

# An ABCD of Developing Curious Minds

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Curious Minds Think and Learn by Exploring the Unknown  
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In a research project in which he interviewed 91 creative people (including 14 Nobel prize winners), Mihaly Csikszentmihalyi (1996 p.158) considers what the implications might be for the everyday lives of all of us. He noted that

none of these individuals ... were prodigies or even gifted children as we now define them. But they had a tremendous interest, a burning curiosity, concerning at least one aspect of their environment (p.158)....

So where does this fierce determination, this unquenchable curiosity, come from? Perhaps that question is too reductionistic to be useful....What *is* important is to recognise the interest when it shows itself, nurture it, and provide the opportunities for it to grow into a creative life (p.182)

Our work in early childhood has focused on the ways in which early childhood teachers in New Zealand are nurturing children's interests and providing opportunities for them to grow into creative lives. We write this paper with the assumption that developing a mindset towards being curious can and should be developed early in life. Research supports this view. In a review of empirical literature on skills formation, Cunha, Heckman et al (2005) developed a model of multiplier effects which explain how 'skills beget skills'. They comment that skills that develop in one period persist into future periods; skills are self-reinforcing. "For example, self-control and emotional security may reinforce intellectual curiosity and promote more vigorous learning of cognitive skills" (p.5). They emphasise the contribution of family environments and add that the returns to investing early in the life cycle are high. The model also emphasises the role of what they call 'non-cognitive' skills: perseverance, motivation, self-control and the like (p.85).

Perseverance and curiosity integrate the 'cognitive' and the 'non-cognitive'. They can be described as dispositions, mindsets or orientations. In a paper entitled 'Educational Disadvantage in the Early Years: How do we overcome it? Some lessons from research', Siraj-Blatchford (2004) refers to the significance of 'orientation' when she

refers to Carol Dweck and colleagues' work on 'mastery orientation' (after a setback children tend to focus on effort and strategies instead of worrying that they are incompetent). Siraj-Blatchford adds that dispositions to learn are especially powerful and are associated with the development of positive personal and social identities. She concludes that "this requires educators to take an active role in planning for, supporting and developing individual children's identities as masterful learners of a broad and balanced curriculum" (p.11). David Perkins and colleagues (e.g. Perkins, Jay & Tishman, 1994; Perkins, 2001) define thinking dispositions as a combination of ability, inclination and sensitivity to occasion (in 2001 as ability, attitude and alertness). This definition has been incorporated into the national early childhood curriculum in New Zealand, where key outcomes are summarised as working theories and learning dispositions.

The second way in which knowledge, skills and attitudes combine [as well as working theories] is as dispositions – "habits of mind" or "patterns of learning". An example of a learning disposition is the disposition to be curious. It may be characterised by:

- an inclination to enjoy puzzling over events;
- the skills to ask questions about them in different ways; and
- an understanding of when is the most appropriate time to ask these questions. (Ministry of Education, 1996 p.44)

The national early childhood curriculum, Te Whāriki (the title is a Māori word meaning a woven mat; Ministry of Education, 1996) is in many ways an unusual national curriculum. The domains of outcome are belonging, well-being, exploration, communication and contribution. It uses as a framework the notion of distributed learning rather than the hierarchically-organised sequences of development inherited from the past. One of the four key principles is that curriculum is about reciprocal and responsive relationships with people places and things (the others refer to holistic development – the 'cognitive' is not separated from the 'non-cognitive', empowerment, and community involvement).

This paper reports on two of the ways in which, using Te Whāriki as a curriculum framework, early childhood teachers in New Zealand are encouraging the growth of curiosity: (i) the use of learning stories as a method of documenting and re-visiting episodes of curiosity in action, and (ii) collaborative thinking by teachers about learning, in a professional development programme and in action research projects.

