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Creating effective learners – what matters in the classroom?

Expertise and the importance of formative assessment

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What kind of learners do we want?

The global rhetoric of the '21st century learner'

Are students prepared for future challenges? Can they analyse, reason and communicate effectively? Do they have the capacity to continue learning throughout life?

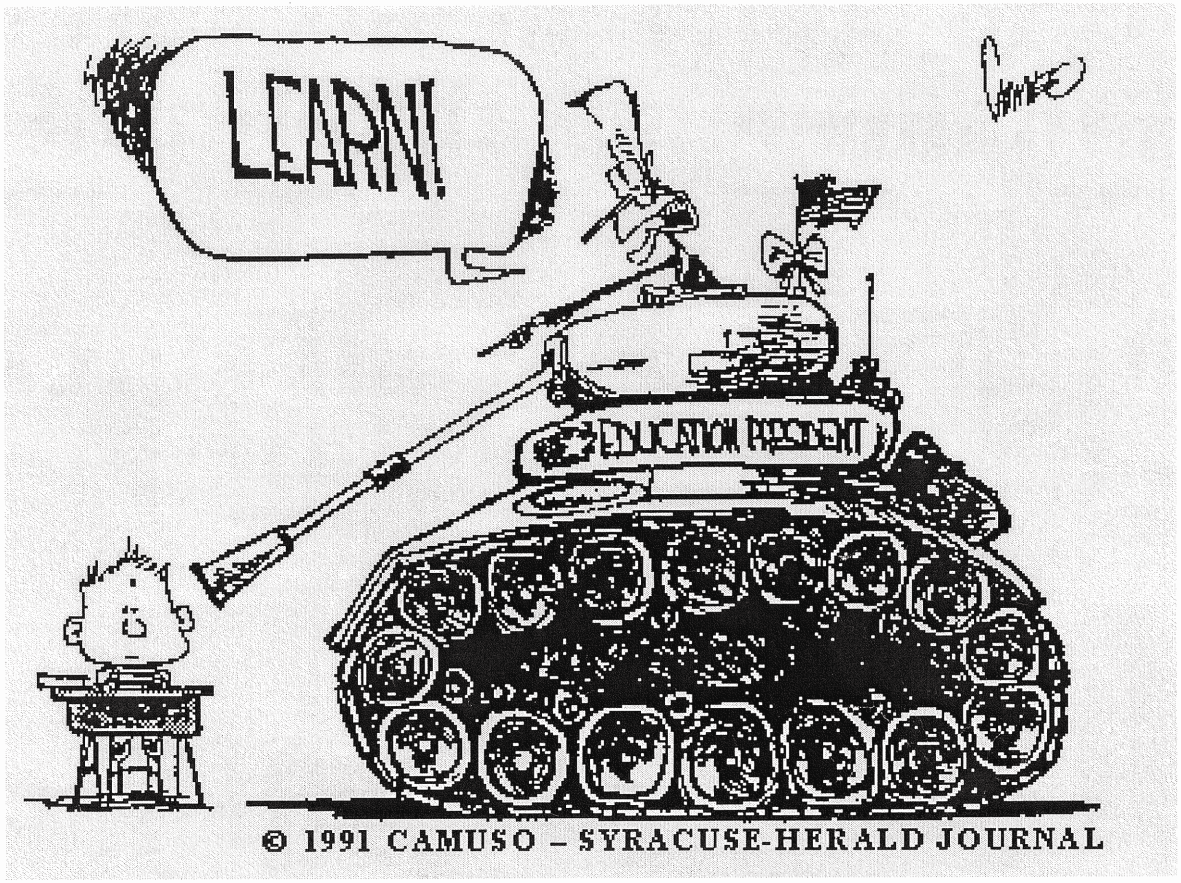
(PISA homepage www.pisa.oecd.org/)

'Our children... should be self-directed learners who view education as a life-long process. They should also be innovative and enterprising individuals, able to cope with ambiguity and adapt well to change'

(Singapore: PERI Report, 2009,p3)

But what in the education system is encouraging this?

Is this the message of the "Standards" movement?



Learning approaches: Surface, strategic and deep

Surface Learning Approach: *reproducing*

Intention: to cope with course requirements

To be able to reproduce content as required;

Passive acceptance of ideas and information;

Lack of recognition of guiding principles and patterns

Focusing learning on assessment requirements.

