other way show evidence of that learning.

All of Paengaroa School Staff and many of the local school staff have had issued to them their own copy of "Clarity in the Classroom" as part of their Extending High Standards Across Schools contract work. The staff have all unpacked the ideas in this publication and have generally come to terms with the pedagogy of learner centred education and customising/personalising the learning. An excellent summary of what students should be doing in every class includes:

- Obviously learning, engaged in learning tasks – very little distracted time.
- Describe what they are learning, why it is important to them
- Describe how they will know when they have learnt it
- The learning should be challenging but within reach
- Know their progress and next steps
- Describe the process of their learning as a partnership between themselves and their teacher -with help from friends and family
- Find their class a vibrant and enjoyable place
- Happy to tell parents what they are learning and why
- Know their current achievement level and what their next goal should be based on

Absylum goes on to describe what teachers should be doing in class;

- Teachers should be making what is to be learnt and why, very clear to the children
- Ensure every child is challenged, at an appropriate level for them
- They should experience success and feel able to learn
- Talking with students about their work, assessing and giving feedback and feed forward, supporting and encouraging students to think deeply about their learning
- Manage the classroom so that students learn with a minimal waste of time
- Teachers should be talking with students all the time about what they are finding difficult and help them overcome this
- Describe the process of learning and teaching as a partnership between themselves, the students and their families
- Sharing information about progress and achievement with their students

These lists above show a close correlation to what I have observed at Paengaroa School and other local schools.

- The need to nurture children's sense of self through creativity and self expression is critical to all cultures and I find that it is a key principle behind growing great life-long learners at Paengaroa School.
- Paengaroa School through its pursuit of Information Technology, Extending High standards and other contacts are deeply into "Key Competencies" "Thinking - being connected, contributors and life-long learners."
- "Creativity in School" is a vehicle to explore all priorities currently being thrust at schools and to weigh these up against our own school's journey and priorities. This is what it is all about. Learning – leaving no kids behind, personalising their learning journeys, being culturally cognisant and TAKING ACTION for what we believe in. "Where learning has no boundaries " Our School Motto and where we want "Success for all."
- In our pursuit of growing the whole child we have also endeavoured to foster inquiry processes that capture the imagination and engage curiosity.
- Opportunity to participate in many sports, (not just the traditional netball, soccer and rugby) is a valued aspect of the school and a link between fitness, physical well being and switching on to learning is acknowledged.
- A very experienced staff at Paengaroa School. Seven years after starting a three year ICTPD contract, the focus was and continues to be on learning and thinking and how ICT could be used to enhance, engage and empower our pupils and staff and ultimately the wider community. The inquiries into thinking strategies and questioning skills development has highlighted ways in which some staff have encouraged creativity.
- Paengaroa School has a solid history of encouraging creativity in the visual arts such as ceramics, painting and drawing and in the performing arts such as drama, dance, music and speeches. We have made deliberate decisions to resource these areas better. The school has excellent physical and personnel resources for fostering the arts that are often taught less well in neighbouring schools. Drama, dance, ceramics and singing are targeted by the staff and are used as a vehicle for growing key competencies such as thinking.

By growing the pupil's talents and by fostering growth in areas that pupils are less able in, often through knowing their learning styles and improving their less dominant styles, we are able to increase a pupils capacity to learn, and in doing so, their capacity to create.

Can we think / create without learning?
Can we learn / create without thinking?

The answer put simply is "NO!"

Nurturing Creativity

What about “Habits of Mind”, creativity and the learner? Can we teach people to be more creative? Yes we can! Just as we can teach thinking skills we can teach people to be more creative. Art Costas ‘Habits of Mind’ has many similarities to the six pre requisites for developing creativity in the classroom mentioned earlier. I would argue that this is part of the convergence of thoughts leading educators to some kind of “Aha” or “Eureka” moment.

Art Costa’s “habits of mind” has expanded from an initial seven to sixteen.