## **The use of learning stories as a method of nurturing interest and curiosity**

We have become interested in the ways in which teachers notice, recognise, respond to, record and re-visit episodes of learning, including curiosity in action. In particular, early years teachers in New Zealand are writing what we have called 'Learning Stories' as formative assessments to encourage an orientation towards exploration, curiosity, and resilience in the face of failure. Carol Dweck (2006) calls it 'having a growth mindset'; it includes an understanding or belief that intelligence grows and develops through responding to challenge, it is not a fixed attribute that must be revealed and displayed. Jerome Bruner writes that these orientations towards learning, or learning dispositions, are aspects of developing identity:

How shall we deal with Self?...I think of Self as a text about how one is situated with respect to others and towards the world – a canonical text about power and skills and dispositions that change as one's situation changes from young to old, from one kind of setting to another. (Bruner, 1986. p. 130)

Perhaps many situations for young children afford fixed mindsets: not all of the tasks they aspire to achieve are actually possible through effort. They are too small. However, settings can afford (or discourage) growth mindsets. An early childhood setting that affords curiosity will include opportunities for inquiry that are possible for young children, and teachers who expect the capacity for curiosity to grow and develop if nurtured by the early childhood setting.

The use of Learning Stories as a method of formative assessment and, as it turns out, a method of nurturing interest and inquiry (Carr, 2001), is increasingly common in early childhood settings in New Zealand. The authors are currently preparing a resource on formative assessment that includes 19 books and several hundred learning stories (Ministry of Education, 2005 & in preparation). Learning Stories document the development of interests through involvement, perseverance, communication and taking responsibility. Learning Stories are texts about episodes of learning; they include one or more of the features of the following story framework: taking an interest, being involved, persisting with challenge, communicating with others, and taking responsibility. These are described as dispositions-in-action. The stories frequently include photographs that children can read back to their families peers and teachers. Families, children and teachers revisit and re-tell these stories.

Learning Stories include an analysis of the learning by the teachers or dictated by the children, and a 'What Next' or 'Possible Pathways' with suggestions for planning by the teachers and the children. The stories are housed in portfolios, and children and teachers (and families) can review the continuity of learning as they revisit the past and plan for the future – including collecting cues for recognising and responding to new learning.

#### *Example*

Similar outcomes to learning dispositions, key competencies, are now being introduced into the school curriculum, and some schools are also trialling Learning Stories in their classrooms (Carr & Peters, 2004). Through a number of research projects we are beginning to develop ways of describing the pathways for learning dispositions and key competencies, ways that retain the complexity and are useful for teachers. Four dimensions of strength are described as the ABCD of development (Carr, 2006). These dimensions are *agency* (more responsibility taken by the learner), *breadth* (calling on a wider range of communities and their knowledges), *continuity* (the actions associated with learning dispositions and/or key competencies are becoming routine), and *distribution* (the learning context is becoming more complex, as the number of mediating devices, tools or artefacts extends).

#### *Examples*

### **Thinking about learning**

#### *A professional development project*

One of the authors (Wendy Lee) is the director of a professional development programme for teachers, the Educational Leadership Project (ELP), funded by the Ministry of Education. Presentations by the teachers each year illustrate ELP teachers who are passionate, reflective and curious. Some of the key features of ELP mirror the key features of the development of an inquiring or curious learner: distributed leadership (teachers take on *agency* for their own professional development and the professional development of others; Hatherly & Lee, 2003), reflections on key readings and shared understandings in clusters of teachers (a *breadth* of communities - teachers and scholars), an orientation to changing aspects of practice (documentation

of *continuity*, culminating in a presentation of their professional development over the year), and an increasing *distribution* of teaching competence across mediating artefacts (for example: learning stories, other methods of documentation, digital technology, useful metaphors and texts etc.).

