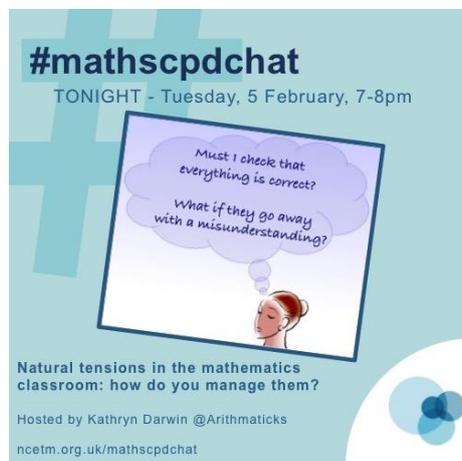


#mathscpdchat 05 February 2019

Natural tensions in the mathematics classroom: how do you manage them?

Hosted by [Kathryn Darwin](#)

This is a brief summary of the discussion – to see all the tweets, follow the hashtag #mathscpdchat in Twitter



Some of the areas where discussion focussed were:

- a well-recognised tension: feeling that a lesson is not going well but that you have to cope somehow ... with experience over time **developing coping strategies** ... wanting to become 'as good as I'd like to be';
- inexperienced teachers '**shying-away**' from **teaching particular topics** because they fear that lessons on those topics will not go well;
- when, if ever, does a **person's teaching** of most topics become '**automatic**'? ... what do we mean by 'automatic'? ... **is it desirable**, or even possible?
- being willing constantly **to learn, and adapt one's teaching**;
- tensions arising from having to decide **how best to approach particular topics**, and **how to order topics** effectively ... but is mathematics strictly orderable?

- **ways of intervening** while pupils are working at a table, and the **possible effects** of doing so;
- tensions caused by not knowing, in a specific situation, whether ‘telling’ pupils a fact or procedure will **support or impede pupils’ learning**;
- tensions arise in specific lessons, and with specific pupils, when **making judgements about what facts and procedures to ‘explain’** and what mathematics to assume that they know and can do;
- ‘direct instruction’ **versus** ‘inquiry approach’? ... there is a place for both ... **distinction between ‘arbitrary’ and ‘necessary’ facts** ... pupils needing to be told ‘arbitrary’ facts (which might not be so), but being given opportunities to work out ‘necessary’ facts (which must be so);
- **being aware of misconceptions** that pupils may be about to develop, or that they may already hold ... exposing, discussing and revisiting them;
- **worrying that focussing on misconceptions** will inadvertently encourage some pupils to **adopt those misconceptions** ... avoid that effect by challenging pupils to find ‘mistakes’ in given ‘worked solutions’;
- **pupils experiencing tensions** arising from **fearing that they will ‘get something wrong’**, or that they will be **‘laughed-at’ by other pupils if they ‘look too keen’**;
- **pupils** having to cope with tension resulting from their **‘feeling the weight of expectation of high achievement’** ... students with high target grades feeling that they should know, and be able to do, ‘everything’ ... consequently becoming over-stressed when they get stuck;
- strategies to support pupils in **overcoming tension arising from not immediately seeing how to start/proceed to solve a mathematical problem** ... asking ‘What can you do to get started?’, saying ‘One step at a time: after taking a step the next step will reveal itself to you.’
- dealing with **tension caused by needing to spend time working with just one pupil** (so that support for that pupil is immediate) ... what are the rest of the class doing?
- **showing pupils that you are a problem-solver and a learner too** ... giving pupils ‘prizes’ for spotting ‘my deliberate mistakes’ ... using a visualiser in the classroom allows a teacher easily to share pupils’ (and their own) work ... provides good opportunities to address misconceptions;
- **tensions caused by children and adults telling you that they ‘can’t do maths’** and their believing that this is an unchangeable state-of-being ... strategies to address these tensions, including using ‘the power of ‘yet’’;
- that **‘tensions’ is quite a vast topic**, with so much to think about.

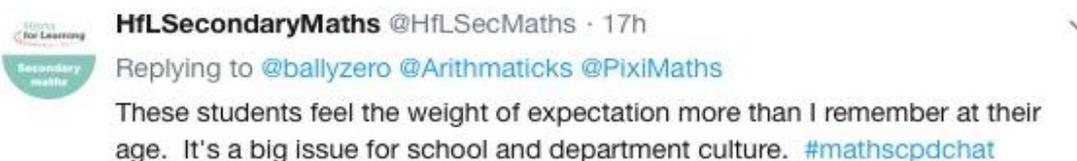
An interesting 'conversation' of tweets, about tensions that are felt by students in relation to what they can, or might, achieve in learning mathematics, followed from this tweet by [Kathryn Darwin](#):



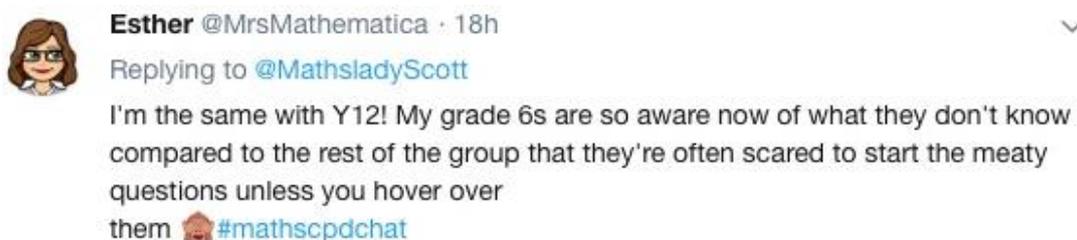
including these from [PixiMaths](#) and [Martyn Yeo](#):



these from [Simon Ball](#), [HfLSecondaryMaths](#) and [Sharon Malley](#):



and this from [Esther](#):



(to read the discussion-sequence generated by any tweet look at the 'replies' to that tweet)

Among the links shared were:

[Values in mathematics classrooms](#), which is an article by Anne Watson in Mathematics Teaching 255 (from the Association of Teachers of Mathematics). It was shared by [Kathryn Darwin](#)

[Tensions](#), which is an article by John Mason in Mathematics Teaching 114 (from the Association of Teachers of Mathematics). It was shared by [Mary Pardoe](#)

[Tensions in Teaching Mathematics](#), which is a collection of notes by Annette Rouleau. It was shared by [Mary Pardoe](#)

[Tensions in Teachers' Conceptualisations of Mathematics and of Teaching](#) which is a paper by Barbara Jaworski addressing dilemmas in the practice of six teachers of mathematics at secondary level. It was shared by [Mary Pardoe](#)

[Mathematical tasks and the student: navigating 'tensions of intentions' between designers, teachers and students](#), which is a research paper by Heather Lynn Johnson, Alf Coles and David Clarke in which the authors discuss possible tensions when considering the use of tasks for learning mathematics. It was shared by [Mary Pardoe](#)