PRODUCTIVE DISPOSITION AND ITS CENTRALITY IN A MASTERY CURRICULUM

LYNNE MCCLURE

- Ones, tens, hundreds
- Ones, twos
- Fives, tens,
- Twos, fives

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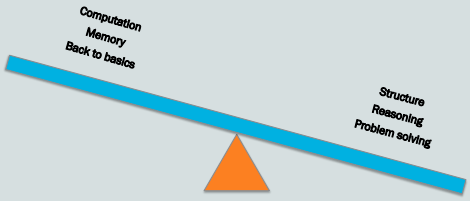

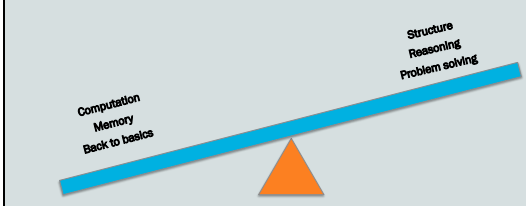

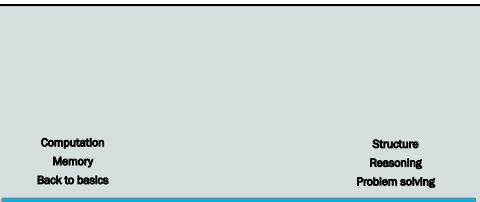

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MOST STRONGLY AGREE

AND AN EXTRA

MOST STRONGLY DISAGREE

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Most maths problems have only one way to solve them.

Maths is a creative subject.

Getting answers correct is more important than understanding why the answer is right.

Knowing how to perform a procedure is more important than understanding why it works.

Students can discover maths without it being shown to them.

Students learn maths better when they work together.

Students should be able to figure out for themselves whether answers are correct.

Maths is so important everyone should learn it

There's some school maths which isn't at all useful.

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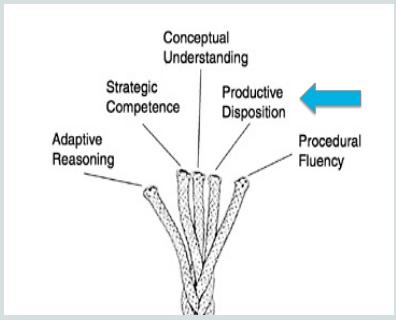

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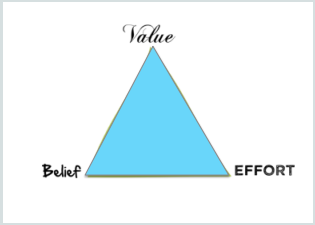


VALUE

What does it mean to 'value' maths?
Does all maths have to be 'useful'?

What elements of a classroom climate would encourage viewing maths as valuable?

Value what they are asked to do
Understand the structure – it's not magic
Authority lies in the subject not with the teacher – it has it's own coherence.
Appreciating the appearance of maths everywhere but understanding specific cases
Teacher models an appreciation of it as a subject to engage with voluntarily

Foucault: "People know what they do; frequently they know why they do it; but what they don't know is what what they do does."

BELIEF

Some learners believe they will be successful. What behaviours do they exhibit?

How can we help students to believe they can be successful at maths?

Students show resilience – positive response to negative situations – don't give up.

Expect to be able to do it

Believe they can change what they are able to do through applying themselves, rather than that abilities are fixed and can't change (growth v fixed mind set)

Praise the behaviour not the 'ability'

'Yet…'

'Ability' grouping – research shows don't get the same curriculum offer

Wait time appropriate

Teachers believe in their own ability to ensure students' success

EFFORT

Some learners just keep trying whist others give up easily.

What can we do to increase the motivation of our pupils?

Engaging tasks

Low threshold high ceiling

True collaborative opportunities (group goals, individual accountability)

Own progress rather than competitive

Mistakes as learning tools

Ideas and methods valued

Autonomy in choice of methods

Active engagement rather than contrived 'fun'

Emphasise intrinsic motivation – rewards/punishment can distract and undermine learning goals

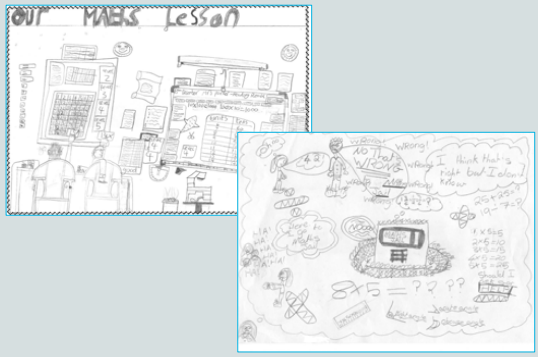
Results indicated that students were more likely to hold productive dispositions (autonomy, belief that mathematical competence is malleable rather than fixed, focus on understanding over task completion) in a classroom in which the teacher transferred responsibility to students, solicited multiple solution strategies, provided process scaffolding, and pressed for conceptual understanding.

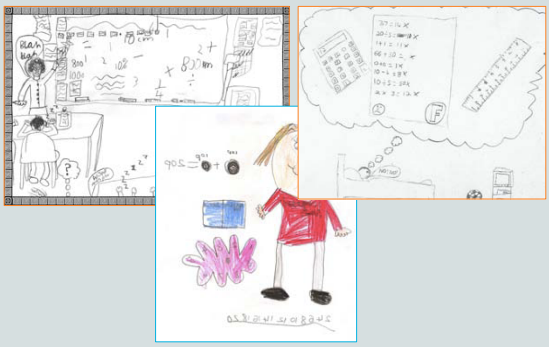
In contrast, students were less likely to hold productive dispositions (relying on external authorities, belief that mathematical competence is fixed rather than malleable, focus on task completion over understanding) in a classroom in which the teacher provided content help that lowered the cognitive demand for students, focused on obtaining an answer rather than understanding strategies, and placed l "genius" in each small group (explicitly grouped students heterogeneously). Jansen

CHILDREN'S OWN VOICES

Borthwick. A. 2011 Children's perceptions of, and attitudes towards, their mathematics lessons BSRLM

Children asked to draw picture of their mathematics lessons, categorised according to content;
Children's emotions and attitudes
Children's perceptions of their peers in mathematics lessons
Children's perceptions of their teacher in mathematics lessons
Mathematics in the drawings





QUESTIONS TO ASK

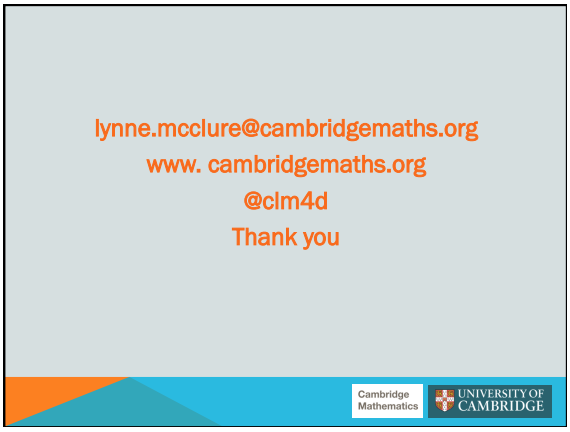
"How would you describe maths to someone?"

"What does a Mathematician do?"

"What do you need to be successful at maths?"

Nuo asiat opit ilman iloa unohdat helposti

Those things you learn without joy you forget easily.


lynne.mcclure@cambridgemaths.org
www. cambridgemaths.org
@clm4d
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