

## **creativity in the science classroom.**

**Swedish educationist, Hans Persson recently visited New Zealand and talked about the importance of creativity in the science classroom as *Ian Milne* explains:**

Creativity in the science classroom was the theme underpinning visiting Swedish science education enthusiast Hans Persson who gave a number of presentations to over 300 teachers during his recent visit to New Zealand. Hans is an Assistant Professor and Senior Lecturer at the Stockholm Institute of Education and was hosted by the NZASE primary support group and the School of Science Mathematics and Technology Education at The University of Auckland. Hans presented workshops to groups of teachers in Auckland, Wellington and Christchurch.

Throughout his career, Hans has had a particular interest in exploring new ways of teaching science at the primary and secondary level especially the awakening of children's interest in science and keeping the interest alive through diversity and variation. Whilst these objectives are not uncommon amongst science educators, his workshops were a welcome reminder of the fascination and curiosity that aesthetic experiences of natural phenomena can arouse in both children and adults alike.

A feature of Hans's presentations was the emphasis he placed on putting the learners in control and providing open learning opportunities and problems that encouraged the learners to bring their own ideas and solutions to not only solving the problems but also communicating these ideas with others. This was amply demonstrated with *The Bucket*, the first activity at each workshop.

Hans began his talks by presenting the audience with an enclosed bucket that had a hose coming out about a third of the way up from the base. He poured several coloured liquids into the bucket from the top. This resulted in clear liquid coming out of the hose pipe. The audience were asked to consider what was happening inside the bucket and he also shared a number of children's actual responses to this event. And explored how the ideas presented need to be taken seriously and how they could naturally lead to further scientific investigation.

The bucket captivates the audience because it involves 'an unexpected object that sparkles the imagination'. By answering the question, 'What's inside the strange bucket?' leads to a colourful and creative discussion that gives the teacher an idea about children's thinking - 'it must be magic', 'a long hose', 'the water is boiling', and 'it is strained through charcoal'. And then with careful interaction and valuing, these ideas can provide the context for authentic investigations where children can test their thinking.

Hans likens the role of a teacher of science to a painter using a palette of colours that are chosen and mixed to suit the occasion. But the science teacher's palette should contain six major types of strategies that they can use at different times, singularly or

integrated, depending on the context. He recommends the following six groups of strategies to support the children's inquiry and learning in science:

1. Investigations, experiment, testing
2. Reading, telling stories
3. Drama
4. IT – computers
5. Outdoor education
6. Constructing models, building concepts

He showed a video of interconnecting science activities that not only demonstrated children's application of science understanding but also their ability to work together in and across teams. A useful website to source further activities like this is Rube Goldberg's machine at <http://www.rube.iscool.net>.

However Hans has following goals in mind:

- 1 Raise pupils interest in science
- 2 Be democratic and address different learners in the class to help reach some undiscovered talents
- 3 Involve both individualisation and co-operation – ensure there is a chance to share ideas and develop individual interests.
- 4 Gain a deeper understanding of the content because as you construct models and explain to others you have to dig deeper. It's for real and is actually something to investigate, not just to find the right answer, its meaningful and the learning involves all senses.
- 5 Keep the interest alive both for pupils and teachers because everyone has a chance to do what they like.

His ideas about science and learning were enthusiastically received by everyone he spoke to. Some commented that his workshops were: 'excellent, relevant not only to science but to teaching in general', 'hit the nail on the head about what science learning is all about', and 'putting the fun and spark back into our job fantastic'.

'The absolute highlights were the four presentations. The fact that so many teachers turned up and gave such positive feedback was overwhelming,' said Hans. His fondest memories were meeting teachers and sharing ideas, and the trip on the Tranz Alpine express.

However it took him sometime to get his bearings in NZ, just as children do about science. 'The strangest and most embarrassing thing was that it took me nearly two weeks to understand that what is north for us in Sweden is South for you. What I mean is that when we travel north it gets colder. I just couldn't figure this out....until the last day. Maybe it's a good example of how hard it is to learn and change your preconceptions.'

His visit was a refreshing reminder that exploration is a key aspect of science and that humans are intrigued and curious about the natural phenomena that they encounter in

their daily lives, especially if that phenomena challenges their thinking and expectations, and, dare I say, even provoke a sense of awe and wonder!

References: For a PDF File of Hans presentation notes contact [i.milne@auckland.ac.nz](mailto:i.milne@auckland.ac.nz)

Further information about Hans Persson: [www.hanper.se](http://www.hanper.se)

NZASE Primary Science Support Group [www.nzase.org.nz/primaryscience.html](http://www.nzase.org.nz/primaryscience.html)

PS: Are you aware of the ASE Primary Science Review journal? It has a very practical focus with a number of activities that are suitable in NZ primary science programmes.

For further information visit: [www.ase.org.uk](http://www.ase.org.uk).