

Sabbatical Leave Report

The agreed area of study was for me to observe the development and teaching of the new key competencies, with special reference to thinking skills, with a view towards developing a plan to provide a thinking skills curriculum at Havelock North High School.

Executive Summary

This report summarises observations of schools which have successfully embarked on the teaching of the key competencies in the new New Zealand Curriculum. It includes some key strategies to be followed as one introduces the competencies into existing curricula. It also outlines five thinking skills programmes available in New Zealand. It briefly outlines the need for a thinking skills curriculum and offers some observations on the effective use of those programmes.

W K Adams
Principal
Havelock North High School

I wish to begin by thanking the large number of Principals who were happy to share their thoughts with me on this interesting area of pedagogy. It was terrific to see their confidence in allowing me to visit a range of classrooms where the key competencies were being taught and taught well. Their confidence in their staff was absolutely justified. As a secondary school principal these classroom visits in primary schools provided a totally different dimension and experience for me. All we hear about the high levels of dedication, enthusiasm and competence in the primary area are, in my range of experience anyway, totally justified.

Thank you, as well, to the Havelock North High School Board of Trustees who allowed me to take up the sabbatical opportunity and to those great people who 'stepped up' in my absence and who showed that no-one, not even me, is indispensable.

In my area of study I was interested to look at how primary schools were incorporating the key competencies into their programmes, with special reference to thinking skills. My main focus was directed at the primary area because, to the best of my knowledge, little formal instruction of the key competencies was occurring in secondary schools. However I did speak with, and visited, secondary school principals and was interested to note that many of them had been "thinking about thinking" or thinking that they should have been "thinking about thinking" but were too busy doing other pressing things. All acknowledged that thinking was, indeed, a key competency and one which they knew required to be developed in a comprehensive and engaging thinking curriculum.

N.Z. Curriculum

The new curriculum is intended to be a curriculum to take us into the 21st century. Part of the rationale of emphasising key competencies over a knowledge based curriculum, is the notion that knowledge is increasing at an exponential rate and it cannot all be absorbed but modern information storage and retrieval systems makes this knowledge easily accessible to all. There is now less of a need to learn key information and more of a requirement to learn how to access information, to process it, think about it critically, use it in new ways and be open minded about receiving new ideas and information.

The new New Zealand Curriculum identifies the key competencies as those key personal attributes which will be required in the new century. Schools have already been very effective at transmitting the knowledge and values of previous generations. Teachers taught what they had learned at university and this body of knowledge was updated through professional development and intellectual curiosity. If not entirely appropriate, it sufficed in an environment where the body of knowledge was constant or only slowly changing. Knowledge was important because it aided understanding and therefore helped problem solving. However indicators are that knowledge is changing so rapidly we need to "re-engineer" what we do in schools to equip pupils for a very different world to that understood by most of their teachers.

The teaching of thinking is not an entirely new concept in N.Z. education. Page 16 of the 1991 New Zealand curriculum stated that problem solving and decision making were two "essential skills" for young people to acquire.

Teaching of Key Competencies

I began my visiting programme with the view that the key competencies were going to "intrude" in some way into the secondary curriculum and that I would be happy to establish a reasonable level of compliance while my teachers continued with their 'real' work of the academic development of their pupils.

My visits to primary schools showed me, however, that it has been perfectly possible to incorporate the key competencies into the day to day learning in a classroom. Schools demonstrated that where Principals, or key staff members had shown a belief in and a commitment to the key competencies, those people had been able to lead the change in the school curriculum. Principals had demonstrated good leadership by sitting down with staff, and Board Members, and having serious discussions about the skills and abilities their pupils would require in the 21st century. Once there was recognition of a need for change it became a process of change management. Resources and professional development were key elements but they were less important than a professional undertaking to make young people competent in different ways and to consciously provide new types of learning opportunities in the classrooms. Schools are still in the business of producing good and capable citizens. All that has changed is the definition of "capability".

My observations covered, as one might expect, a wide range of approaches. Some teachers used particular key competencies as key themes for a period of time while others planned learning around all the competencies all of the time. All schools had incorporated the key competencies into their reporting to parents though these were of a very general nature. Primary teachers and principals were of the view that although one might not test around the competencies it was important to keep a record of their pupil's development in these areas. Having made this record it was important to pass it on to next years teachers and the parents.

