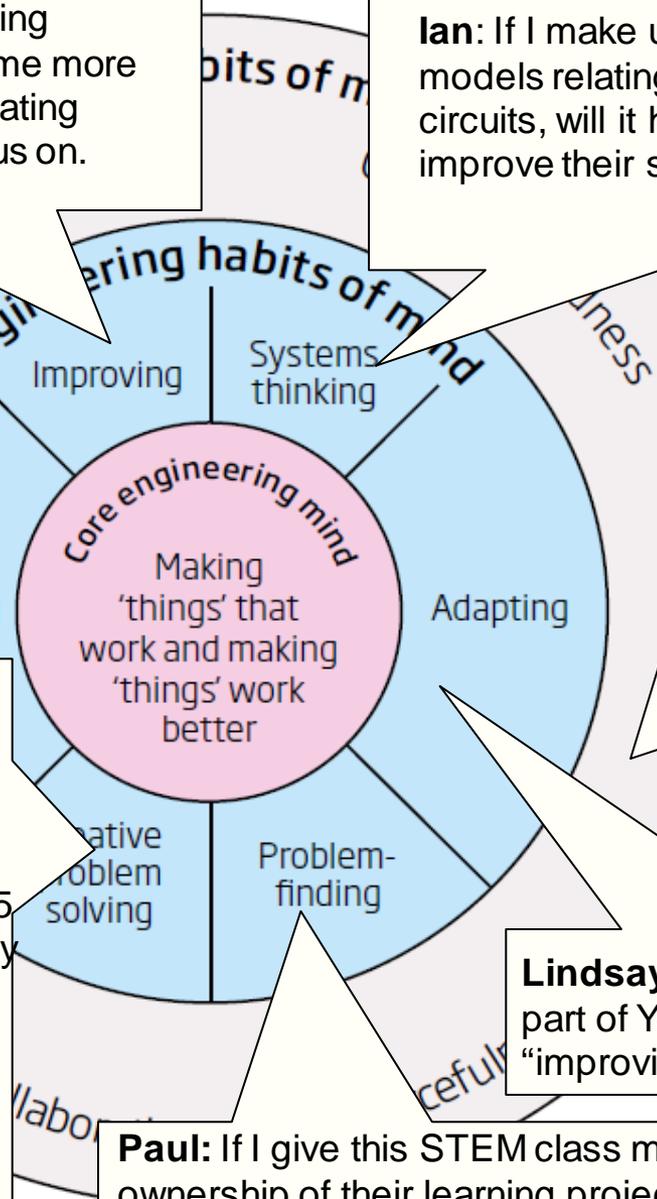


# Thinking Like an Engineer

## Summary insights

**Dr Janet Hanson**  
**Centre for Real World Learning**

9 July 2015  
Dissemination event, Royal Academy of Engineering



**Sharon:** If I provide a simple improving template for students they will become more independent in improving and generating their own feedback or targets to focus on.

**Ian:** If I make use of a range practical models relating to working electronic circuits, will it help my students to improve their system thinking skills?

**Martin:** If I introduce visualisation skills to learners, will they be prepared to take a chance on being able to think out of the box?

**Joe:** If I teach the concept of self-efficacy/grit will my learners spend more time deliberately practising difficult mathematical concepts?  
**Jo:** If I model strategies for getting unstuck, will students improve their determination?

**Ben:** Will learners develop an inquisitive, curious and questioning attitude if taught from first principles and thus be able to apply knowledge to new situations.

**Noel:** If I specifically give feedback about 5 set team working skills to learners, will they work better as part of a team to solve problems creatively?

**Hannah:** If I actively teach my year 2 children to have ideas, will they get better at generating their own?

**Lindsay:** If I model how to evaluate as part of Year 7 projects will their "improving and adapting" get better?

**Paul:** If I give this STEM class much more ownership of their learning project, will that result in greater use of problem finding?

# Thinking Like an Engineer – Learning from school prototypes

- Limited time-frame in first year
- Variety of learning activities incorporating EHoM
- Examples of EHoM supporting the National Curriculum, in subjects and through integrated schemes of work; more overtly in engineering courses
- EHoM generates engagement in learning, - and in engineering?

# Learning about CPD for Changing Mindsets

- Action research supports classroom innovation
- Evidence of behaviour change in learners – high teacher expectation = higher learner progress
- Collaborative activity develops teacher confidence and resourcefulness
- The approach is transferable

# John Hattie asks-

‘How do we learn, and what keeps us motivated to do so? What is the body of knowledge and skills that learners need as we move into the second half of the twenty-first century?’

These questions are too important for the best ideas to stay only in the lecture theatre, on the bookshelf or alone in one classroom...they need to be found and supported, shared and debated, adopted and refined.’

John Hattie (2015) *What works best in education: the politics of collaborative expertise*. London: Pearson.