MARKING TIME

Colin Foster challenges the mythology surrounding marking.

How do you feel about marking? Perhaps you are reading this article to avoid doing some right now! Plenty of mathematics teachers enjoy being in the classroom but hate the marking. I have heard teachers say that they would gladly teach an 8-hour day in the classroom with no frees if at the end of the day they could leave and have no marking, report-writing or other admin to do after school or at the weekends. I can sympathise with that. Marking is generally not viewed positively, but looked on as a necessary evil. Teachers find it time-consuming, repetitive and perhaps thankless. "I wouldn't mind if they actually took some notice of what I wrote!"

When I began teaching, I spent longer planning my lessons than I did marking learners' work. Since then, the balance seems to have shifted the other way, and I think this is the case for many colleagues too. So much so that at my school we have what we call a 'marking room' adjacent to our staff room; a quiet place with tables and chairs. You could do any kind of paperwork in there, but the name does suggest that the predominant teacher preparation activity is marking, which is perhaps true. Is this as it should be? Is 'marking time' time well spent or merely a time filler / time killer? Are we just literally 'marking time'? Those with a conspiracy-theory turn of mind might even suggest that the responsibility to do regular detailed marking is a burden imposed to keep parents happy and teachers busy – and prevent them from thinking too much about changing what they are doing in the classroom. I think we sometimes need to rebel against terminology such as 'marking rooms', subverting the prevailing culture by boldly reading a book in there, or something! Which brings me to another problematic term – do your learners have 'exercise books'? Does that expression normalise the giving of routine repetitive 'exercises' – so that when you want to do something else you feel you have to justify why we are doing 'an investigation' today? Why not just call them 'books'? – Because that confuses them with the textbooks? Well, there's a simple solution to that problem – see Ollerton, M. (2002) ***Learning and Teaching Mathematics Without a Textbook***, ATM.

There is a common staffroom perception that mathematics teachers have it easy when it comes to marking. In arts subjects, setting an essay can be a fairly straightforward matter – a one-line question may suffice – but marking the completed essays is obviously time-consuming and difficult. The opposite is sometimes thought to be the case for mathematics: writing a mathematics examination takes a lot of time and care, but marking it can be fairly quick. People think that mathematics is always either right or wrong, so you can just tick or cross. However, I find marking mathematics neither quick nor easy. I want to respond intelligently to learners' work and to make what I write in their books part of the entire process of communication between them and me. This is a business which mainly takes place face-to-face in the classroom, but which may also include occasional email conversations about homework.

I am convinced that the old-fashioned practice of 'correcting', where the teacher merely changes what is 'wrong' to something that is 'right', is not very useful. For example, the learner writes $3(x - 2y) - (4 - x) = 3x - 6y - 4 - x$ and the teacher simply adds an almost imperceptible vertical down stroke through the final minus sign, 'correcting' it to a plus. Does the learner even notice this minor change? If they do, what do they think? "Oh, minuses – I can never do minuses. Why do we have to have minuses all the time!" It is tempting to suspect that this correction is more for the teacher's peace of mind than to assist the learner. This kind of marking can be a very tedious and time-intensive business for the teacher, and they are likely to be frustrated with the learners' responses when they give back the books. – "They hardly even looked at all my corrections – they weren't interested!". We must be honest that it would take quite some character to be enthusiastic about going through a page of work covered with tiny alterations, looking carefully at each one to see what can be learned. Would I do that if the ***MT*** editors sent back this article covered in little changes? (More likely, I'd send it to ***Mathematics In School*** instead!)

At the other extreme, I also have a problem with 'ticking and flicking'. What is my tick

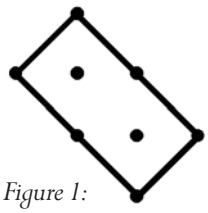

Figure 1: Twisted Multiplication $3 \times 2 = 8$

supposed to signify? That a mathematically true statement has been written? Is that supposed to be an unproblematic criterion? That I've 'seen' the work? That I care – a little? I've heard teachers say that their ticks 'acknowledge' the work, but I'm not sure what that means. It is not a simple matter to say '*yes*' or '*no*' to anything more complex than completed exercises. Many statements are true or false only within a particular context, which may not be apparent to a casual reader. For example, I have frequently done 'twisted multiplication'-type investigations (*Figure 1*), or work in bases other than 10, in which 3×2, for instance, might not equal 6. Asking learners not to write the multiplication sign but to use some other symbol, such as $\otimes$, so that they don't get 'confused', seems patronising and spoils the fun of being able to write and understand such statements as $3 \times 2 = 8$.