In my experience, in 2007 and 2008 as more information about the key competencies emerged and as staff became more familiar with the new curriculum, secondary school teachers began to think how they might be included in classroom programmes. To my knowledge few secondary schools have embraced the new competencies in the way I have observed in primary schools. There are several reasons for this, both structural and attitudinal and they highlight key differences in the two levels within the education system.

Without wishing to be drawn into making too many sweeping generalisations, suffice it to say here that the primary teachers, with sole responsibilities in any year to develop their pupils across the whole range of subjects and abilities, are focussed on the development of the whole pupil. Secondary teachers see their job somewhat differently, focusing their attention on developing much higher levels of academic competence within defined subjects. This is layered with a responsibility towards their pupils gaining NCEA qualifications as these, and their predecessors, have been the traditional ticket into the work force or tertiary education.

This, I think, makes the primary system more nimble and responsive because the teachers do not have the responsibility for the quality of the end product of the education system. That rests, for better or worse, with secondary schools.

That being said, primary school classrooms around the country are proving that the key competencies can be included in a comprehensive curriculum. What the competencies require in the secondary setting is thoughtful planning and deliberate acts of teaching whereby lessons are taught with the specific intention of improving the pupil's capabilities in this area. Quite clearly it is not enough to expect that the competencies will be learned obliquely, by some educational osmosis, through the existing curriculum. Principals and teachers do not understand the scope of the key competencies if they claim to be already teaching them through the existing curricula. Real thought needs to go into developing a shared understanding of the type of citizen the school wishes to produce for the future and plan a programme which systematically teaches the new competencies across all subject areas. There are many experiences, anecdotal and research based, which can recount how low literacy and numeracy levels or poor writing skills, have been improved by school wide improvement projects in which all subjects were involved. This is a great model to follow for the key competencies. Its development requires the appointment of a team of key people with strong curriculum abilities.

All subject specialists need time to plan the teaching of agreed strategies for developing thinking skills, for improving listening, speaking and communications skills, for sharing ideas in a group, for being not only able but willing to take responsibility for their own learning and for a range of other skills subsumed in the key competencies. These not only need to be deliberately taught, they must also be practiced in situations which parallel or exist in the real world. These are authentic learning situations, or in the primary setting "rich tasks", and they need to be a key aspect of learning in every subject area in a secondary school because they are a vehicle for placing what has been learned in the classroom into a relevant, world setting.

Thinking

The NZ Curriculum document defines thinkers in this way. "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".

Research carried out by Dianne Smardon at the University of Waikato shows that pupils generally have a low level of understanding about thinking and struggle to define it in all but the simplest terms. Therefore the process and language of thinking needs to be deliberately taught in the classroom. It is clear that as pupils move through a series of developmental stages and acquire more complex language they are able to define thinking more cogently. As 5 or 6 year olds, thinking is remembering and recall. For the 7 to 10 year olds it seems to take on an element of concentrating or resilience in task management and the meta-cognitive processes come through at 13 or 14, where pupils at this stage are well capable of analytical thinking processes. At age 15, or thereabouts, pupils demonstrate evaluative and creative abilities.

It will be interesting to see that once the provision of opportunities to think are improved and younger people learn, the language of thinking, whether the development of meta-cognitive skills is accelerated.

The rationale for a thinking skills programme is that it develops, in the pupils, the ability to be an effective problem solver and decision maker and to develop the confidence to create new knowledge. All are key attributes in a rapidly changing world. Smardon quotes Dietel and others (1991) who contend that to become competent thinkers and problem solvers, learners must:

- think and actively construct evolving mental models.
- be able to interpret the information they receive and relate it to knowledge they already have.
- be active participants in their own learning.

The responsibility for learners is that they are not just ready and able to think but they must be willing, as well, to do so. The responsibility which falls to classroom teachers in this is that they must develop opportunities in the classroom which engage their pupils in developing their thinking skills.

We won't have thinking pupils until we have thinking teachers.

