

# Evidence based learning about learning - with, from and about our students

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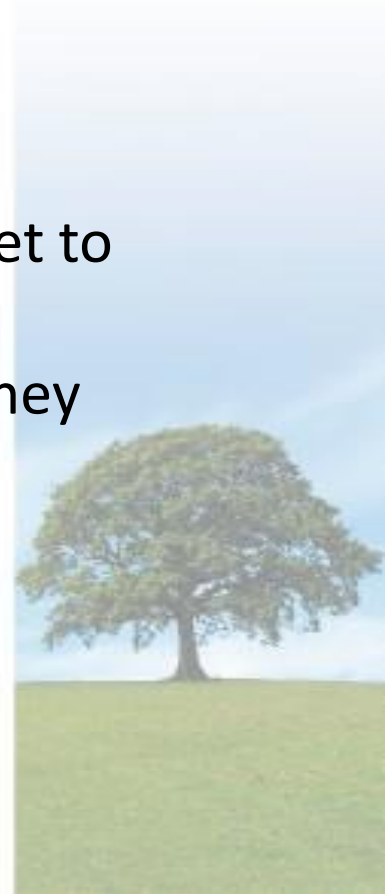
# This session

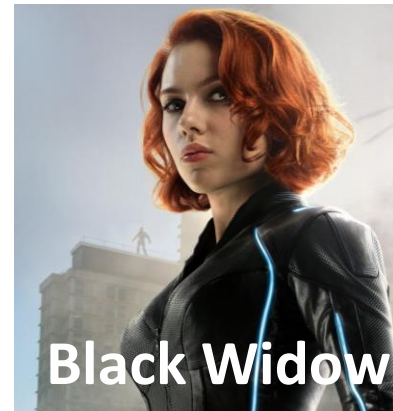
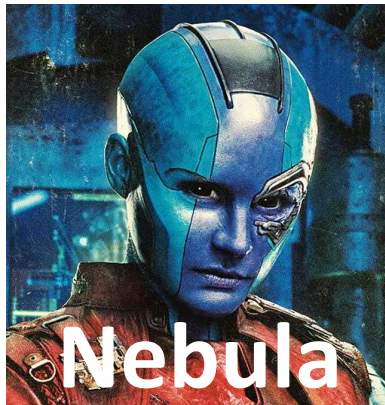
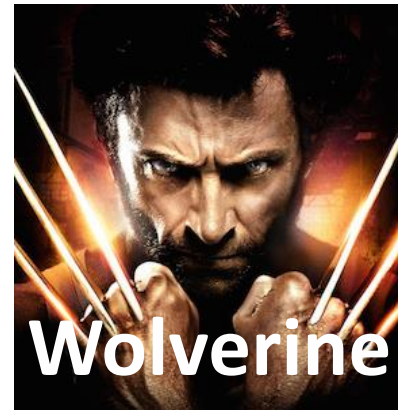
- Focussing on aspirations for learners
- Unpicking a couple of real world examples of teachers using evidence to enhance their own and learning
- Another example
- Our ideas about what make great teaching based on experience and case studies
- What evidence tells us about what makes great teaching
- What evidence tells us about how we develop as teachers
- A metaphor



# Focus students

- Let's choose a couple of focus students to test whether this evidence and these approaches might help
- Look at the cards of characters from the Marvel film genre  
Choose a couple of students:
  - One who reminds you of a student who puzzles you or who you have yet to reach
  - One who creates/ experiences obstacles to their own learning which they may not recognise





# Teacher collaboration to accelerate progress for reluctant learners

- Aims were to explore the role of teacher collaboration in enhancing student success through
  - Giving students a voice in their learning
  - Producing/ using active learning approaches and materials,
  - Using peer coaching to enhance team work and continuing professional development (CPD)to improve teaching and learning and also support integration of new colleagues into the team
- Also there was an effort to “practice what we preach” i.e. to apply what we know about teaching students to supporting our own learning