There are limitations to the extent to which an 'outsider', say a parent or another teacher, can appreciate the context of what was written; particular terms might be 'locally defined'. Some of my classes use very informal language at times, which even other classes at the same school might not recognise. Some refer to a disguised quadratic, such as $x + 5 = \frac{14}{x}$, as "Oh, it's an 'either-or'", meaning that eventually the equation may end up factorising into two brackets and giving two possible solutions. Some learners refer to differentiating as "do the '*n*, *n* minus 1' thing" or the alternate segment theorem as "the alternating sectors thingy" or rationalising the denominator as "unsurding it". Sometimes it is only the grammar that is wrong. Faced with a pair of simultaneous equations to solve, my Year 11 learners frequently say, "Oh, can we 'do simultaneous' with them?" When adding fractions and finding a common denominator, the process is like the opposite of 'cancelling down', and I have seen learners refer to it as 'cancelling *up*'. When factorising a quadratic, learners might write, as a first step, $3x^2 + 7x + 2 = 3x^2 + 6x + x + 2$, and regard this as the opposite of 'simplifying' and thereby call it 'unsimplifying' or 'complicating'! These informalities – particularly when they are mathematically inaccurate – may be worth tackling, but in the meantime they persist and within the class we know what they mean and they are helpful to us. Sometimes communication begins non-verbally. For dividing by a fraction, one learner may say, "You just do the 'over thing'" and show a rotation of 180° with their hand and that is sufficient for another learner to remember to multiply by the reciprocal and then refer to the 'over thing' as a term to someone else. Sometimes, learners invent their own novel terms, without realising that they are doing so: in *Figure 2*, a learner coins the term 'fractionise' to refer to the process of converting decimals into fractions. Perhaps this relates in his mind to 'factorise'? When questioned about this, he thought it was a perfectly ordinary mathematical term – perhaps it should be? Some of these things may be technically inaccurate, yet they are 'correct' in a sense, within our classroom. Do I tick them? What if there is a different/better/more efficient way of solving a problem? Should I still tick? Does it matter?

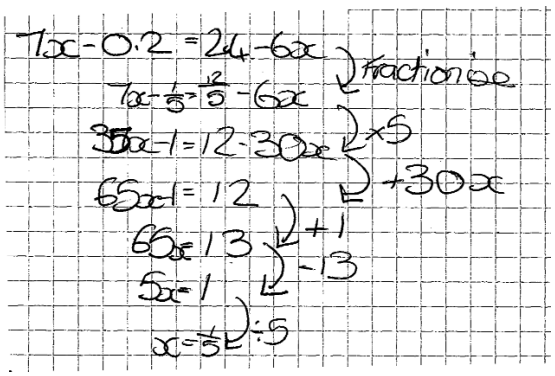

Figure 2: 'Fractionising'

A tick can seem rather a dismissive response to a learner's work. Do they really need me to say, "Yes, actually you're right there"? Isn't one of the glories of mathematics that you don't need someone else to approve your work – you can reason for yourself whether it is right or wrong? It is common nowadays for learners to have access to 'answers' – either in the back of a textbook or online – so they can check for themselves that their answers agree with somebody else's, whatever that means. Sometimes marking feels like an impertinence. I heard about a school in which some of the notices put up by the senior management team (SMT) in the staffroom contained typographical or grammatical errors and members of staff were enjoying correcting them in red ink. Before long there was an official notice from the head – containing no errors, this time! – asking staff not to make 'alterations' to SMT notices. This interested me, because clearly SMT did not like having their typos pointed out publicly, and perhaps felt that it undermined their authority. But why did teachers seem to revel so much in their colleagues' mistakes? Do they feel that way when they find mistakes in learners' work or only when it is someone who 'should know better' or gets paid more or who has been getting at them about something? When a learner writes about what they have done or found out or proved, it frequently has a sense of finality about it. I want to admire, perhaps, but to mark it would feel like

going around the National Gallery and putting a tick at the bottom of each painting. Why would I want to do that? Who do I think I am?

Often a learner's work suggests some follow-up, but it cannot be adequately done in writing. For example, when a Year 9 class was asked to compose and solve some percentage increase/decrease questions one learner wrote the question shown in *Figure 3*. He changed the word 'piano' to the word 'slave', although presumably before completion of the sentence, since the word 'him' had not been changed. Is it relevant that this was written by the only black boy in the class? Or that they had been studying slavery in history lessons recently? Any follow-up would need to be in person rather than on the page. Often, the conclusion to a piece of work suggests other avenues, and it is tempting to ask questions like "What do you think would happen in three dimensions?" or "Can you extend this idea?" But unless there is classroom time for developing previous work, such questions are likely just to get lost as we 'move on' to a new topic.

