

## Leadership and Learning



Developing an Inquiry  
Approach to Professional  
and Student Learning

Kapiti Coast Cluster, New Zealand  
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Sustained Success

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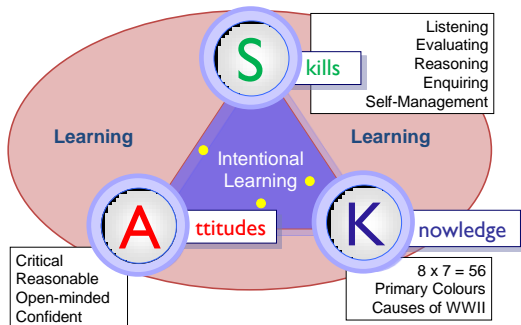
'Education' means...

I know learning has happened when...

When a pupil leaves our school,  
I would like them to be...



## The ASK Model



Teacher and pupil know **what**, **how** and **why** they are learning



*"Explicit attention to thinking and talking about learning equips pupils to transfer their learning to different contexts, and helps them to process, construct and deploy subject knowledge, skills and understanding more actively and effectively."*

Leading in Learning;  
Mercer, 2005

So, how can we prepare pupils for independent,  
life-long learning and help them construct  
an understanding of the world around them?



## Key Characteristics of Quality Teaching

- high demands of pupil involvement and high levels of **interaction** for all pupils
- focus on **teacher questioning**, modelling and explaining
- an emphasis on **learning through dialogue**, with regular opportunities for pupils to talk both **individually** and in **groups**
- an expectation that pupils will accept responsibility for their own learning and work **independently**
- regular use of encouragement and **authentic praise** to engage and motivate pupils.



## Key Characteristics of Quality Teaching

**Interaction**

**Independence**

**Dialogue**

**Questioning**

**Authentic praise**





### Constructing Learning

We build on foundations we already have...



...building new learning onto what we already know

### Constructivism



We build in stages  
We learn progressively  
Knowledge, skills and understanding get more complex as we go along



### Social Constructivism

We build with others

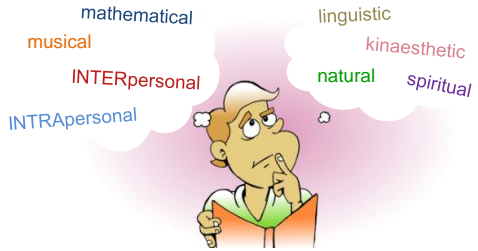


We construct our understanding by working with and talking to, others...




### Tools for Learning

We bring different intelligences to our learning...





mathematical  
musical  
INTERpersonal  
INTRApersonal  
linguistic  
kinaesthetic  
natural  
spiritual

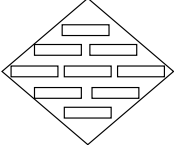


### Diversity

The results may look different depending on what we started with, and how we build...





### A Diamond Nine on...



**Jobs**

From the cards you have been given, decide which you would put in the top box, then the next two and so on, saying WHY you have ranked them in this way.



### Sorting and Classifying

Sorting and classifying help us make sense of concepts and ideas, and to contextualise new learning and information.

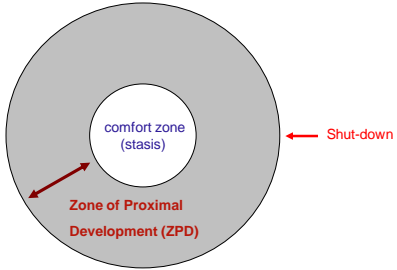



These are fundamental, often unconscious skills that we use to assimilate information and ideas with what we already know.

*Cognitive conflict* arises when we learn something that doesn't match what we already know, or when our basis for classification is challenged...



### The Learning Zone (Vygotsky)

### Sorting and Classifying




“Discussing the reasons for how and why we classify concepts and ideas, helps us move from confusion to clarity.”

- Leat & Kinninment (1999)




### Debriefing Questions

- How did you arrange the cards?
- Are you happy with your groupings?
- What similarities/ differences did you notice?
- What assumptions did you make and why?
- Tell me more about....
- What do you mean by...
- How did your ideas change?
- How did your group operate?
- How did you resolve disagreements?
- If you did it again what would you do differently?




### Talking about Learning



So what kind of thinking were we doing?


-

In pairs, please make a list of at least 5 types of thinking you have used since the start of the day.  
e.g. comparing.