# What did they do?

- Colleagues started with what their students had to say about their learning. They did a quick on line survey to ask
  - What helps you to learn? What do you enjoy in lessons/workshops? What helps you remember what you learn? What is less helpful?
  - Results revealed active learning as being both enjoyable and helpful
- Teachers worked in pairs to
  - analyse nationally published (and researched) resources about how to make learning more active
  - discuss and choose resources that could be adapted to develop more active learning for their own subject areas and sub groups of their learners
  - used peer support (coaching and peer observation) to design, use and refine new approaches and resources
- Enabling leapfrog - a six weekly reciprocal review meeting helped slower starters catch up and deepened ownership for all



# Peer and student support

- The ground rules for peer observation and support were crucial to success
- Teacher pairs committed to 3 cycles of trying out and refining the materials/ approaches they had developed
- Teachers devised a form that asked teachers to record ideas about:
  - ‘Three things I would try in my teaching’;
  - ‘One thing I might do differently’; and
  - ‘How did you find it being observed!’
- They used this as a framework for discussion/ peer coaching during and after observations of how well active learning strategies/resources worked
- The use of resources and peer coaching and the changes to learning activities were visible to students who also started to volunteer to help make resources to support their own active learning.
- Karen Morgan <http://www.curee.co.uk/node/4707>



# Outcomes 1

- Students preferred multi dimensional and active learning
- Shared risk taking was powerful for teachers
  - “I thought everyone knew what they were doing except me. Now I realise that we all had ideas and that I could contribute as much as the more experienced teachers.”
- Significant increases in skilled use of published resources to enhance active learning in different contexts “without having to reinvent the wheel”. Working together and testing each others’ ideas meant teachers had more time/ confidence to be selective and to make informed adaptations for their students
- Much better learner engagement





## Outcomes 2

- Peer observation helped to broaden teachers' understanding of the curriculum and the links between subjects ( like maths and English) and vocational learning
- Staff more motivated to try to understand teaching and learning in depth and connections between learning one subject/context and another – it increased reflection and evaluation
- Staff more enthused about creativity and risk taking
- A marked increase in retention for first year groups and achievement for second year groups.
- Progression to Level 3 from Level 2 also increased dramatically



# Which activities might be useful to you?

- Which things in this example might help you and your focus learners? Give them 0,1,2 or 3 star ratings
  - Asking learners about what helps them learn/ remember/ grasp content best?
  - Working with a partner?
  - Having a structure ( a rhythm/ cycle and a discussion framework) to sustain peer working?
  - Opportunities to observe ( video?) and refine early experiments?
  - Focusing on selecting resources or approaches relevant to your context and your evidence about your learners?
  - Refining resources gradually in the light of experiments?
  - Ensuring learners get to see you being systematic about your learning?



# A case study – making algebra meaningful by changing classroom culture

## Focus

Ensuring students engage deeply with algebra from the start

Alf started by researching, with his class, and a history teacher, what great Algebraists had achieved and what they did e.g.

- think for themselves,
- notice and write about what they are doing,
- ask why things work,
- look for patterns; and
- get organised



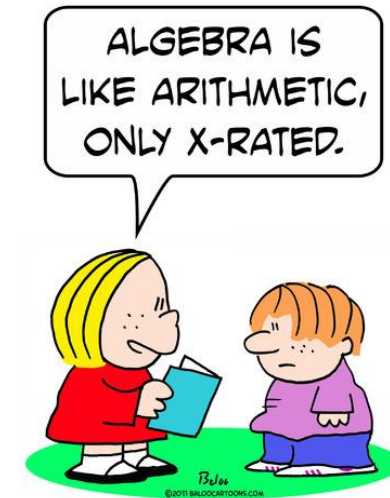
# Alf Coles – making algebra meaningful by changing classroom culture

- These were turned into criteria for tracking progress
- Alf designed tasks that would generate these behaviours and also help him and the students spot and celebrate progress
- These included
  - Emphasising writing down mathematical actions and reflections:
  - Asking students to finish each others' work at unpredictable moments
  - Analysing patterns in responses



# Classroom Culture Changes Via:

- *Setting up Common Boards* where students
  - Swapped half completed work to finish
  - Pinned work for comment/ checking by others against frameworks on the boards
  - Offered and /or asked for feedback
  - Recorded results and thinking for others to analyse/ classify
  - Identified patterns in working strategies and common mistakes



# Results

- After 15 weeks all the mixed ability students were:
  - Recording and thinking about their mathematical thinking
  - using symbols to express their own ideas
  - Asking “can we do this for  $n$ ” in problem solving
  - understanding algebraic statements in different contexts and identifying what was useful and efficient
  - Equivalent of A or B in GCSE algebra questions in year 7!