Instruction of Thinking

"There has been growing acceptance of the view that efficient thinking can be taught, and rejection of the old view that intelligence is static. Too many teachers hold the view that success and failure in the academic sense, is to some degree, fixed and that leads to deficit thinking and acceptance of low standards as the best they can do".

Feuerstein – Mediated Learning Experience quoted in page 2 of "Thinking about the Teaching of Thinking" DH Howie NZCER 2003. www.nzcer.org.nz

When considering the components of a thinking curriculum, we are spoiled for choice.

In the schools which I visited I was able to observe a wide range of instructional models and discuss them with teachers. These included:

- Thinking Hats (de Bono)
- Habits of Mind (Art Costa)
- Revised Blooms Taxonomy
- Mindlabs
- Designs for Thinking (Hyerle)

These are arranged in approximate order of complexity. In each case the school, using the thinking processes, had given the matter of their thinking curriculum real consideration and had chosen one or more of the models for use in the schools. As with much innovative practice the Principal and a group of key teachers were enthusiastic about the teaching of thinking processes. Others were not so committed. This is not a criticism because the difficulties of introducing new ideas are well documented and known from experience. The comment is made because when a good idea is being introduced, it is preferable,

but not essential that all staff embrace it. Provided that key, influential teachers take up the challenge and are publicly applauded for their successes, the doubters will join when their perceived threat levels have diminished.

In this domain, the primary schools with smaller staff and the individual accountability for all subject areas had greater staff participation. The larger high schools tended to have groups of enthusiasts, some of considerable size, and took two courses of action. The first was to endeavour to make thinking a school wide approach. The second was to appoint a small team of specialists who taught the thinking curriculum as their specialist subject. The former was deemed to be preferable and was the basis of claims of being a "thinking school" or being on the way to that worthy position. The latter was recognised as being less desirable but tended to be a first step, or in one case, a reflection of one person's high levels of competence in the area of thinking and a passion for teaching it.

A brief outline of each of the thinking instructional models I observed follows. See the last page of this report for easily accessible websites which carry a lot more detail.

1. Habits of Mind Dr Art de Costa and Dr Bena Kallick

This is the system which was common to both primary and secondary schools. It can be best described as a process for teaching pupils about intelligent behaviour. Its basic precept is that "intelligent thinking behaviour" is what one does when one doesn't know the answer to a problem. Problems are easily solved if the information is known but "the critical attributes of intelligent behaviour is not only having information, but also knowing how to act on it". The intelligent behaviours identified act as a values sign post to guide good decision making.

De Costa and Kallick have identified 16 intelligent behaviours.

- Persisting.
- Managing impulsivity.
- Listening to others with understanding.
- Thinking flexibly.
- Thinking about thinking.
- Striving for accuracy.
- Questioning and posing problems.
- Applying past knowledge to new situations.
- Thinking and communicating with clarity.
- Gathering data through the senses.
- Creating, imagining and innovating.
- Responding with wonderment and awe.
- Taking responsible risks.
- Finding humour.
- Thinking interdependently.
- Learning continuously.

In another context these are "the behaviours of successful people" which, if followed, will bring similar success for the acolyte.

The teachers who taught this programme effectively looked, in their planning and delivery of lessons, for deliberate acts of teaching. In this context this meant

lessons which specifically addressed the teaching of intelligent behaviours and providing opportunities for those behaviours to be demonstrated by their pupils. Teacher and pupils used the language of the Habits of Mind and could identify what behaviour they were employing.

De Costa and Kallick say their 16 intelligent behaviours "are characteristic of peak performers whether they be in homes, schools... or corporations". The writers summarise "Habits of Mind" this way.

"When confronted with problematic situations, students, parents and teachers might habitually employ one or more of these Habits of Mind by asking themselves, "What is the most *intelligent thing* I can do right now?"