### The PRICE Taxonomy

<b>P</b>	rocessing Information	Locate facts; sort & classify; sequence; compare
<b>R</b>	easoning	Give reasons; make decisions; explain; connect
<b>I</b>	nquiry	Ask questions; define problems; predict outcomes
<b>C</b>	reative Thinking	Generate/ develop ideas; hypothesise; imagine
<b>E</b>	valuation	Set and use criteria; make judgements



## An Enquiry Model



## The Art Gallery



## Rainforest Research

You have 3 lab assistants to research information from the rainforest. Assign each assistant a group of photographs to follow up...



## Sorting and Classifying



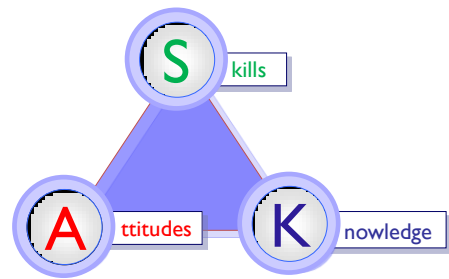
"Discussing the reasons for how and why we classify concepts and ideas, helps us move from confusion to clarity."

- Leat & Kinniment (1999)



## Debriefing Questions

- How did you arrange the cards?
- What reasons did you have for your groupings?
- Did you use any prior knowledge to help group the cards?
- Are you satisfied with all of your groupings? Why/ not?
- What similarities and differences did you see in the cards?
- Were any cards harder to group than others? Why?
- Did you change your mind during the task? When? Why?
- If you had more/ less 'walls', would the task be easier/ harder?
- What could you do to help if you had to complete a similar task?



## The Enquiry Approach

"Enquiry is a set of skills which enable students to ask relevant questions, pose and define problems, plan what to do and how to research, predict outcomes and anticipate consequences, to test conclusions and improve ideas."


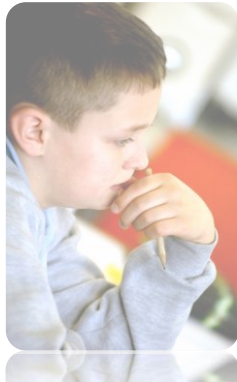
- DfEE (1999)

"At its' core, enquiry is cross-curricular, under the jurisdiction of the students' themselves, and all-encompassing of other 'thinking skills'."

- Roberts (2003)


"Enquiry is 'reflective thinking'; a conscious and voluntary effort to establish belief upon a firm basis of reasons. It is constructed on the teachers' fundamental beliefs about education."

- Dewey (1936)

"Enquiry helps us to learn about the world, only through actively making sense of it for ourselves."


Margaret Roberts  
*Learning through Enquiry* (2003)



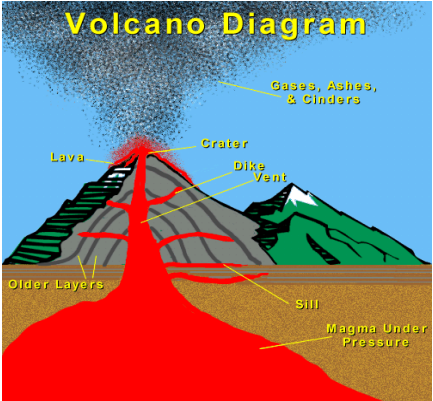
## Collective Memory

You will have 10 seconds each to look at the image

On one A4 page, as a group, recreate the image **exactly!**



### Volcano Diagram




## Debriefing an Enquiry

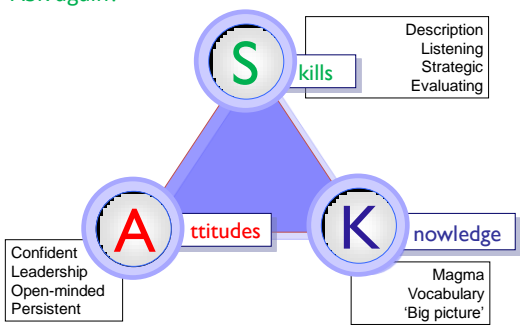
**K** What did you create?  
What do you know (about volcanoes/ magma/ layers..?)  
What did you still need to find out?

