How do we encourage effective learning?
Learning intentions, feedback and self-regulation

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What are 21\textsuperscript{st} century skills?

• A global policy rhetoric – the globilisation agenda, business rather than education led?

• A wish list with some common features but arbitrary numbers

\textit{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

\textit{As never before, the next generation will need to be innovative, creative, and skilled at managing knowledge as a resource.}

(Alberta Province, Canada, \textit{Inspiring Education}, 2010, p.3)
Norway’s 21\textsuperscript{st} Century goals

The pupils and apprentices shall develop knowledge, skills and attitudes so that they can master their lives and can take part in working life and society. They shall have the opportunity to be creative, committed and inquisitive. The pupils and apprentices shall learn to think critically and act ethically and with environmental awareness. They shall have joint responsibility and the right to participate.
Is this the message of the “Standards” movement?
Expert learning and the double duty of assessment

Assessment activities:

Have to focus on the immediate task and on implications for equipping students for lifelong learning in an unknown future ...they have to attend to both the process and the substantive domain. (David Boud)

Intelligence (and expert learning) is ‘knowing what to do when you don’t know what to do’ (Piaget)
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 do we do this?

By being expert teachers we can help pupils:

- Be clearer about what they are learning and why (learning intentions)
- Understand the quality of performance that is required (success criteria)
- Become more questioning about what they are learning
- Give opportunities to practise and take risks
- Provide feedback that moves learning forward

This can lead to pupils:

- Taking more responsibility for their learning (self-regulation)
- Being more critical in their approach and less teacher dependent
- Becoming resilient learners who will take risks
- Being able to assess their own and others performance more skilfully
What do we know about expert teachers?

They:
Set challenging goals – more ‘thinking work’;
Have more integrated knowledge and can link new subject knowledge to students’ prior knowledge and current lesson to other ones;
Can detect and use information that has most relevance and offer a wider range of strategies that students might use;
Adapt lessons (change, combine, add) according to students needs;
Monitor learning and provide feedback;
Check whether their teaching is working, look for any negative evidence.  

(John Hattie)
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
High demand and deliberate practice

Source: Colvin, 2009
Ayres’ study of 25 exceptional teachers

• Top 1% of exam results for over 6 years
• Their students do worse in other subjects

Findings:
1. Not exam driven – often chose difficult options and went beyond syllabus
2. Passion for their subject – teaching structured and teacher-led
3. Used whole-class question and answer
4. Emphasised holistic understanding & big picture
5. No spoon-feeding or answers during a task – students had to write their own notes

(Ayres et al 2004)
Expertise involves

Extensive *deliberate* practice – 10,000 hours

*The iceberg illusion* (Ericsson) and being ‘a natural’

The greatest enemy of understanding is coverage. As long as you are determined to cover everything, you actually ensure that most kids are not going to understand. You've got to take enough time to get kids deeply involved in something so they can think about it in lots of different ways and apply it—not just at school but at home and on the street and so on.

(Howard Gardner)
What are the messages for schools?
John Hattie’s priorities for effective teaching and learning

**Transparent goals**
- the more transparent the teacher makes the learning goals, then the more likely the student is to engage in the work needed to meet the goal.

**Success criteria**
- the more the student is aware of the criteria of success, then the more the student can see the specific actions that are needed to attain these criteria

**Rapid formative feedback**
- the more there is feedback about progress from prior to desired outcomes the more positive attributes to learning are developed

https://tmsydney.wikispaces.com/.../
The importance of being clear about what and why we are learning – and making deep demands

The need to ‘make sense’ and ‘make meaning’

- It’s not that I haven’t learned much. It’s just that I don’t understand what I’m doing’ (15 yr old)
- Sir treats us like we’re babies, puts us down, makes us copy stuff off the board, puts up all the answers like we don’t know anything. And we’re not going to learn from that, ‘cause we’ve got to think for ourselves. (low achieving student)
- We knew how to do it. But we didn’t know why we were doing it and we didn’t know how we got around to doing it.....I can get the answer, I just don’t understand why . (maths student)

(source: Jo Boaler)
Making sense
Working memory

Write 18725 as code
Deeper understanding - recognising patterns

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Learning intentions and success criteria

Find out where learners are in their learning

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
The teacher tunes in to the culture and understandings of the learner
Finding out where learners are

• *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

• Using good question stems:
  ‘why does...?’; ‘what if...?’; ‘how would you...?’;
  ‘could you explain...?’

• Poker face - the teacher’s body language does not signal to the student what the teacher wants to hear (keeps the focus on the task)

• Basketball not ping-pong

• Statements instead of questions

• Avoids: asking too many questions at once; answering it yourself; only asking the best students; ignoring answers; failing to build on answers
Ways of encouraging question asking

Why do our pupils ask so few thoughtful questions?
Why do they ask fewer as they get older?

• Written questions
  Question box / ‘Hold on miss I’ve got a question’ board/ Exit questions
• Role play – interview the expert
• Don’t know the answer – please research
• Groups write test questions for others in class at end of a topic
3. Find $x$. 

Here it is
4c) Expand

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A woman is on a diet. She buys 3 turkey slices which weigh 1/3 of a pound (0.45 of a kilo) but her diet only lets her eat 1/4 of a pound.

How much of the 3 slices she bought can she eat if she stays on her diet?
Some solutions

1. $3 \text{ slices} = \frac{1}{3}$ ; $x \text{ slices} = \frac{1}{4}$
   cross multiply so that $\frac{1}{3} x = \frac{3}{4}$, so $x = \frac{9}{4}$

2. If 3 slices is a third of a pound then 9 slices is a pound. I can eat $\frac{1}{4}$ of a pound so $\frac{1}{4}$ of 9 slices is $\frac{9}{4}$ slices (Grade 5)

3. \[ \text{(Source: Jo Boaler)} \]
Layers of learning intentions

1. **Big picture** - ‘essence’ - curriculum aim – ‘by engaging with text-based activities become increasingly skilled speakers and writers’

2. **Curriculum** – curriculum strand and level – ‘show a developing understanding of how to shape (written) texts for different audiences and purposes...’