Strategic Learning Approach: *reflective organising*

Intention: to achieve the highest possible grades

Putting consistent effort into studying;

Managing time effort and resources effectively;

Monitoring the effectiveness of ways of studying;

Being alert to assessment requirements and criteria ;

Strategic learning?

Teaching to the test meant students were able to pass the Texas Assessment of Academic Skills:

> even though the students had never learned the concepts on which they are being tested. As teachers become adept at this process, they can even teach students to answer correctly test items *intended* to measure students' ability to apply, analyze or synthesize, even though the students have not developed application, analysis or synthesis skills'.
>
> (Reese & Gordon, 1997 p.364)

The Times Educational Supplement
Friday September 19, 2008

Maths drilling fails pupils

Exam results are better but pupils do not carry number lessons into real life, says Ofsted

By David Marley

CHILDREN ARE leaving school unable to apply maths in their everyday lives, despite exam results improving significantly over the past decade, Ofsted has judged.

Pupils are drilled to pass tests instead of gaining a proper understanding of the subject.

Learning approaches (2)

Deep Learning Approach: *seeking meaning*

Intention: to develop ideas for yourself

An intention to develop personal understanding

Active interaction with content, particularly relating new ideas to previous knowledge and experience

Linking ideas together using integrating principles

Relating evidence to conclusions

Key elements: 'making sense'; building on what is already known; active and social.

Defining learning

'A significant change in capability or understanding'

This excludes: the acquisition of further information when it does not contribute to such changes.

(Michael Eraut)

'Any process that...leads to permanent capacity change'

this involves *content*, *incentive* and *interaction*

(Knut Illeris)

'It's like learning to ride a bike'