<http://www.curee.co.uk/node/4818>



# Alf and evidence based CPD/ enquiry

- Which activities were most useful in enhancing students' learning for ALF?
- Which might be most helpful for your focus students?
- Have a quick buzz then let's vote
  - Investigating “what algebra has ever done for us” with his class
  - Setting up “common boards”
  - Getting students to finish off each others' work
  - Involving students in setting quality criteria
  - Involving the students in evaluating/ planning next steps
  - Working through an iterative plan, do review cycle
  - Having the support of another colleague



## Understanding really here in name only “RHINO”learners

- Teachers struggling to engage a lower achieving group
- They believed circus activities / artist would help pupils engage
- But when faced with frustration, students responded as usual:
  - approximately 40% disengaged passively;
  - approximately 40% disengaged with aggression; and
  - the remainder continued with little focus or effort.
- Passive responders actively avoided confrontation and disrupting the learning of others because they didn't want to draw attention to their own disengagement.
- Aggressive responders wanted to distract attention away from their own feelings about lack of achievement
- Modest responders were fatalistic





# Understanding really here in name only “RHINO”learners

- Identifying passive resistance emerged from working deeply with a small group
- This meant teachers could work with passive resisters and help them [re-engage](#)
- Frustrated students who disengaged passively needed specific, often *skills based* help from either peers or adults to develop *strategies to be successful*. One successful approach was:
  - asking very open questions about why they had not succeeded and
  - encouraging them to think about what they needed to do to succeed by, eg, thinking about contexts where they had been successful and unpacking the strategies they use there.
- Quiet, undemanding students had measured, deliberate, emotional responses to success too - ranging from small, self congratulatory grins to modest comments in evaluation diaries. These were easy to miss. Focusing on a few learners at a time made it easier



# “Fun” isn’t everything



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# What we know about effective teaching and Learning

- Now let's think about what we know about teaching and learning from these examples and your experience and training
- Using what you know from experience and these examples, come up with your 3-5 top tips for a teacher coming new to teaching in the army about the things they do/ know that will make most difference
- Write them on the flip chart paper on your table



# Six key aspects of teaching that make for great learning

1. What we know – about what we teach and how students learn in that context
2. How well we apply that knowledge - Quality of instruction
3. The environment we create – Classroom/ workshop climate
4. The way we manage the time, people and learning activities - Classroom management
5. What we assume about the people we teach - Teacher beliefs
6. How we work/ practice what we preach - Professional behaviours

<https://www.suttontrust.com/wp-content/uploads/2014/10/What-Makes-Great-Teaching-REPORT.pdf>



# What makes great teaching

## 1. (Pedagogical) content knowledge (Strong evidence of impact on student outcomes) The most effective teachers have

1. Deep knowledge of the subjects they teach, and when teachers' knowledge falls below a certain level it is a significant impediment to students' learning.
2. As well as a strong understanding of the material being taught, teachers must also understand the ways students think about the content, be able to evaluate the thinking behind students' own methods, and identify students' common misconceptions.





# What makes great teaching

## **2. Quality of instruction (Strong evidence of impact on student outcomes)**

High quality instruction includes elements such as

1. Effective questioning and use of assessment
2. Specific practices, like reviewing previous learning, providing model responses for students, giving adequate time for practice to embed skills securely; and
3. Progressively introducing new learning (scaffolding)



# What makes great teaching

## **3. Classroom climate (Moderate evidence of impact on student outcomes)**

Effective management of the classroom/workshop climate encompasses

- The quality of interactions between teachers and students
- Teacher expectations: the need to create a classroom that is constantly demanding more, but still recognising students' self-worth
- Attributing student success to effort rather than ability and valuing resilience to failure (grit)





# What makes great teaching

## **4. Classroom management (Moderate evidence of impact on student outcomes)**

Effective management of the classroom/ workshop climate includes

1. A teacher's abilities to make efficient use of lesson time
2. To coordinate classroom resources and space
3. To manage students' behaviour with clear rules that are consistently enforced,

*all focussed on maximising the learning that can take place.*

These environmental factors are necessary for good learning rather than its direct components.



