Richard has been teaching for 34 years. He has spent 11 of these years as Principal of Birkdale Intermediate. In 2004 at the National Education Computing Conference in New Orleans he received an award for pioneering use of telecommunication networks to provide innovative learning opportunities. In 2007 he presented at the 13th International Conference on Thinking in Norrkoping, Sweden.

**Member Profile** - Richard Coote
Principal - Birkdale Intermediate School
rcoote@bis.school.nz

## THINKING-BASED INQUIRY

Six years ago we began using inquiry to develop our students' research and thinking skills. It soon became apparent that while we had put them in a more realistic research mode they had made little real progress with their thinking skills. At the 13th International Conference on Thinking in Harrogate, England, Dr Robert Swartz and two Israeli educationalist, Dr Adam Lefstein and Dr Yoram Harpaz introduced us to inquiry approaches that placed a real world problem at the heart of the inquiry. This problem-based inquiry approach immediately lifted the research to a new level. It was no longer possible to 'word shift.' An answer to the question posed, the problem to be answered, could not be found by 'cutting and pasting' it had to be constructed from evidence. This surely lifted the thinking to a new level, but did it? Were our students thinking more skilfully?

Observations of our children at work showed that placing students in a situation where they are active researchers was a good start but was no guarantee of a significant increase in their skilful thinking. Just as it is possible to 'cut and paste' information it is possible to move poorly understood ideas about, to 'ignorance shift.' Intelligent sounding phrases copied from the adult world do not make a skilful thinker. The poems of athletes standing on the Olympic dais full of pride so easily churned out after every Olympic Games did not equal high quality research and deep thinking. That comes from listening to real athletes explaining the humble feeling they have and their need to thank everyone who assisted them. Here is the evidence of careful research and a knowledge of the reliability of sources. We observed that our students' research was hit and miss which was similar to the findings from Gwen Gawith's research and that poor thinking habits as outlined in Dr Robert Swartz's work were still alive and well in our classrooms. The 'process' by itself was not going to lift anything, improvement by 'doing research' (what I like to call the 'osmosis effect') was not working. As the research findings matched our observations we moved to a more structured problem-based inquiry model. In looking at the various inquiry approaches such as Big 6, Action Learning, Project-Based Learning, we found that Problem-Based Learning in its more guided and structured form seemed to hold the most promise. A word of warning, do not confuse this with its minimally guided form which, due to its lack of scaffolding, is unsuitable for primary aged students. With Dr Swartz's guidance we infused into this approach direct instruction in skilful thinking to show our students how they could use these specific thinking skills to gain exciting new insights and understandings. This gave us a practical and research based approach well worth Jamie MacKenzie's 'Test of Monday Morning' or 'Will it work in our classrooms, with our kids, next week?' It transformed our approach into 'Thinking-Based Inquiry.'

We could now say with confidence that we were placing our students in the role of researchers and problem solvers in a structured way that paid proper attention to the fact that they are still in the beginning stages of gaining quality research skills while giving them direct instruction and experience in improving their thinking.

With a change of approach came the need to gain a realistic view of any improvement in learning. It was decided to focus a year's research on understanding our students' growth in skilful thinking. The challenge for the year was, 'What effect had the new approach had on our students' skilful thinking?' To focus this further we looked closely at their ability to skilfully compare and contrast as this is one of the top nine strategies to improve student achievement (Marzano). The research showed an average test % for the cohort of 45% in Term 1. In Term 4 the average test % for the cohort was 77%, showing a marked improvement in these students' ability to skilfully work through a guided compare and contrast problem.

To develop this research further we are about to give these students an unguided compare and contrast to see if they are skilful enough to complete this successfully. I will keep you posted.

Please email me if you would like a full copy of this research.

rcoote@bis.school.nz

Examples of problem-based inquiry units can be found at:

www.bis.school.nz

Click on the 'Thinking-Based Learning' button and scroll down.

## HOW A SCHOOL LIBRARY CAN SUPPORT THINKING-BASED INQUIRY EDITOR

Engagement in the early stages of any inquiry approach is crucial if students are to be willing to engage in sustained and often difficult research and skilful thinking. The school's library is frequently visited by students so it is the ideal place to assist in the development of this curiosity and engagement with the research.