How we became experts – or not

1. What am I good at?
2. How and why did I get good?
3. How do I know I'm good?

4. What am I *not* good at?
5. How and why did I not get good?
6. How do I know I'm not good?

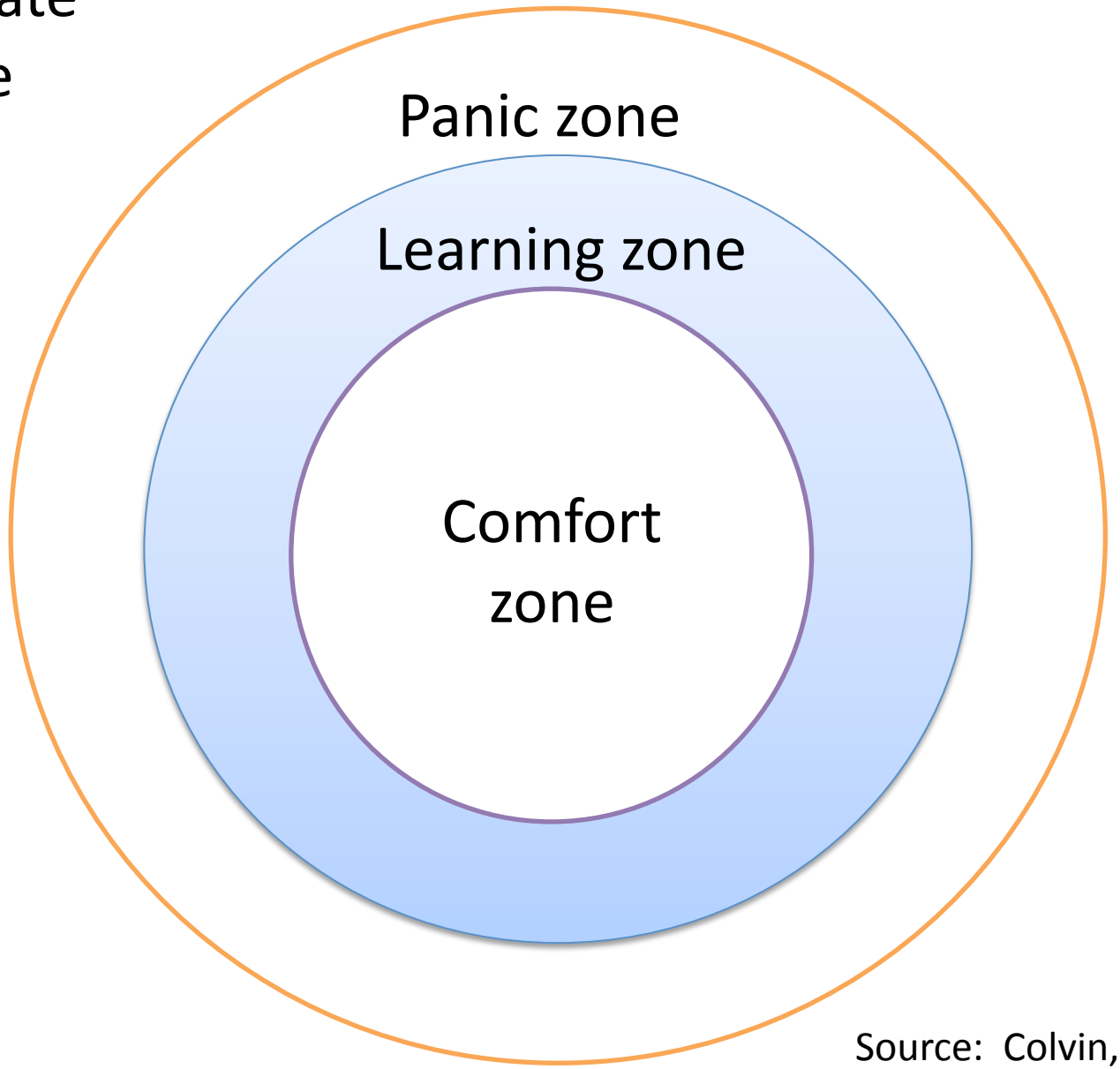
Developing expertise

Nobody is born an expert

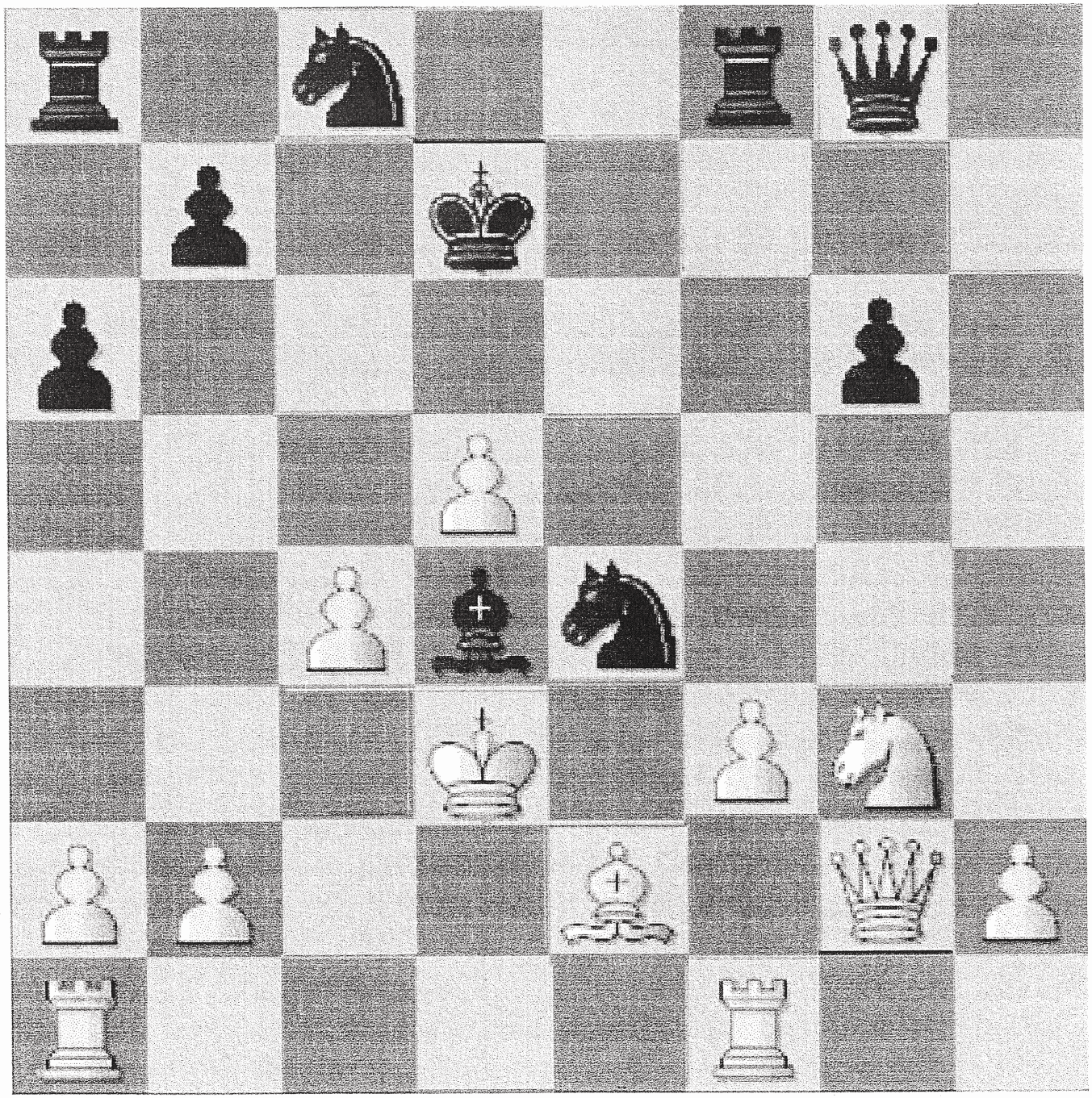
Expertise is the result of:

1. Knowing where we want to go
2. *Deliberate* practice (10K hours)
    - Designed to improve
    - Repeated until automatic
    - Continuous feedback
    - Demanding mentally
    - Is hard work
3. Deepening knowledge
    - Development of a mental model/framework
    - Recognising what's relevant and irrelevant
    - Remembering more – 'chunking'

Deliberate practice



Source: Colvin, 2009



So how do we transfer this to the classroom?

- Good diagnostics about current knowledge & skills;
- Clear goals and understanding what success looks like;
- Deliberate practice;
- Effective feedback.

One possible 'mental model': Assessment for Learning

Assessment for Learning is the process of seeking and interpreting evidence for use by learners and their teachers

to decide where the learners are in their learning,

where they need to go and

how best to get there.

Assessment Reform Group (2002)

The most effective teaching practices
John Hattie's meta-analysis of 800+ studies

'[The five] top methods rely on the influence of peers, feedback, transparent learning intentions and success criteria....using various strategies, attending both to surface and deep learning.'

'What is most important is that teaching is visible to the student, and that learning is visible to the teacher'

Finding out where learners are – the need for better dialogue

- *Classroom diagnostics*: written work, tests, performance (reading)
- *Classroom dialogue*: questions, discussions

Teachers talk 70-80% of time;

ask 200-300 questions a day, 60% recall facts, 20% procedural;

<5% group discussion or meaningful ideas;

70% of answers less than 5 secs (3 words) Source J. Hattie 2012

How long do teachers wait after asking a question before taking action?

Questions > 'thinking time' (wait time)> pair and share > no hands up.

Traffic lights

Quality questioning

Rich questions (open ended):

Describe what a poem is.

Would putting a coat on a snowman help to stop it melting?

Misconceptions are valuable:

1/3 + 1/5 = 2/8;

Use good question stems: 'why does...?'; 'what if...?'; 'how would you...?';'could you explain...?'

Poker face - focus on the task, don't give clues

Basketball not ping-pong – keep the class active rather than one-to-one

Avoids:

asking too many questions at once;

answering them yourself;

only asking the best students;

ignoring answers; failing to build on answers

'..where they need to go':