The 16 Habits of Mind are:

1. Persisting – Do stick to it.
2. Communicating with clarity and precision – Be clear.
3. Managing impulsivity – Take your time.
4. Gathering data through all senses – Use your natural pathways.
5. Listening with understanding and empathy – Understand others.
6. Creating, imagining, innovating – Try a different way.
7. Thinking flexibly – Look at it another way.
8. Responding with wonderment and awe – have fun figuring it out.
9. Thinking about your thinking (metacognition) – Know your knowing.
10. Taking responsible risks – Venture out.
11. Striving for accuracy and precision – Find the best possible solution.
12. Finding humour – Laugh a little.
13. Questioning and problem posing – How do you know.
14. Thinking interdependently – Learning with others.
15. Applying past knowledge to new situations – Use what you learn.
16. Remaining open to continuous learning – Learn from experiences

Yet there is a definite discrepancy between many of our current practices and encouraging creativity.

Schooling in its essence is anti-creative. In fact schooling and creativity are contradictions. A quick comparison of the values that prevail at school and the essential values and prerequisites of creativity, highlight their contradictory characteristics.

At present the situation in most schools is that lip service is paid to the idea that mistakes are okay, that individuality is valued and that new ideas are always welcome. In fact mistakes are punished, conformity is rewarded and what we really expect is regurgitation of information. Almost unknown within the system are lateral thinking, safety to take risks and make mistakes, playing with ideas, appreciating the value of the 'slow mind' (associated with creativity and wisdom) and breaking the established patterns of thinking.

The table below highlights the anti-creative nature of our schools. Being aware of these realities should assist us in encouraging creativity.

Creativity involves valuing	**Valued traits currently dominant in schools**
Many possible answers	One correct answer
Essence of creativity	Essence of schooling
Safety to take risks and get it wrong	Unsafe to take risks (ridicule, punishment, sarcasm)
Mistakes are crucial feedback	Mistakes are punished (lower grades)
Rules may need to be broken	Following rules is rewarded
Suspended judgement	Constant judgement

New ideas count	Perfected skills count
Ambiguity is welcome	Clarity and order are expected
Playfulness and freedom	Seriousness and organisation
Lateral thinking	Logical thinking
'Slow mind' at work	'Fast brain' at work
Relaxed environment (time available)	Stressful environment (correctness required in limited time)
Individuality truly valued	Conformity and team effort valued

(Found in http://www.teachingexpertise.com/articles/creativity-school-714)

Peter Sheehan proposed that the digital children we have in our schools are wanting "fast" yet this in itself is at odds with encouraging learners to ponder, think, imagine and question. Often non-linear and non-logical reasoning results in new and exciting thoughts and ideas. As educators we need to make ourselves aware of these tensions and dilemmas so we can ensure our learner's potential to create is not lost or squashed out in the rushed fast pace of the 21st century hurry to comply and conform to an outcomes based society.

What about our learners intelligence? Their I.Q.?

The research states that creativity does not noticeably increase when the learners I.Q exceeds 120 points. Thus I.Q. is not a reliable indicator of potential creativity. What it means is that everyone has the ability to create and can be taught to be more creative. There will be some pupils who are talented in thinking creatively, some in problem solving of Mathematics, others in generating viable solutions to problems and still others who are artistically blessed in music, drama, dance or drawing and painting, athletics, ball handling or swimming.

Increasing the capacity to create by our pupils is crucial to our futures as Steve Dahlberg states;

> *"Creativity is a habit of mind that allows us to see and think in new ways; to make new connections between seemingly unrelated things. The applied creative thinking process can help people identify challenges and problems, come up with new ideas and solutions, and produce creative ways of implementing those solutions. These are among the most important skills for competing in the global "new economy" and for solving social challenges. Yet, nearly everyone in education, business and government agrees in poll after poll that there are not enough people learning these skills in school and possessing these skills in the workplace.*
>
> *The imagination is not merely the domain of arts classrooms and artists. It is a fundamental human urge that taps into our capacity to create and our desire to express ourselves. It's time to move the dialogue about arts education to one about creative education and look for new ways of using ALL students' imagination and creative thinking to engage them in what's most meaningful to them in ALL classrooms."*

Steve Dahlberg is Director of the International Centre for Creativity and Imagination and has a wealth of experience in creativity in education.