Along with the usual display of books related to the inquiry Birkdale Intermediate displays a collection of objects that has grown to form a small museum. The school began its collection in 2006 after a suggestion made to them while they were attending the National Centre for the Teaching of Thinking's Summer Institute held at Tufts University, Medford, Boston, and thoughts that developed while visiting the Harvard Museum of Natural History and the Peabody Museum of Archaeology and Ethnology. Both museums are part of Harvard University.

The Museum pieces are in storage with selected pieces on display in the main library. A selection of objects from the collection are taken out once a term from storage and placed on display in a locked glass display cabinet in the main library. Each display is on a theme which either supports their current science or social studies unit called a Quest or their reading programme. Only high quality objects are purchased. Where possible they try to obtain authentic artefacts such as a relic dug from a Second World War battle field, a coconut thrown from a New Orleans Mardi Gras float or an Olympic torch from the Moscow games in 1980 still with the burn marks from the flame. They want the wonderment that comes from the objects being real. Only if price or rarity totally excludes a purchase do they try for a museum quality reproduction. A real sabre tooth skull is beyond their resources but a cast from a La Brea tar pit skull made for a museum display is a reasonable compromise.

Items to do with the earthquake in Gujarat. India.

The Titanic display in the library cabinet.

Experience so far shows an outlay of about $1,000NZ per display is needed although this varies a little from theme to theme. Why purchase? These displays can be reused every two or three years so taking the longer view they become more cost effective. The time and effort setting up such high quality displays precludes using lent items. Lent items have hidden resourcing issues e.g. time locating items, stress due to security issues, time and effort returning the item and thanking the lender, all of which makes a display set up this way very time consuming. On rare occasions the school has had items gifted.

Along with the objects displayed are a selection of books from the library. Eight books are chosen to support the theme. They find that the books are almost constantly out during the display. After each reader returns the book it is placed back on the display, it usually stays less than a day before being taken out by another student. Some displays include a quiz or research tasks with the most successful students being acknowledged at assembly with a small reward. After a display on a space theme the student who won the competition was able to select a NASA astronauts mission patch as a reward for their high quality research. During the last week of the display a class can request that the display cabinet be opened and students are able to touch all but the most fragile items. At the end of the display the objects are returned to storage.

Commonwealth Games Contribution Medal

Mascots, XXVII Olympiad, Sydney, 2000

Leaf Insect

Atlas Moth

**Member Profile** - Erna Bornman
Associate Principal
Somerville Intermediate School
e.bornman@somint.school.nz

Erna has been teaching for 20 Years. She is an Associate Principal, Dean of Year 8 students, a member of the school Curriculum Directorate and Leader of the Health and Safety Committee. She coordinates the Maths Curriculum Team and the Numeracy Project in school and is one of the school's Lead Teachers for their ICT PD Contact. She has attended the HPPA Principals Retreats, Australian International Education Conference, and the Learning in Schools conference.

After an inquiry into Kai Moana a group of students ended up building this adobe wall and writing the story of Taramainuku - the taniwha that keeps a watch over the area.

At Somerville this year, Erna is offering 'Thinkie Brekkies' for staff who are interested. They are normally voluntary sessions of about half an hour before school that gives an introduction to an idea that can be followed up later in more detail. The first one this year was 'Using graphic organizers for skilful decision making,' The staff were introduced to Bob Swartz's 'skilful decision making' concept. This was very well received, and people really liked the deep thinking that it helped to develop.

Somerville uses a problem-based inquiry approach they call 'Authentic Learning Journeys' or ALJs.

In November/December each syndicate meets. They have the option of crafting a fertile question and exploring this question with students or exploring big ideas. Both use student voice to develop the ALJ.

Examples of these are:

- Civilization - have we really come that far?
- What is justice today?
- Are legends made or born?
- Is peace attainable?
- What makes a hero?
- Is water life?

In determining their fertile questions, syndicate teachers need to consider the following:

1. Strand requirements for social sciences and science for their particular year level.
2. Fertile questions need to be relevant to the learners.
3. Students need to be challenged to think critically about their views and dispositions and the world in which they live.
4. Fertile questions need to be rich with opportunity for teachers and students to question their world and make authentic connections with it.
5. The Somerville community should be involved as much as possible.
6. The importance of student voice in the development of the study.
7. How students will be able to apply their learning in a practical way in the rich task.