- How can I learn from this, what are my resources, how can I draw on my past successes with problems like this, what do I already know about the problem, what resources do I have available or need to generate?
- How can I approach this problem *flexibly*? How might I look at the situation in another way, how can I draw upon my repertoire of problem solving strategies; how can I look at this problem from a fresh perspective (Lateral Thinking).
- How can I illuminate this problem to make it clearer, more precise? Do I need to check out my data sources? How might I break this problem down into its component parts and develop a strategy for understanding and accomplishing each step.
- What do I know or not know; what questions do I need to ask, what strategies are in my mind now, what am I aware of in terms of my own beliefs, values and goals with this problem. What feelings or emotions am I aware of which might be blocking or enhancing my progress?
- The interdependent thinker might turn to others for help. They might ask how this problem affects others; how can we solve it together and what can I learn from others that would help me become a better problem solver?"

This program is very accessible and professional training and classroom resources are available through Spectrum Education Limited at www.spectrumeducation.com. The sixteen behaviours, incidentally, can become part of the whole school learning culture. Posters displayed in classrooms and around the school, along with intelligent behaviours being articulated in school newsletters and rewarded at school assembly, are some ideas in practice.

2. Six Thinking Hats Dr Edward de Bono

De Bono is a thinking skills icon and his work has been well known and well used for years. The thinking hats strategy is in wide use because its simplicity has real appeal in primary school settings. Secondary teachers expressed some doubt about whether seniors could be encouraged to use the process but de Bono says the procedure is perfectly applicable to any situation requiring people to think outside the square. Each category of thinking has its own coloured thinking hat. These hats can be metaphorical in the senior school or actual in primary classrooms. The

wearer of the hat has to think in that particular genre and by moving the hats from team member to team member, a range of viewpoints can be elicited.

- **The White Hat.** The wearer has to provide information known or needed.
- **The Red Hat** wearer provides hunches and intuition.
- **The Black Hat** is judgement – the devil’s advocate or why something may not work.
- **The Yellow Hat** requires ideas that carry brightness and optimism.
- **The Green Hat** focuses on creativity: the possibilities, alternatives and new ideas.
- **The Blue Hat** is used to manage the thinking process and ensure the others stay on track with their thinking.

Pupils learn, not only the strategies of solving problems using a range of skills, but also come to understand that groups work best when each members strengths are recognised. They learn the process of working inter-dependently to deal with a situation.

3. **Thinking Maps Dr David Hyerle.**

This process, developed in the 1980’s by Dr David Hyerle is in use worldwide. It has been built around the well proven use of visual tools to assist learning. Something which Hyerle says is well known to all educators. His system is built on the knowledge that the brain works best in a visual way and that patterns and the process of thinking by linking different pieces of information together.

Hyerle says that thinking maps provide a visual pattern for thinking. A thinking map is “a graphic tool directly linked to specific thought processes” and pupils and teachers who are practiced in their use can apply it to situations where problem solving is required. The thinking map is a type of graphic organiser for the brain.

The teachers who use this process are most enthusiastic about it. They particularly like the way it teaches pupils to have random thoughts and ideas and find ways to link these to existing knowledge. They are also seen as very useful tools for organising thoughts and ideas prior to a piece of formal writing. Anecdotally, St Cuthberts College in Auckland, have the most comprehensive use of this thinking organiser and have linked it to Habits of Mind to make a more comprehensive thinking curriculum. This links the “intelligent behaviours” and values of Habits of Mind with the ability to organise ones thoughts in a logical way as offered by the Thinking Maps.

The Thinking Map process is well documented and resourced (see below) and specialised training is available through Gill Hubble at Learning Network NZ.

4. **Revised Blooms Taxonomy by Michael Pohl.**

Pohl is a well known provider of thinking resources in Australia. In his book “Learning to Think, Thinking to Learn” (2000) Hawler Brownlow Education, he provides the following guideline for ensuring pupils are exposed to higher order thinking skills.

- **Remembering** – recognise, list, describe, identify, retrieve, name.
Can the student **recall** information?
- **Understanding** – interpret, exemplify, summarise, infer, paraphrase.
Can the student **explain** ideas or concepts?
- **Applying** – implement, carry out, use.
Can the student **use** the new knowledge in another familiar situation?
- **Analysing** – compare, attribute, organise, deconstruct.
Can the student **differentiate** between constituent parts?
- **Evaluating** – check, critique, judge, hypothesise.
Can the student **justify** a decision or course of action?
- **Creating** – design, construct, plan, produce.
Can the student **generate** new products, ideas or ways of viewing things?