Dr. Robert Swartz director of The National Center for Teaching Thinking, Boston, USA, advances the concept of "Skilful Thinking" as a combination of thinking skills, habits of mind, and our ability to direct our own thinking. I firmly believe that this is what we should be teaching students and he shows us how in his book "Infusing the Teaching of Critical and Creative Thinking into Content Instruction" by Robert J. Swartz and Sandra Parks. He has worked to infuse critical and creative thinking into many schools curriculum including some in New Zealand - Birkdale Intermediate School in Auckland is one.

Swartz is a prolific writer/author, being particularly passionate about creativity and thinking he states; “true creativity involves putting together things that are familiar to create new things that serve human purposes well”

Dr Swartz has assisted a number of New Zealand Schools interested in infusing thinking skills into content instruction. From this work a new group has grown to 250 members strong in New Zealand called "Teachers of Thinking Collaborative" It produces a regular newsletter ("The Skilful Thinker"). Skilful thinking is an approach I believe is worthy of introducing into our local Te Puke Schools as it encourages pupils to think more deeply and gives them and their teachers tools to do so. Another innovation introduced by Swartz is the “Ladder of Meta Cognition” which scaffolds a way for pupils to think more deeply about their own processes and thinking / learning.

What is skilful thinking? The main types are listed in Appendices at the rear of this paper. They were adapted from Dr Swartz work. Swartz writes in “The Skilful Thinker” Issue 6 April 2009.

“Developing thinking in your class or school need not be a complicated task. Compare and contrast, prediction, parts whole relationships, determining the reliability of sources, creating metaphors, decision making, problem solving etc. are not tools for thinking they are the way we think. We all use these types of thinking in our daily lives, some do it skilfully, some of us don’t. It’s that simple”

.

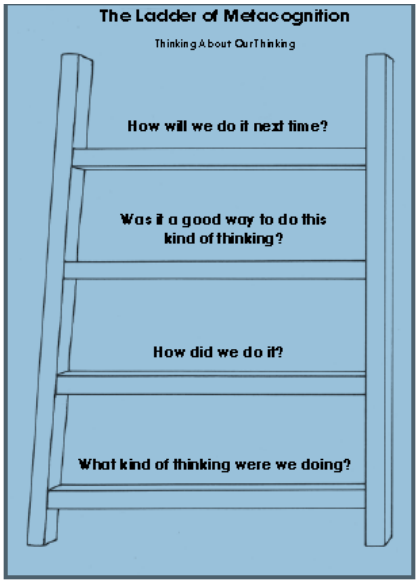
By defining how these ways of thinking can be done skilfully we can explicitly teach our children to do these better. Take compare and contrast thinking, with which we are all familiar. Usually in school classrooms this is treated as a matter of having students list some similarities and differences between two or more things. But this often results in some pretty superficial thinking. Looking at a ‘thinking map’ for skilful compare and contrast we can see that as it maps our way through our thinking we move into a much deeper and more powerful form of compare and contrast.”

Thinking Map

1. How are they similar?
2. How are they different?
3. What similarities and differences seem significant?
4. What conclusions can you draw based on the significant similarities and differences?

Once a class has defined a way of thinking skilfully, they need to have plenty of opportunity to practise this skilful thinking. A good way of doing this is to infuse the thinking into the content already being taught. Or in more ambitious integrated curricular units you can have students engage in inquiry around a real world problem by using types of skilful thinking like skilful comparing and contrasting. This authenticates the skilful thinking by giving it an immediacy and relevance as it assists in the development of new insights and understandings needed to solve these problems. To enhance this learning process you can then ask students to think about the thinking that they are doing. We can guide them by asking:

1. What kind of thinking are we doing?
2. How did we do it?
3. Was it a good way to do this kind of thinking?
4. How will we do it next time?