3. **Translation of aim** – from prior assessment of students – ‘we are learning to write an argument which is convincing’

4. **Immediate learning** — ‘we are learning to sequence an argument’

5. **Specific learning** – ‘we are learning what a paragraph is and when to start a new one’ (based on M.Absolum)

How could you introduce learning about adjectives?
Success criteria – understanding what is needed

Royce Sadler’s paradox: why does thoughtful feedback often not work?

Success criteria need:

1. Negotiation: ‘what would you expect to see in a successful piece of work?’
   Where would you like to get to by the end of term?’
   ‘By the time you’re 16?’

2. Exemplars: ‘which of these two (or more) pieces of work best meets the criteria?’

3. Modelling: ‘Here’s what I mean...’

4. Guided practice: activity > independent practice (the teacher as sports coach)
   practice at least six times
Negotiating success criteria

Teachers were giving children the success criteria instead of asking the children to generate them. It made children think, “This is about doing what the teacher wants us to do” (Clarke)

An example of a 4 step process (Gregory, Cameron & Davies)

1. Brainstorm
2. Sort and categorise
3. Make and post a chart
4. Add, revise, refine

For example, *what counts in an oral presentation?*
Brainstorming

Look up and look at your audience
Have to be able to hear you
No fidgeting
Look interested
Use small cards for notes
Make it interesting by using pictures or diagrams
Use lots of expression
Slow down
Stand straight
Keep it short
Use specific examples to get your point across
Make sure you have a conclusion
We need to know what your topic is right away
Sort and categorise

Sorting into major criteria: **S** = speech and manner; **I** = interesting to audience; **E** = easy to follow

**S** Look up and look at your audience

**S** Have to be able to hear you

**S** No fidgeting

**I** Look interested

**E** Use small cards for notes

**I** Make it interesting by using pictures or diagrams

**S** Use lots of expression

**E** Slow down

**S** Stand straight

**I** Keep it short

**E** Use specific examples to get your point across

**E** Make sure you have a conclusion

**E** We need to know what your topic is right away
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<thead>
<tr>
<th>Criteria for oral presentation</th>
<th>Details/specifics</th>
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</thead>
<tbody>
<tr>
<td>Interesting to an audience</td>
<td>Look interested</td>
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<tr>
<td></td>
<td>Make it interesting by using pictures or diagrams</td>
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<td>Keep it short</td>
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<tr>
<td>Easy to follow</td>
<td>Use small cards for notes</td>
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<td>Make sure you have a conclusion</td>
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<td>We need to know what your topic is right away</td>
</tr>
<tr>
<td>Speech and manner help the audience listen</td>
<td>Look up and look at your audience</td>
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<td>Have to be able to hear you</td>
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<td>No fidgeting</td>
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<td>Use lots of expression</td>
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<td>Stand straight</td>
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AfL in practice: teaching Sudoku

Sudoku

Fill the grid so that each row, column and 3x3 box contains the numbers 1-9.
...pupils learn best when they:
2. Receive feedback that informs them about the quality of their work or performance;
3. Receive advice on how they can improve;

*Our experience of feedback*

Can you think of an example of feedback that has, for you, ‘closed the gap’ in learning?

Can you think of an example of feedback you have given that has helped a learner close the gap?
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 specific and clear;
- 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 the right levels on how to bridge the gap;
- It offers strategies rather than solutions;
- It challenges, requires action, and is achievable.
Specific and well timed....

Negative feedback as a ‘thorn’

• ‘write more’ – ‘If I knew more I would have written it – I don’t know what more to write. Teachers should tell me what is missing’ (14 yr old Norwegian pupil)

• When pupils are not given time to act on the feedback they see it as negative and critical which makes them feel ‘useless’. If the are given time and the teacher follows up on the feedback it is treated as positive.

(Gamlem and Smith)
‘is specific and clear’....

The thermochromic ink in this changes colour from the temperature from your forehead. It tells you if you are too hot.

Continue to improve handwriting and spelling.

Explain the science.
It is clearly linked to the learning intention; the learner understands the success criteria/standard;

Year 7 home Learning Task 1

The answer is 20!
(What is the question?!)?
- Make up some maths questions that give an answer of 20.
- You can start simple, for example $13 + 7 = 20$
- Then you can be more imaginative: $25\% \text{ of } 80 = 20$
- Be as creative as you can.
- You should come up with at least 20 questions but there is no upper limit.
- Credits and prizes will be awarded to the best, most creative questions!!

GOOD LUCK AND ENJOY!
20 ways to make 20 – be creative
(first maths homework in secondary school)
© This is a sensitive, well planned drawing, your lines are tight and you have observed very carefully.
To develop draw a little larger which will also assist with achieving a more accurate shape.
Lovely drawing.

Big and bold.

Keep pencil really sharp - edges are hard and crisp.
How can we encourage self-regulated learning?

1. Create favourable learning environments: ‘safe to take risks’, high expectations, ‘personal bests’
2. Make the learning meaningful: relevance, ‘tuning in’
3. Help learners be clear about goals of learning — ‘know where they’re going’ — making sense
4. Show learners they can manage the learning — ‘sweet spot’; zone of proximal development (zpd), don’t ‘over-help’
5. Encourage positive motivation and emotions - learning under control (effort and strategies), source of pleasure and pride
6. Help learners cope with negative emotions — coping strategies, reduce performance anxiety or boredom, modelling, reduce arousal (source: Boekaerts)