Integrated, authentic learning is the aim - covering as broad a range of curriculum areas as possible, including the technology and specialist subjects. Passion for a cause is always a good start!

The duration of different ALJs vary. Syndicate leaders are responsible for overseeing the syndicate ALJ and to ensure that curriculum areas are covered. When specific curriculum requirements cannot be successfully linked into the ALJ, separate units are done to ensure coverage.

The journey ends with an evening celebration. This concluding performance they call an Odyssey. It is an excellent opportunity for parents to come to school and to share in their children's learning. The Odyssey evenings are normally held towards the end of the year, but this is not set in concrete and syndicates may choose to finish their ALJs sooner, e.g. towards the end of term 3 or early in term 4. These evenings are used to display and share as much of the students' work as possible. Syndicates often put together skits, plays, music items, etc. to showcase their understanding of the learning. Odyssey evenings normally start in the school hall, where a presentation about the learning journey is done, explaining the process to the parents. The students then present some items (syndicate choice) and after that parents are invited to view work displays.

TEACHERS OF THINKING
AOTEAROA COLLABORATIVE

## KEEPING IT SIMPLE

EDITOR

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 skillful 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 contras

### 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?

A simplified map suitable for Years 5 and 6

There is no need to complicate things by adding additional layers to our thinking instruction with complicated terminology, theories or taxonomies.

Once you and your class have defined a way of thinking skilfully you need to give students plenty of opportunity to practice this skilful thinking. A good way of doing this is to infuse the thinking into the content you are already teaching. Or in more ambitious integrated curricular units you can have students engage in research around a real world problem by using types of skillful 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.

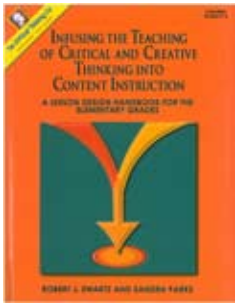
To enhance this learning process you can then ask students to think about the thinking that they are doing. We can guide them by asking:

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 skillful thinking you are teaching them.

If you are unsure about these skilful ways of thinking or how to infuse skilful thinking into your units of work please consider attending our workshop with Bob Swartz in October and purchasing a copy of 'Infusing the Teaching of Critical and Creative Thinking into Content Instruction,' known to collaborative members as 'The Orange Book.'

Available from http://www.nctt.net/ Collaborative discount 10%



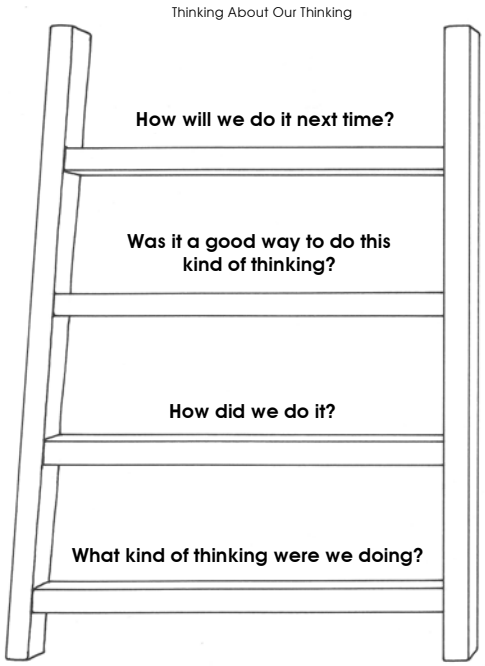

## BOB SWARTZ IS RETURNING TO AUCKLAND IN OCTOBER

**Beginners Workshop**
Wednesday and Thursday 7 & 8 October - $380

**Advanced Workshop**
Tuesday 6 October - $250

Details to follow shortly.

**The Ladder of Metacognition**




## USING THE LADDER OF METACOGNITION

EDITOR

When I first heard the word metacognition I was rather put off by its rather academic sound. How could such an idea translate into a classroom of primary aged students? A few years ago Bob Swartz introduced us to the 'Ladder of Metacognition.' Using the ladder with our students has made our 'thinking about our thinking' clear and focused. It is deceptively simple and has greatly improved the level of thinking conversations around our school.

Developed by Bob Swartz and David Perkins.

Over a mint julep on David's back porch Bob mentioned it looked like a staircase and David said. "More like a ladder," and the name stuck.