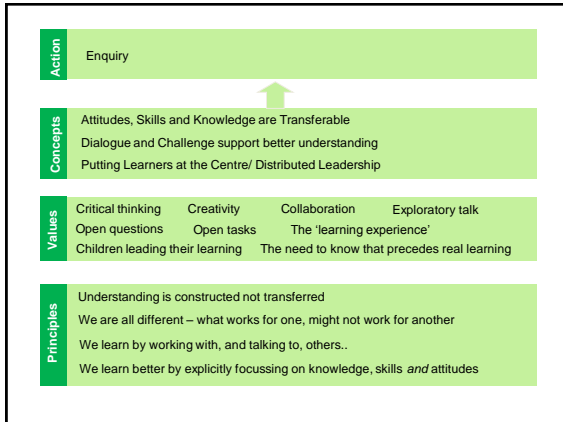
**S** How did you organise the group?  
Which of the characteristics of teamwork was a strength/ difficulty?  
What strategy did you decide on, and did it work?

**A** How did you feel before you started the task?  
How confident were you in yourself/ your team?  
What did you find difficult, and how did you overcome this?




### ASK again!







## Understanding of the World

- Create a stimulating environment that offers a range of activities which will encourage children's interest and curiosity
- Plan activities that encourage exploration, experimentation, observation, problem solving, prediction, critical thinking, decision making and discussion.
- Encourage children to tell each other what they have found out, to speculate on future findings or to describe their experiences. This enables them to rehearse and reflect upon their knowledge and to practise new vocabulary.




## Classroom Priorities

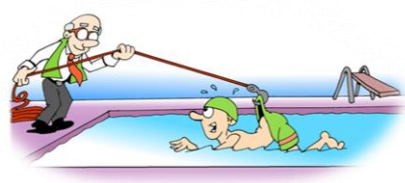

<p><i>Normal Sequence</i></p> <p><b>Teaching</b> causes</p> <p><b>Learning</b> which inevitably involves</p> <p><b>Thinking</b></p>		<p><i>A New Sequence?</i></p> <p><b>Thinking (How? Why?)</b> creates deep, empowering</p> <p><b>Learning</b> which is mediated by</p> <p><b>Teaching</b></p>
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## However...



## Learning or Towing?

## The Implications?


- Interaction**
- Independence**
- Dialogue**
- Questioning**
- Authentic praise**




## The Importance of Questioning

**Questioning** is a **critical skill** for teachers because it is:

- the most common form of interaction between teacher and pupil;
- an element of virtually every type and model of lesson;
- a key method of providing appropriate challenge for all pupils;
- an important influence on the extent of progress made;
- the most immediate and accessible way for a teacher to assess learning.




## So Many Questions...


Average number of questions teachers ask per day:  
**over 400**

Average amount of lesson taken up with questioning:  
**30%**


How often teachers ask questions, on average:  
**every 43 seconds**

Average number of questions teachers ask in their career:  
**over a million**





Closed	Open	Minimal Encouragers	Socratic
Usually elicit <i>fact</i> , single word/ short phrase answer Usually a single right answer Questioner knows the right answer Quick and easy Questioner controls conversation  Tests current knowledge	Deliberately seeks longer answers May be many possible answers Forces respondent to think and give reasons (justify) Uses 'thinking time' Equal participation in conversation  Explores opinions and ideas	Encourages students to 'keep talking' Non-judgemental, implying no agreement or disagreement Questioner shows they are actively listening Uses 'nods', 'go on..' Respondent controls conversation  Extends thinking, prompts further clarification	Aims to unearth misconceptions and contradictions Causes cognitive conflict Forces respondent to question themselves Highlights contradictions Responsibility for conversation shared  Challenges first responses and assumptions




## Closed Questions

Questions where the teacher already knows the answer  
**over 90%**

Average length of time students get to think of an answer  
**0.8 seconds**

Average length of student answers  
**1.3 seconds**

Closed Questioning can often become a game of 'guess what teacher is thinking..'




## Increasing Wait Time

**When teachers increase the average wait time to 3 seconds;**

- The length of explanations amongst advantaged groups increases fivefold, and amongst disadvantaged groups sevenfold
- The number of unsolicited but appropriate comments increases dramatically
- Failures to respond decreases from an average of 30% to less than 5%
- The number of questions asked by children rises sharply.

Rowe (1986); University of Florida




## Open Questioning

Also known as:

Productive Challenging Higher Order Rich Hot Fat	}	cause students to extend their knowledge and understanding; to draw out a wealth of possible responses regarding knowledge, thoughts ideas, feelings and speculations  to 'fatten up' questions, ask students to think of possibilities
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**Think – Pair - Share**




### Minimal Encouragers

Keep students talking.  
They are brief responses that show that you are there, listening.  
They involve saying very little and offer minimal direction.