Learning intentions

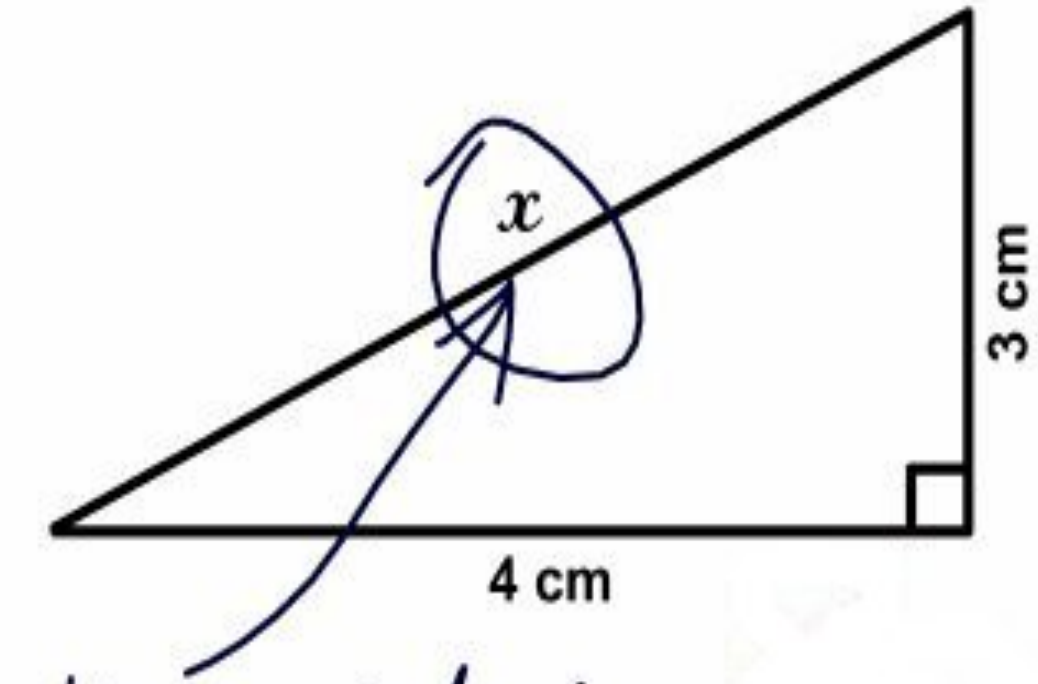
- The teacher is clear about what is being learned (progression in learning)
- What we will be *learning* rather than what we will be *doing*
- The importance of '*tuning in*' (building on 'where learners are in their learning'):

  setting the scene (why we are learning this), explaining the situation, linking to what is known,

  unfamiliar words & phrases explained

  '*Its not that I haven't learned much. It's just that I don't understand what I'm doing*' (15 yr old, in Harris, 1995)

3. Find x.



Here it is

PETER [redacted]

1.21

4c) Expand

~~$x^3 + 8x - 2$~~

$(a+b)^n$ Very funny, Peter.

$= (a + b)^n$

2 ?

$= (a + b)^n$

$= (a + b)^n$

etc.

High expectations are the key to improving learning – expert teachers set more demanding work (John Hattie, 2012)

