

“Stop interrupting!”

Teachers are inclined to interrupt. Knowing when and when not to intervene, Colin Foster reminds us, is the core of good teaching.

Choosing when to intervene and when to hold back is, for me, one of the most important and difficult elements of working with learners on mathematics. Gauging someone’s mathematical and emotional needs at a particular time is something that I cannot be confident about doing, but there is no alternative to trying. No doubt my interventions (or lack of them) are as much affected by my own feelings and thoughts in the moment as they are by my perceptions of the pupils’.

What I do feel sure of is that I get it wrong more often than I get it right. On one occasion, I stand back and watch someone struggle with a mathematical task in a manner akin to watching someone starting to drown, and feeling no compulsion to help! Their confidence and motivation are slipping away, but I am standing on the side-lines doing nothing about it. On the other hand, there are situations when I find myself fussily butting in, pushing a learner to do something the way it is in my mind rather than going with the grain of their own thinking and allowing them the time and space they need to construct their own understanding of the situation. With all the pressures that teachers find themselves under in the current educational climate, I think that for most of us the second of these – the ‘back-seat driver’ – is much our greater danger: I don’t know many lazy teachers.

I have been trying to find a middle way between these extremes of doing too little and over-helping that allows me to be supportive and encouraging to learners emotionally but significantly less directive mathematically than I might tend to be instinctively. For instance, I have tried responding to opening cries of “I’m stuck” or “I don’t get it” or “I’m confused” with the slightly shocking answer of “Good”. It is important that this is said with a smile in the context of a good relationship with the learner, and with body language the very opposite of “Do I care?!”; for example, sitting down beside the pupil and appearing available and supportive without actually taking over the task and ‘leading’ them through it, which is perhaps what they are expecting. I want to communicate that this is *their* task but that I am here to be with them as they tackle it, if they want me.

Initially when I began to try this there was surprise: “He said ‘Good!’”, “What do you mean ‘Good!’?” And I sometimes explain that for me getting confused is great – it means you’re probably about to learn something. Getting stuck and getting confused are a normal part of making progress in anything. If you never get stuck you’re probably not learning much.

Being over-helpful is often motivated by a wish to help learners’ confidence. But it can so easily have exactly the opposite effect, since even when you feel you have helped in a very limited fashion, the learner frequently complains afterwards that they could only do it because “You did it for me,” and I find myself saying, “No, I didn’t really do anything”, but with doubts in my mind that what might have seemed trivial input to me was in fact viewed as vital by the learner. Such incidents reinforce in the learner’s mind their uselessness and the teacher’s cleverness and indispensability. Human beings are good at telling when they are not being trusted, and are sensitive to a problem being taken out of their hands and taken over by someone more responsible, even though they – the learner – may still be holding the pen and writing it down.

Offering these things sooner would ‘save time’ ... but what would the learner

So I have been trying the approach used by counsellors, in which they try to help someone make sense of their thinking or the problems they

are encountering by reflecting back to them the gist of what they are saying. Obviously if this is done in a rigid and automatic way it becomes obvious and irritating, but done carefully it does not attract attention to itself and can allow the person to slow down their thinking and focus on their thoughts more easily than they might be able to do by themselves. It can be very tempting to ‘lead the witness’, slip in an idea of your own, deliberately misunderstand or interrupt them in a ‘helpful’ way, and no-one is saying that these are always illegitimate in the classroom. But teachers seem to develop ‘hinting and nudging’ habits that get pupils through tasks and enable plenaries to be completed more quickly, but which, I believe, inhibit learners’ progress in mathematical understanding in the long run, and I have been keen to try to overcome my tendencies in those directions.

So you could envisage the following sort of conversation between a learner (L) and her teacher (T):

- L "I'm confused!"
T "Good! [smiling and sitting down – looking expectantly] Tell me about your confusion."
L "It doesn't make sense!"
T "OK."
L "It says 'Katie thinks of a number', but *what* number?!"
T "What number?"
L "It just says 'a number', but how are you supposed to know *what* number?!"
T "That's not very helpful!"
L "I know – this book is so annoying!"
T "Mmm."
L "... And she adds 6 and timeses by 2 and she gets 26."
T "... OK ... So what are you thinking?"
L "It could be *anything*!"
T "Anything?"
L "Yeah – how am I supposed to know?!"
T "OK. Like what could it be?"
L "What?"
T "Well what might Katie's number have been?"
L "You mean like 10?"
T "So you think it might be 10 that was her number?"
L "No, I'm just saying it could have been *any* number!"
T "OK ... So what can you do?"
L "... So say it's 10. She thinks of 10 and adds 6 ... [gets calculator, works it out] ... 16 ... Oh, yeah, I knew that! ... I'm not stupid! ... Now what? ... Times by 2 ... [does it on the calculator] ... 32 ... So it's 32?"
T "It's 32?"
L "Oh no, I mean ... She gets 26."
T "Right – but you got 32."
L "Right. So it *wasn't* 10. I *get it* – 10 *wasn't* her number ... So that means I've got to try all the numbers! [exasperated] This question is so stupid!"
T "Very frustrating!"
L "OK, so I'll try 11."
T "OK." [I felt a strong temptation to intervene here, but I'm very glad I didn't!]

This progresses, with the student trying 11, getting 34, seeing that that's too much, deciding to try smaller than 10, then noticing that 11 gave 2 more than 10 did, so realising that she wants 6 less than what 10 gave, so therefore going for 3 less than 10 and trying 7 and getting it, with much satisfaction!

This thinking impressed me very much in view of my perceptions of her ability as a mathematician. Had I led the way through this problem, I probably would not have done it this way, and if I had used 'trial and improvement, I would not have expected a consideration of the differences between the values produced to inform so precisely the trying of 7 at the end. Probably the only thinking required of her would have been the arithmetic: "So what is 26 divided by 2," etc. I would have done all the strategic thinking and left the 'sums' for her. Ironically, this is exactly the bit that she chose

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not to engage with – turning to the calculator here, even though in other situations I know her to be capable of calculations of this kind. Somehow, her mind appears too full thinking about the other dimensions of the problem to leave any room for her to do the calculations as well, and I can identify with this myself (I recently found myself doing '10 + 10' on a calculator because I had had to think so hard about each of the 10's!)

It seems to me that the time to intervene is now, after the problem is completed (rather than during) – before the pupil moves on to another problem – to look back at what has happened and what can be learned and whether

pupil-teacher conversations are often assumed to be a solved problem

a reverse operation strategy would have any advantages. Offering these things sooner would 'save time' and lead to a quicker, more efficient solution of the problem, but what would the learner learn? That teachers know everything, that she is useless on her own, that questions don't make sense unless someone else talks you through them, that you can't do anything unless you 'know the correct method'.

Much has been and is being written regarding pupil-pupil discussion in the mathematics classroom. But pupil-teacher conversations are often assumed to be a solved problem. Teachers are helped to develop good questions for plenaries, but are given relatively little guidance on how to handle one-to-one mathematical conversations with pupils. I for one have a lot to learn regarding my informal discussions with pupils about their mathematics, and at the moment my end of term report is telling me that I need to stop interrupting and do much more careful listening!

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