This will help them to start to guide themselves in the skilful thinking you are teaching them. These guiding questions are in the form of a ladder (Graphic Organiser) to help pupils with the process.

Why do we need to incorporate creativity into our educational system?

Creativity is one of the three key requirements in today's world, which is changing at an unprecedented speed. The amount of information we can pass on to pupils in the time they are at school is very limited. On the other hand, access to all kinds of information has become incredibly easy. So it's not what we teach that matters so much as making sure pupils know how to learn. Businesses all over the world have repeatedly expressed what they expect from their work force. The new 'survival requirements' are:

- confidence that we know how to learn;
- being able to deal positively with change (practically and emotionally);
- flexibility and creativity in the ways we think.

The business community , world-wide seems to be screaming for employees who have great thinking skills, for thinkers who can create new solutions to problems, we haven't encountered yet, seems to be anticipated as highly valued by future and present day employers, that is new responses to current stimuli.

Often as adults our thinking is constrained by the mental models we already have in our minds, where as children are less constrained and thus capable of so much more than we give them credit for. The challenge for all our teachers is to foster capacity to think divergently, to question, ponder and persist in questioning and searching for answers and then to keep searching for the second and third possible answer (suspending judgement), then analysing to decide on the best answer or solution. Asking the questions, "So What? What if? What next?" What difference will this make to our lives, other lives, etc?"

The use of Drama, Poetry, Mime, Music, Dance, ceramics, sculpture and modelling as well as design briefs and challenges in the technology curriculum are all vehicles for encouraging creativity and ensuring we are growing great citizens, yet we need to keep working on our understandings about learners, motivation, creativity and thinking. I fear we as teachers are still being driven by 19th Century thinkers, trying to interpret the New Curriculum written for the 21st century learner.

The New Zealand curriculum allows schools to embraced creativity through the Key Competencies and through an Inquiry style of learning. Creativity involves problem solving, thinking, participating and contributing, and so on.

Paengaroa School Staff have been pursuing the visual arts through drama, ceramic work and music for many years. Strategically we have a fabulous opportunity in the NZ curriculum to further our journey in embracing 'creativity' and growing wonderful learners. The strategic review plan of all the schools resources, human and non human (buildings, books, etc) has been written and an implementation plan created by the staff to further our journey.
Creativity may well become a point of difference between our local school curriculums? It may become the one congruent element?

Children and adults who can act creatively, take measured risks and behave in ethical and moral ways to make society a better place, to make the world a better place for all living things would be a fabulous result of education.

<u>Does personality come into play?</u>
It would seem so when you consider a holistic approach to the development of a child, all that makes a person. Genetical material from conception, environment factors and the opportunities to experience the world and make connections and find inconsistencies, allow

questioning and seeking answers all add to the personalities we are teaching. ‘Habits of mind’ also feed into this development.
For some learners they prefer right or wrong, black or white. For these learners, shades of grey, rule bending and alternate view points are simply a ‘confusion’, they muddy the waters, create instability.
All this reading and thinking leaves me with a series of ponderings: surely it is the breaking of patterns, rules and perspectives that creates new ideas, the difference triggers a need to consider alternatives. The juxtaposition.
The problem creates the solution, if it is clear and the design brief tight.
Otherwise the problem simply creates more problems – personality?
What about I.Q. versus I Can ? (Attitude / Values?)
What about environment versus heredity?

Psychological studies of highly creative people have shown that many have a strong interest in apparent disorder, contradiction, and imbalance, which seem to be perceived as challenges. Such individuals may possess an exceptionally deep, broad, and flexible awareness of themselves. Studies also show that intelligence has little correlation with creativity; thus, a highly intelligent person may not be very creative.