*Examples of teachers' comments*

*Action research projects*

The Ministry of Education in New Zealand also funds action research projects, where teachers decide on the topic of interest for a research project, and (usually) university-based researchers provide advice and assistance. The authors have worked together with two early childhood centres that won projects to become 'Centres of Innovation' for three years. A completed project (Ramsey et al., 2006) developed the integration of two mediating artefacts - learning stories and ICTs - into their teaching and the children's learning. The findings used activity theory to illustrate the role of learning stories and ICTs within a network of relationships (or *dynamical learning environments*: Barab & Kirschner, 2001). An ABCD of teaching and learning has been reflected in the features of activity theory - distribution of labour or power (agency), community (breadth), rules and routines (continuity), and artefacts (distribution). The environment was empowering, conscripting, modelling and mediating. Many of the children's projects were about exploration.

*Example*

A current, just beginning, project is about curiosity: developing a culture of 'asking questions' in a childcare centre (inquiring teachers and inquiring children, including babies). Teachers are collecting short video clips and reflecting on them, inviting children to comment, and keeping journals and tape-recording episodes of their own practice.

*Example*

## **Conclusion**

The ABCD framework describes some key features of educational spaces that afford the development of identity kits for 'being curious':

### *AGENCY*

- The educational spaces include passionate people who want to change the world and critical minds who can turn ideas upside down (and notice, recognise and respond when others do so). Children's views and ideas are listened to and acted upon.

### *BREADTH*

- There is an enjoyment of diversity and a belief in the value of making connections with funds of knowledge (Gonzalez et al. 2005) from other communities and other places.

### *CONTINUITY*

- Asking questions is a key aspect of what the participants routinely do and what is valued. Gordon Wells has lamented, for instance, that "Where grades and test scores are what matter, it is difficult indeed to encourage a spirit of inquiry" (2001 p.207). Continuities of question-asking and question-pursuing can be reviewed by the learner.

### *DISTRIBUTION*

- What is valued is often written down or made public in some way. (A balance, Wenger, 1998, calls it, between participation and reification).

We finally suggest that there are two kinds of 'being curious':

- being eager to learn, inquisitive
- constructing something odd, innovative, strange, or unexpected.

We could say that the first is about 'making the strange familiar' and the second is about 'making the familiar strange'. Making the *strange familiar* is about asking questions, exploring the unknown and trying to make sense of it. Making the *familiar strange* (e.g. Lynn Fendler, 1998 p.39) is about making what we thought was familiar into something strange and unexpected: resisting a norm, questioning a given text, finding an innovative way of explaining something, turning things upside down. Very young children are particularly good at the latter, because they are often unfamiliar with the norms, assumptions and categories that grownups have ready for them. In our view it is a valuable, but fragile, disposition. Teachers can value, protect and nurture this second aspect of being curious. Here is an example, where Joshua and the teacher question the given text.

Learning Story  
"A Sticky End"

Child's Name: Joshua  
Teacher: Chrissy

Joshua peered over my shoulder as I read the book "The Icky Sticky Frog". The plot involves the frog spotting his hapless prey and then slurping them up with his long, sticky tongue. Near the end of the story, the frog spots a butterfly. However, this time, instead of the frog eating his quarry, a fish gulps down the frog. Joshua looked at the last picture for a while and then he said "The butterfly is smiling."

"Mmm," I concurred, "Why do you think that is?"

"I think the frog should be smiling but he's inside the fish"

"Do you think the ending should be different?" I asked.

"Yes", said Josh.

"What do you think the ending should be?" I asked as we continued to look at the sorry state of affairs.

"I think the fish should eat the butterfly!" said Josh, his eyes lighting up with glee.

#### Short Term Review

... I found (Joshua's) comment about the ending of the book very interesting as it has also touched upon a note of disappointment I feel when reading some stories. (The Gingerbread Man is one that comes to mind...) I found a handout which was supplied at a recent workshop I attended on Literacy. The handout describes "Four Roles of a Literate Person". (Later, in 1999, Luke and Freebody changed this descriptor to "four literacy practices")

One of the roles is that of *Text Analyst* where the participant challenges the view represented in a particular text. And I guess Joshua did just that. We recognize that literacy involves so much, and that it is not only about reading and writing. It involves the ability to look critically at texts too.

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