# What makes great teaching

## 5. Teacher beliefs (Some evidence of impact on student outcomes)

Teachers' beliefs about

- Why they adopt particular practices,
- The purposes they aim to achieve
- Their theories about what learning is and how it happens
- Their conceptual models of the nature and role of teaching in the learning process

*all seem to be important – more important in some ways than what they do – e.g. the purpose behind questions.*



# What makes great teaching

## **6. Professional behaviours (Some evidence of impact on student outcomes)**

### **Effective teachers**

- Reflect on and developing professional practice
- Participate in professional learning and development
- Communicate with responsible others (parents or employers)
- Access support from and give support to other teachers





Which of these six key aspects do you think could most help you and your focus students over the next 6 weeks as you reflect on what you have learned here?

1. What we know – about what we teach and how students learn in that context
2. How well we apply that knowledge - Quality of instruction
3. The environment we create – Classroom/ workshop climate
4. The way we manage the time, people and learning activities - Classroom management
5. What we assume about the people we teach - Teacher beliefs
6. How we work/ practice what we preach - Professional behaviours



## What makes great professional learning? Eight key strategies

Systematic reviews show that effective CPDL involves **sustained, iterative, aligned combinations of evidence-rich:**

- access to specialist expertise e.g. via resources, research, strategies for evaluating impact and knowing what great looks like
- peer supported dialogue re learner responses to changes
- (sensitive) disruptions to assumptions & beliefs
- development of practice and theory side by side



## Eight key CPDL processes to enhance student success

Effective CPDL involves **sustained, iterative, aligned combinations of evidence-rich:**

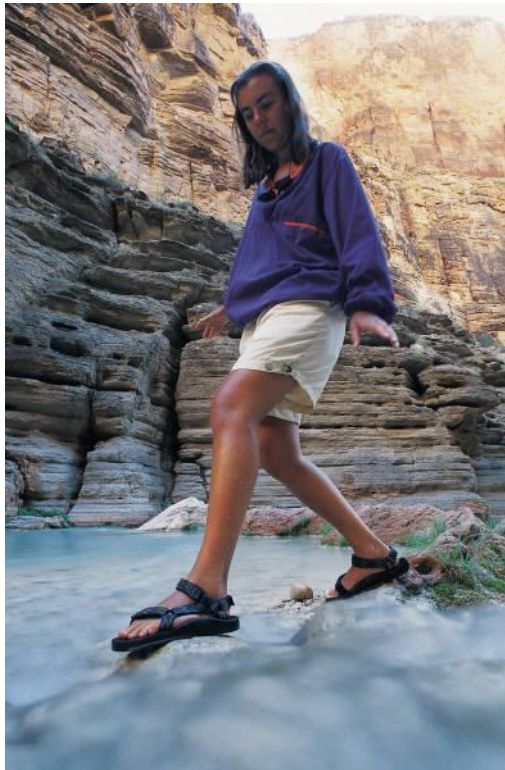
- Activities focused on aspirations for learners
- Formative assessment support for teachers to support and enable differentiation;
- Support via professional learning tools and protocols
- All contextualised for subjects and/or specific sub groups of learners

<http://www.curee.co.uk/news/2015/06/developing-great-teaching-new-report-effective-teachers-professional-development>



# A metaphor for the role of tools

Collaboration, tools and shared risk taking focussed on aspirations for students represent stepping stones...



... and the evidence you generate and explore creates a handrail







# An example/ extract of a micro enquiry tool from the route map

How can adapting learning activities increase learners thinking skills capacity?

### Independent evidence

Well-designed learner collaboration activities are key to helping learners develop thinking skills<sup>1</sup>. In such activities, learners are set tasks which encourage them to construct and test knowledge together and justify their conclusions.