Many researchers believe that in order to foster creativity in schools, education should be based on the discovery of knowledge and the development of critical attitudes, rather than on the passive absorption of knowledge. They believe this applies whether the class is in art, history, science, or humanities. However, as the pupils progress through the system from primary to secondary, the learning and teaching is based on the child's ability to memorize. The highest marks are often given to those who merely studied their lessons well. The pupil whose creative side is more developed may be considered a disruptive member of the class.

At ages nine to twelve, children's creativity is greatly affected by peer influence. They increase the amount of detail and use of symbols in drawings. They also have expanded their individual creative differences and begin to develop their own set of creative values.

Teenagers are highly critical of the products they make and ideas they have. They try to express themselves creatively in a more adult-like way. Their creativity is influenced by their individual differences, physically, mentally, emotionally, and socially. In most high schools, classes that stress creativity, such as art, music, writing, and drama are electives and many may not be required. For many adolescents, high school is their last opportunity to take these creative classes.

Also, teens become more self-aware and self-conscious. This focus often causes them to conform to their peers, which stifles their creativity and makes their thoughts less flexible. Flexibility refers to the ability to consider various alternatives at the same time.

The following section seeks to add a third dimension, the one of the parent in this partnership towards encouraging creativity, growing great learners. I have used material from the following website as it serves my purpose to encourage teachers to consider the parent’s role.
http://www.buffalostate.edu/creativity/whycreativity.xml

Rewards or incentives appear to interfere with creativity and reduce children's flexibility of thought. Studies show that any constraints such as structured instructions reduce creative flexibility in children. Many parents and teachers do not understand that children who are creative are often involved in imaginary play and are motivated by internal rather than external factors. Creating is usually an intrinsic and self-satisfying activity of the individual.

While environment appears to play a greater role than heredity in the development of creativity: How can parents foster creativity? Family environment’s with a relaxed parental

attitude rather than one that is overly anxious or authoritarian seems to assist. Much like the valuing of risk taking and getting things wrong is a part of learning not a punishable offence.

On the whole, the families of creative children discipline them without rigid restrictions, teaching them respect for values above rules. Similarly, they emphasize achievement rather than grades. The parents in such homes generally lead active, fulfilling lives themselves and have many interests. Finally, they reinforce creativity in their children by a general attitude of respect and confidence toward them and by actively encouraging creative pursuits and praising the results. It has been found that creativity in both children and adults is affected by positive reinforcement. Studies have found that positively reinforcing one kind of creative activity encourages original thinking in other areas as well.

Just as certain actions and attitudes on the part of parents can encourage creativity, others have been found to discourage it. Devising restrictive guidelines or instructions for an activity reduces its potential as a creative experience. Unrestricted, imaginative play is central to creativity in children. Exposure to new objects and activities stimulates the senses, reinforces exploratory impulses, and results in the openness to new experiences and ideas that foster creative thinking. In addition, anything that takes the focus away from the creative act itself and toward something external to it can be damaging. For example, knowing that one's efforts are going to be evaluated tends to restrict the creative impulse, as does knowing of the possibility of a prize or other reward.

Schools as well as families can encourage creativity by offering children activities that give them an active role in their own learning, allow them freedom to explore within a loosely structured framework, and encourage them to participate in creative activities for the sheer enjoyment of it rather than for external rewards.

Conclusions

Visiting local schools, observing and talking to as many staff as possible and some students about Creativity, thinking strategies, problem solving and attitudes and values has been an eye opening endeavour.

I have explored the vast amount of literature written in the last twenty years on CREATIVITY even though I initially intended to limit this to the last five years. The reason for this is that the research and the pedagogy all stems from much earlier works that were initiated in the 1940’s onwards and have over time gained considerable momentum and a huge body of thought on what creativity is, what encourages creativity and what we as teachers, psychologists and relationship managers can do to foster creativity in our schools and classrooms.