In his wide range of resources Pohl offers plenty of classroom activities which can be modified to suit a range of subject areas. This is not so much “new” thinking skills but a reminder of the lessons we received at Teachers’ College, about the value of higher order questioning and thinking in the classroom. Again, it emphasises not what one already knows but ways of manipulating knowledge in new ways to confront new problems.

5. **Mindlab**

I was not able to see Mindlab being used by a classroom teacher but its Australian agent, Chris Ramsden, who works at Scotch College in Adelaide, spoke most enthusiastically about it. He claims that pupils who are exposed to the course respond more enthusiastically to this, than anything else he has taught. Rather than being a thinking programme the Mindlab is a series of games which are played out by pupils. Some are simple pen and paper games, others are board games while others are strategy exercises involving specialised pieces of game equipment.

Mindlabs are used worldwide at all class levels. The NZ agent is Jarrod Beaman (contact address below) who is equally enthusiastic about the product. Clearly, from anecdotal evidence, it is engaging and something different, though it is quite expensive. The schools using it tend to use it with accelerate groups or as part of a gifted programme but, clearly, the programme has much wider application.

How do we know the selected programme is working?

Good question! None of the programmes I saw have been in operation long enough to show any school wide ability shifts. Anecdotal evidence includes better and more precise writing and speaking, increased number of excellences in NCEA and an Intermediate school whose pupils, having been taught the Habits of Mind programme, are sought after by the local high schools and who are easily distinguishable by their work habits from other contributing schools.

The AsTTle team have developed a programme called “Structure of Observed Learning Outcomes”. This is based on work done in 1982 by Biggs and Collis. SOLO is a set of broad thinking categories in a scale of increasing complexity. This is, of course, a taxonomy and, as with

Bloom's work, encourages the use and development of deeper questions in the classroom. In the true AsTTle manner it offers the opportunity for testing and analysis of results. Although not in common use it provides the opportunity to test for the higher order thinking skills. Further information is available on TKI and professional development courses are available, from time to time, for those interested in pursuing the process of gathering data on the thinking abilities of their pupils.

Conclusions

1. Organise a visit to your highest performing contributing primary schools and observe what they are doing about the key competencies.
2. Think about what your school has to do to further extend those competencies in the pupils who come to your school.
3. Do not engage in conversations about the fact that you already do the competencies in the existing curriculum. With the odd exception you will be fooling yourselves.
4. Review the broader aims of your schools. Have a planning meeting around your school values and citizenship programmes.
5. Put together an action team and take some time to consider what competencies you wish to focus on.
6. Provide time for staff to plan to include all the competencies in all the curricula. You will need to be personally persuaded that any particular subject area can, even partially, opt out.
7. It doesn't particularly matter which thinking programme you take up. They are all very good. It is more a matter of getting something under way and adding to it as opportunities arise.
8. Habits of Mind is the most comprehensive and organic, Mindlabs the most focussed. The others all have their particular strengths.
9. Create a thinking curriculum team and spend some money in their training. Get them to lead the programme but ensure the approach is school wide.
10. Don't expect 100% participation rates from staff. Give the programmes three years before almost all the staff are on board.
11. The key competencies carry their own credibility from being in the national curriculum. You don't need to defend the accusation that they lack intellectual rigour. They are part of a personal development programme and schools have always had a key role in developing skills and attitudes.
12. Bring those staff who complain about the lack of intellectual rigour in the competencies onto the thinking skills team. They cannot complain that thinking lacks rigour!

Thinking Skills Contacts

The following list of contacts may prove useful to anyone wishing to pursue a thinking skills programme. All offer significant levels of information.

Habits of Mind Dr Art de Costa

www.newhorizons.org/strategies/thinking/costa_2.

6 Thinking Hats Dr Edward de Bono

www.debonothinkingsystems.com/tools/6hats.

Revised Blooms Taxonomy – Understanding by Design

www.ascd.org

Mindlabs

www.mindlabz.co.nz

jbeaman@mindlabnz.co.nz

Thinking Maps Dr David Hyerle. Designs for Thinking.

www.mapthemind.com