'Go on...'  
'Tell me more about...'  
'Why do you say that?'  
'mmm...'  
Raising eyebrows/ indicating to go on with hands...


### Socratic Questioning




"In order to achieve high levels of motivation and active engagement, teachers need to ask questions which probe pupil's understanding, cause them to reflect on and refine their work and extend their ideas."  
- DfES, National Literacy Strategy

"Open and closed questions can only be defined by the teachers' intent in asking them."  
- Galton, 1999

"Emphasis should be less on the questions teachers ask, and more on the manner with which teachers react to pupils' responses to questions."  
- Higgins & Smith, 2006




### Questioning

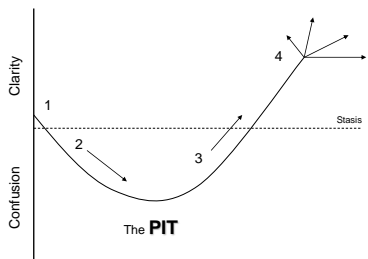


Engagement      Conflict      Reflection      Resolution


Challenge easy assumptions. Encourage cognitive conflict and let the students reason through the possibilities until *they* are satisfied with *their* decision...



### The Learning Pit



1. Concept  
2. Conflict  
3. Construct  
4. Consider




### Cognitive Conflict

Ask questions that cause conflict between two concepts!




### Questioning


"Through the art of thoughtful questioning, teachers can extract not only factual information, but aid learners in connecting concepts, making inferences, increasing awareness, encouraging creative and imaginative thought, aiding critical thinking processes, and generally helping learners explore deeper levels of knowing, thinking, and understanding."  
- Adler, M. (1982)



### Critical Incident Analysis

"Critical incident analysis can help teachers to know more about how they operate, to question their own practice and enable them to develop understanding and increase control of professional judgement. It can enable an individual to reflect on their practice and to explain and justify it."

Tripp D (1993): Critical Incidents in Teaching: Developing Professional Judgement




### Appreciative Enquiry

David Cooperrider and Suresh Srivasta (1986);  
"The Appreciative Enquiry Handbook"


"It is the discovery of the best in people, their organisations, and their community.

It is the practice of asking the positive questions that will strengthen a community's capacity to understand and value itself and to develop positive potential."



### Analysing Critical Incidents

Choose a critical incident	<i>Pupils misbehave in science</i>
Describe the incident	<i>Consider the facts only</i>
Interrogate the description	<i>What are the consequences? Why is this important? Is there a pattern?</i>
Share your interpretation	
Compare viewpoints	<i>What is my bias/ perception?</i>
Phrase your incident as a question	<i>What strategies can I use to engage pupils in science after lunch on a Friday?</i>



### Collaborative Action Research

Action Research improves:


- Reflection on Practice
- Understanding of the effects of practice
- Decision making on future practice
- Teacher professionalism and sense of autonomy
- Collegiality and Collaboration



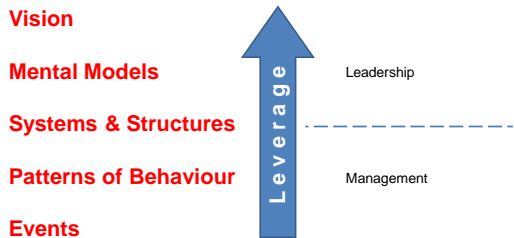


### Action Research Probes

Choose 2 values, then answer these questions in relation to each:

- What should you keep doing?
- What should you stop doing?
- Where could you find out more/ what else could you find out?
- What could you hope to present back to others in 6 months?



### A Leadership Model (Daniel Kim)

## Feedback

### Working Inside the Black Box; Assessment for Learning in the Classroom (Black & Wiliam, 1998)

"Feedback has been shown to improve learning where it gives each pupil specific guidance on strengths and weaknesses, preferably without any marks"

"Feedback should cause thinking to take place"



## The Dangers of Praise

"It has become a common practice to praise children for their performance on easy tasks, to tell them they are smart when they do something quickly and perfectly.

When we do this we are not teaching them to welcome challenge and learn from errors. We are teaching them that easy success means they are intelligent and, by implication, that errors and effort mean they are not.

What should we do if children have had an easy success and come to us expecting praise? We can apologise for wasting their time and direct them to something more challenging. In this way, we may begin to teach them that meaningful success requires effort."