Sadly, at a global level the researcher’s report that much of what schools have been doing seems to suppress children’s inquisitiveness and discourage questioning and creativity. While schools purport to value creativity their actions seem to be anti creative. Fortunately the actions and values of the local schools are indicative of setting the pre requisites for encouraging creativity in their pupils. At Paengaroa School the staff have embraced the personalizing of individual pupils education wherever possible. They have been using De Bonos thinking hats , Tony Ryans Thinker Keys, Howard Gardeners Multiple Intelligences and been cognisant of pupils varying dominant learning styles. Discussions have already begun around increasing pupils capacity to create and capacity to learn by growing skills and experiences in the use of less dominant learning styles and building meta cognition through awareness of habits of mind and different multiple intelligences. De Bonos ‘Thinking hats’ also assist in encouraging pupils to take on various thinking styles and being encouraged to think using other hats. Pupils are encouraged to use the skilful thinking strategy of What if you were to change from a yellow hat to a blue hat?

The pursuit of the arts, not just visual, is only one way of encouraging creativity. The work of Dr Robert Swartz and Anna Craft leads us to other ways of fostering creativity, both promote that 'thinking' is the key -creative thinking and critical thinking, possibility thinking and skilful thinking all aim to get learners to go deeper and grow and often create new understanding or knowledge.

So What now?

Paengaroa School staff, need to continue their professional development in all areas that feed into thinking skills development and the fostering and valuing of creativity. Not all pupils have the talent to be writers, poets, mathematicians or avid readers. What all pupils have is some level of talent. The challenge is to identify these talents and to exploit them, tap into the learners (pupils) passions and interests, maximising motivation and learner engagement while developing these talents. We can do more inquiring into Joseph Renzulli's school wide enrichment model and developing authentic enrichment.

As one leader amongst many...

It is the application of creativity skills that distinguishes a manager who maintains the status quo from a leader who supplies a new direction or vision. By internalizing the spirit of creativity and the principles of creative problem solving, an individual can be transformed into a change leader. Where change is necessary, I will use the ideas explored in this paper to grow my staff's capacity to foster thinkers, who are great learners and who value difference and creative endeavours. Our pupils are learning to learn for themselves and this must be our main goal in growing life long learners.

By adopting a creative approach to teaching, my staff are more likely to deliver content and create a learning environment that develops higher order thinking skills. This has been the intention of our teaching for a lot longer than seven years and will continue to be so for many years to come.

It has been suggested that Paengaroa School view inquiry not only as integration across curriculum but that we also explore inquiry as it may apply to specific curriculum areas such as science, PE, Art, etc. This has in fact been happening but more deliberation and synthesis is required to measure its value. The issue of "Teaching - the Art versus Teaching - the Science" often blurs during the interplay of personality, intelligence, intuition and experience. The philosophy of "include the students in everything you do" has been applied and teachers are moving further down a path of personalising learning with children at the centre of all decisions and discussions. Student voice and kids speak are often words heard during discussions about continuing to make Paengaroa School a place owned by the community and more importantly, a place for kids to feel comfortable to create and learn. Teachers are doing as much inquiring as the students. Information literacy continues to be explored as does the application of thinking strategies, cooperative problem / issue exploration and appropriate reporting strategies along with the "So what next?"

Exploring creativity is being added to Paengaroa School's extraordinary learning journey. This journey is proving to be both challenging and rewarding for all learners (both staff and students). Our uncertain future is taking shape.

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-

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6. Goleman, Kaufman, and Ray - *The Creative Spirit*
7. Hennessy and Amabile - *Creativity and learning*
8. William J.J. Gordon – Synectics
9. Creative Thinking – Learn Systematic Creative Thinking for problem solving. Go to www.start2think.com/creative
10. Visit au.store.creative.com
11. Teach Creative Thinking – Higher-level thinking how – to's! Browse NZ's quality online resource www.thinkshop.org
12. www.gifted.uconn.edu This site gives readers information about a variety of activities and organizations, including the National Research Center on Gifted and Talented (US). Links are provided to articles and programmes related to the works of Joe Renzulli and his colleagues, with a strong focus on enrichment.

