Context and your research question

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The Petersfield School (TPS): an 11 to 16 independent academy; just over 1,200 students; a performing arts specialism; located in Petersfield, Hampshire.

My question: If I model strategies for getting unstuck, will students improve their determination?

A strategic aim of TPS is to close the gap for lower ability students with potential to progress.

I worked with my Year 9 bottom set maths class (Key Stage 4).

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What happened?

When work gets difficult, students give up; they assume they aren't going to be able to do the work before they even start.

They can answer straightforward maths questions but struggle to identify what they need to do if the maths is inside a problem.

I wanted to set them problems so they got used to the idea that the work was going to be tricky, and they had to persevere to work it out. I encouraged them to use strategies for 'getting unstuck' and gave hints when they asked.

I used tasks structured so that whatever their ability, they could all work to different depths and feel a sense of achievement.

They worked on problems in pairs and, for homework, they researched their own strategies for getting unstuck.

We began by giving them problems, so instead of each lesson being a taught session followed by practice, they became opportunities to tackle really interesting problems.

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What has been the impact on students and their learning?

Evaluation methods included:

EHoM self report survey at the beginning and end of the project (data still being analysed)

Teacher observations and reflections noted after each lesson

Records of student comments

Outcomes noticed included:

Students responded really well, their mindset changed, they accepted from the start that problems needed to be worked at, that it didn't matter if they couldn't immediately understand it, and that they could do it if they used a range of strategies for getting unstuck.

They asked intelligent questions, became more engaged, seemed happier coming to class, and were more aware of regulating their own learning.

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What has been the impact on your teaching and more widely on others in your school?

The big difference was that the lesson was no longer ‘taught’. It was more about helping them with the areas they got stuck on.

I am freed up to introduce more challenging topics.

Fits with ‘mastery’ approach TPS is adopting across the curriculum. Lots of discussion within the curriculum team.

Parents were very positive about the intervention and ‘thrilled with the results’.

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What are your overall reflections on developing Engineering Habits of Mind, and how will you take this forward?

I would not have tried it without the prompt of the project.

It was risky, it could have gone horribly wrong, but it worked.

It gave me more confidence to challenge my students with difficult problems, even with lower ability classes.

Although we did not use the EHoM terms, such as *Improving* or *Problem solving* specifically with the students, we use similar terms such as resilience all the time.

Thinking Like an Engineer has been a good scheme, quite possibly we will continue next year.

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