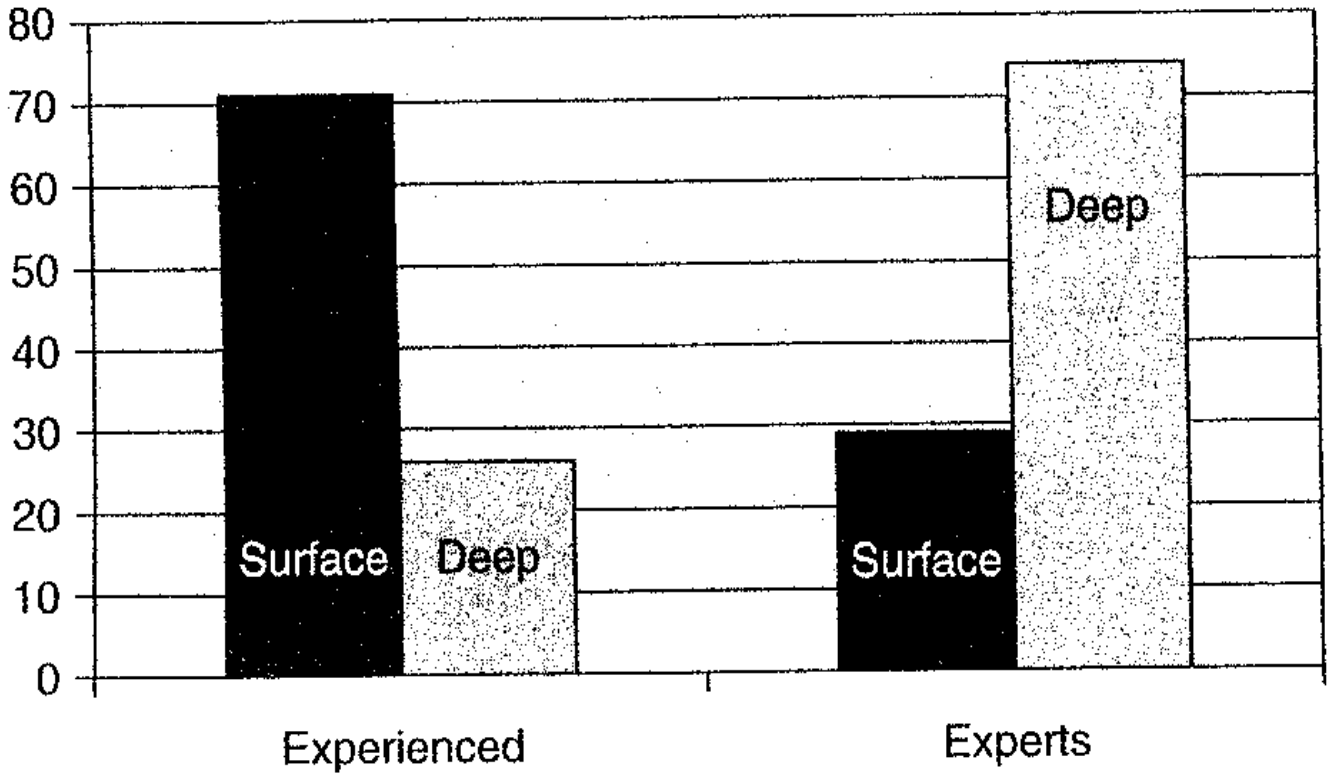


FIGURE 3.2 Percentage of student work classified as surface or deep learning

Knowing where learners need to go: Success criteria – understanding what is needed

What will a good performance look like?

Success criteria need:

- *Negotiation:* 'what would you expect to see in a successful piece of work?'
- *Exemplars:* 'which of these two (or more) pieces of work best meets the criteria?'
- *Modelling* – 'Here's what I mean...'
- *Guided practice* – activity > independent practice

AfL in practice: teaching Sudoku

Sudoku

Fill the grid so that each row, column and 3x3 box contains the numbers 1-9

			4	1	6			
		5				3	4	
	7							9
	6				3			5
		8				6		
2			1				9	
1							2	
	3	4				7		
			3	7	9			

Feedback

'Provides information which allows the learner to close the gap between current and desired performance'

It is most effective when:

- It is effectively timed;
- It is clearly linked to the learning intention;
- The learner understands the success criteria/standard;
- It focuses on the task rather than the learner (self/ego);
- It gives cues at appropriate levels on how to bridge the gap;
- It offers strategies rather than solutions;
- It challenges, requires action, and is achievable.

Effective feedback
Lipnevich & Smith's research (2009)

464 university students write a 500 word draft essay

One-third get no detailed feedback, one-third get detailed instructor feedback, one-third get detailed computer generated feedback.

Half also get grades and half get praise

So 12 groups in all (3x2x2 design)

Essay given back and final version written

Essay re-marked and marks compared

Effective feedback
Lipnevich & Smith's research (2009) (2)

- Highest marks (mean=84) for detailed feedback from instructor with no grades or praise. Best for low achieving students.
- Lowest marks (mean=74) for no feedback, praise or grades.
- Praise slightly improved scores where grade had been given.
- '*Descriptive feedback, which conveys information on how one performs the task and details ways to overcome difficulties, is far more effective than evaluative feedback, which simply informs students about how well they did*.'

Expert teachers

- Set challenging goals – more ‘thinking work’
- Have deep understanding of teaching and learning
  - ‘high organisation based on ideas’ (John Dewey)
  - Understand what is relevant
- Link new subject knowledge to students’ prior knowledge and current lesson to other ones (‘storytellers’)
- Adapt lessons (change, combine, add) according to students – wide range of strategies
- Monitor learning and provide feedback

Expert learners

- Know where they are and where they are going
- Have a deep approach to learning
- Can self-regulate and self-monitor their learning
- Take risks
- Involve themselves in regular, purposeful practice until skills become automatic.
- Respond to feedback