Appendices

Appendix A

Dr Robert Swartz work on types of "Skilful Thinking" strategies.

I. GENERATING IDEAS

1. Alternative Possibilities
- A. Multiplicity of Ideas (brainstorming)
- B. Varied Ideas
- C. New Ideas
- D. Detailed Ideas

2. Composition
- A. Analogy/Metaphor

II. CLARIFYING IDEAS

1. Analyzing Ideas
- A. Compare/Contrast
- B. Classification/Definition
- C. Parts/Whole
- D. Sequencing

2. Analyzing Arguments
- A. Finding Reasons/Conclusions
- B. Uncovering Assumptions

III. ASSESSING THE REASONABLENESS OF IDEAS

1. Assessing Basic Information
- A. Accuracy of Observation
- B. Reliability of Sources

2. Inference
- A. Use of Evidence
  - a. Causal Explanation
  - b. Prediction
  - c. Generalization
  - d. Reasoning by Analogy
- B. Deduction
  - a. Conditional Reasoning (If … then …)
  - b. Categorical Reasoning (Some … All …)

IV. COMPLEX THINKING TASKS

1. Decision Making
2. Problem Solving
3. Planning
4. Systems Thinking

Appendix B

William J.J. Gordon - Synectics

Notes from "Synectics" by Willian J.J. Gordon, Harper 1961:

Synectics, from the Greek means the joining together of different and apparently irrelevant elements.

The aim of Synectics research (since 1944) has been to uncover the psychological mechanisms basic to creative activity. Observational methods were used.

Spring/Altimeter Example (page 16)
1a) Detachment
1b) Involvement
2) Deferment
3) Speculation
4) Autonomy of Object

Basic Synectic Process

1) Make the Strange Familiar
Understand the problem - analytical phase. Understand the problem until you are at home with it.

2) Make the Familiar Strange
Distort, invert or transpose the everyday ways of looking and responding.
A South Sea Islander's pigeon-English description of a three-masted, screw steamer with two funnels: "three-pieces bamboo, two-pieces puff-puff, walk-along inside, no-can-see"

Techniques to Make the Familiar Strange
a) Personal Analogy - see yourself as the spring
b) Direct Analogy - use animals or other devices
c) Symbolic Analogy - use constructs or symbols
d) Fantasy Analogy - invent something that could be used as an analogy
Intuition, Deferment, Empathy, Play, Use of Irrelevance, Involvement; Detachment - these are abstract and thus difficult to teach. The four mechanisms outlined above can lead a person toward these key, abstract, psychological states.

Play and Irrelevance

In Synectics theory, play with apparent irrelevancies is used extensively to generate energy for problem-solving and to evoke new viewpoints with respect to problems. Play generates energy because it is a pleasure in itself, an intrinsic end.

Play
While it may be true that final sanction for artist, scientist, inventor is public accpetance of the end-product, overemphaiss on the success goal masks the gratification in the creative process itself. Synectic theory implies that not all play is creative, but that all creativeity contains play.

"Play" in the creative process means the activity of floating and considering associations apparently irrelevant to the problem at hand. Play in this sense involves the constructive use of illusion, conscious self-deceit, daydreams, and of associations in gneral which seem to imply no immeidate benefit.

Irrelevance

1) Irrelevant Perception, Ideas, and Generalities - sustain a dynamic balance between distraction and learning. Page 133 - Ant Distraction Example.

2) Hedonic Response: An Irrelevance Filter - if it begins to feel good, keep going.

Synectics theory holds that there is an excitement and feeling of pleasure accompanying the selection of and signalling a valid intuition, and that people can be taught to watch for thie feeling of excitement within them. It is termed a "Hedonic Response"

3) Autonomy of Object - when the solution begins to have a life of its own

4) Accident - effectively irrelevance in motion