(Dweck, *Self Theories*)



## Feedback should:

### 1. Praise determination, resilience and hard work

Attitudes such as persistence, resilience, courage are more accurate predictors of future success than facts and knowledge are, so spot them, praise them and encourage them

### 2. Refer to progress rather than ability

Praising ability or intelligence can lead to a fear of failure and personal fragility (Dweck, 1999), so give feedback relative to the progress only

### 3. Be authentic and credible

Give only credible feedback based on attitudes, skills and/or knowledge. Avoid giving undeserved praise as this could undermine sincerity and credibility



## Mindsets

(Carol Dweck)

### FIXED Mindset

Intelligence is fixed

Priority: Look smart

Feel smart by: achieving easy, low effort successes and outperforming others

You avoid: coming out of the comfort zone, being challenged and setbacks

### GROWTH Mindset

Intelligence is cultivated

Priority: Become smarter through learning

Feel Smart by: engaging fully, exerting effort, stretching skills

You avoid: Easy, previously mastered tasks

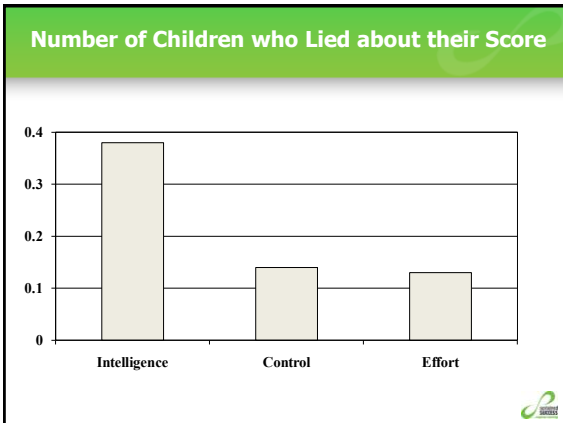
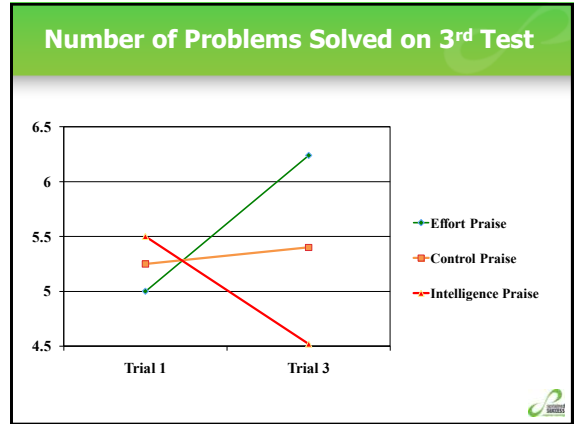


### Muller and Dweck, 1998

**Intelligence** praise  
 "Wow, that's a really good score. You must be **smart** at this."

**Process** praise  
 "Wow, that's a really good score. You must have **tried** really hard."

**Control-group** praise  
 "Wow, that's a really good **score**."



### The Effects of Mindsets on Learning

	Intelligence Praise	Effort Praise
Theory of Intelligence	Promotes Fixed Mindset	Promotes Growth Mindset
Students' Goal	Look smart	Learn new things
Failure means ...	Low Intelligence	Low Effort
Enjoyment after difficult test (DT)	Low	High
Persistence after DT	Low	High
Defensiveness after DT (i.e. lying)	High	Low
Performance after DT	Impaired	Improved

### The Learning Wall

So, what kind of learning were we doing?

**What have you have done most today...?**

**What did you find most difficult today...?**

Explain to the person next to you why you chose that 'brick'

### Learning Wall

Creative	Listening	Friendliness
Honesty	Give Examples	Imagine
Give Reasons	Courage	Evaluate
Share	Clarify	Classify
Compromise	Open-minded	Persistent
Develop Criteria	Persuade	Make Connections

## 6 Principles in Enquiry

Effective Enquiry Lessons will be:

- Active** - so the students can explore their own ideas
- Meaningful** - in a 'real world' context, so it is engaging
- Challenging** - it will make the students think!
- Collaborative** - so the students work together, sharing ideas
- Mediated** - where the teacher guides, rather than tells
- Reflective** - giving the students time to reflect on their own learning



## The Implications?

- Interaction**
- Independence**
- Dialogue**
- Questioning**
- Authentic praise**



**"The proverb warns that;  
'You should not bite the hand that feeds you.'**

**But maybe you should, if it prevents  
you from feeding yourself."**

*- Prof. Thomas S. Szasz (Hungarian Psychiatrist), 1950*

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## Challenging Learning



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