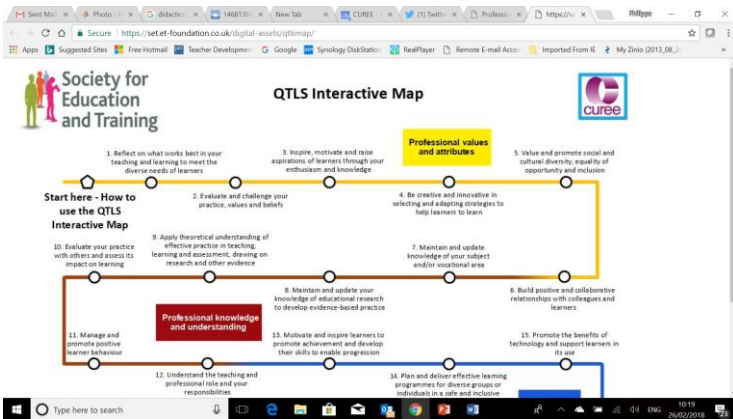
### Your evidence and reflections

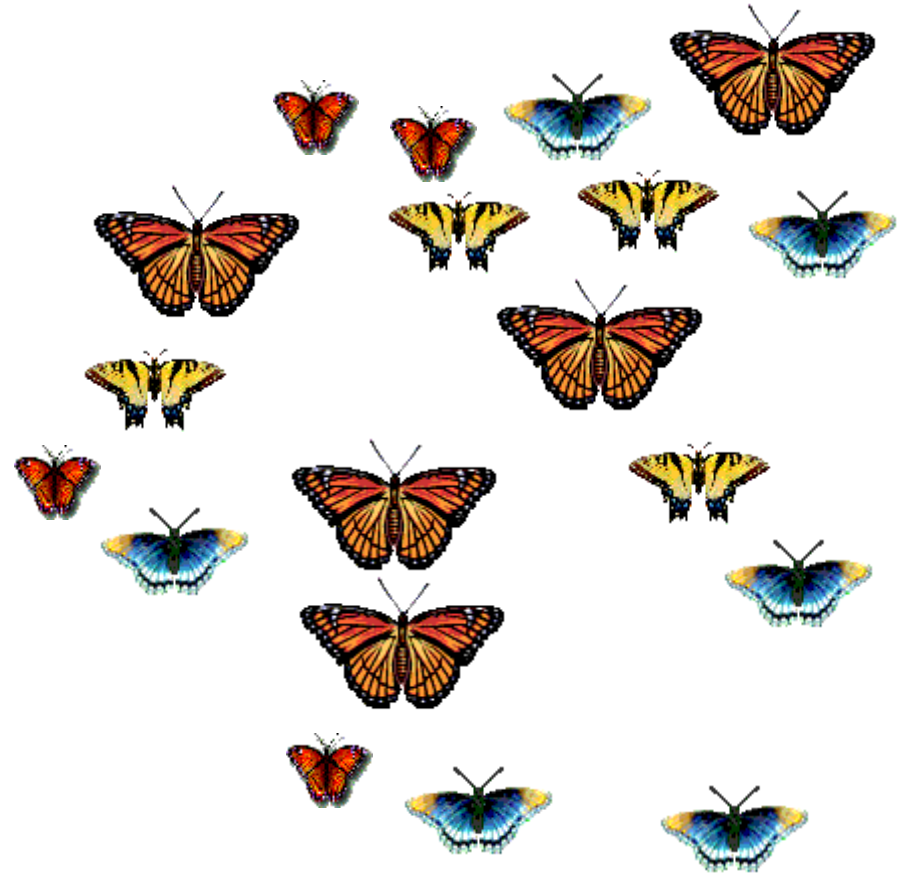
Look carefully at activities you give your learners which you think work well. To what extent and how does the activity encourage/enable learners to:

- construct knowledge,
- test knowledge
- justify the answers they reach, and
- Contribute to their own learning

You could use the table below to list the different activities that you have tried with your learners and make a note on how it incorporates methods that increase learners' thinking skills capacity across the 4 different areas:

Activity	Where learners able to use any pre existing knowledge?	How did the activity allow learners to justify/explain their answers?	How was independent learning incorporated into the activity?	How was learners' knowledge assessed during the activity?
Activity (1)				
Activity (2)				







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