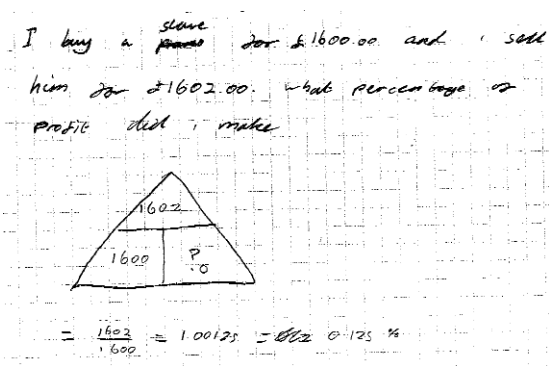

Figure 3: Slavery

This brings me to my main problem with marking. Teachers who work in a transmission style of teaching bring that in to their approach to marking. If we're not careful, those of us who take a different perspective in the classroom can be less distinctive when it comes to marking. This is understandable since, to some extent, our teaching is more private – despite being observed by numerous learners! – whereas our marking is much more open to scrutiny. So perhaps we feel more judged by those with a different perspective when we are doing our marking; more exposed. When marking books, the transmission teacher just does some more transmitting. They get frustrated at how slowly they can broadcast when they have to write it all out by hand compared with how quickly they can talk in the classroom (Macfarlane's Law). Then they get annoyed when they give back the books that the learners don't seem to be 'listening' to what they have written and they wonder if it's worth the bother – they want to write "will discuss this" everywhere. The same problem with transmission teaching in the classroom applies to marking work: people don't learn well from being told. Instead, it is much more useful, whether in the classroom or in marking, to be asking questions – and encouraging learners to respond, either in writing or out loud.

I want to write intelligent and helpful responses to what learners have done in their books, but I cannot realistically write a paragraph for each learner each time. Nor do they probably have the time or inclination to read a mini-essay from each of their teachers each week. When I tried to write more lengthy comments, I noticed that when learners couldn't read my handwriting, quite a common problem, they usually came to ask me what I had written, and this provided a nice opportunity to talk about whatever it was. I began to think that, in a way, it was an advantage when they couldn't read my writing and so I decided to aim for a certain amount of obscurity by using abbreviations. Some examples are shown in *Figure 4*.

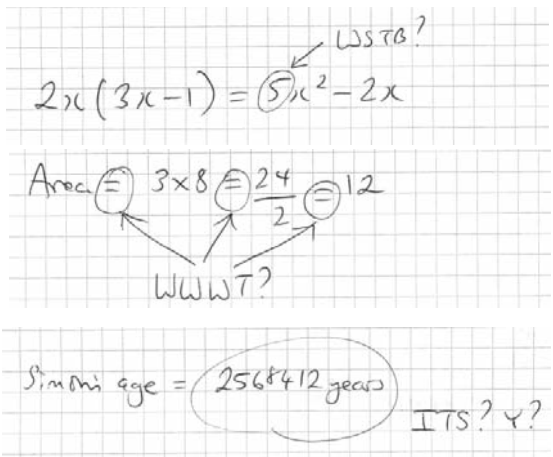

Figure 4: Examples of abbreviated marking

Common abbreviations I have used are:
WSTB? = What should this be?
WDTM? = What does this mean?
WWWT? = What's wrong with this?
Y? = Why?
WCTBR? = Why can't this be right?
ITS? = Is this sensible?
ATQ! = Answer the question!
RTQ! = Read the question!

These are not fixed in stone. Obviously I don't give learners a list of these abbreviations in advance to stick in the fronts of their books! I don't know in advance, for any particular piece of work, what abbreviations I might find myself using, and the fun

for the learners is in decoding the comments. This seems to focus learners a little more on what I have said. Sometimes they look around to see which other learners have the same mysterious set of letters, and see what is the same in their work, in order to try to make sense of it. Often it focuses them on looking closely at the thing I have circled, and frequently they can then work out what the problem is themselves and reverse-engineer my comment to see what it might have been. Often they reply to me using abbreviations of their own – often very long ones – WDYHTWIIATT = "Why do you have to write in initials all the time!" – Sometimes they point at WDTM and say, "What does that mean?" and I can say, "That's right." The novelty may wear off eventually, but at the moment learners seem interested in seeing what letters they have got and decoding them. It seems to lead to some thinking about what I have written and it is saving me a great deal of time marking – and it has distracted them from the fact that I am not giving them marks or grades. I reason that if their parents cannot understand the notation, then they could ask their children to explain it to them and that this would be a worthwhile process.

Like most teachers, I try to focus my comments on one or two elements rather than attempting to deal with everything all at once. Frequently the same error is repeated in a piece of work. I doubt very much that it is worth drawing the learner's attention to this more than once, so I might choose one occurrence to comment on. I encourage learners to respond to everything I write, but not necessarily 'to me' –– it could be a 'note to self' for the future. Whatever marking system we adopt, there must be room for flexibility and for humour. A Year 8 learner had marked her own work and written 'not necessary' three times, as a note to herself about some algebraic conventions (*Figure 5*). My fourth 'not necessary' was strictly 'not necessary', but it is the 'not necessaries' in life that make us smile.

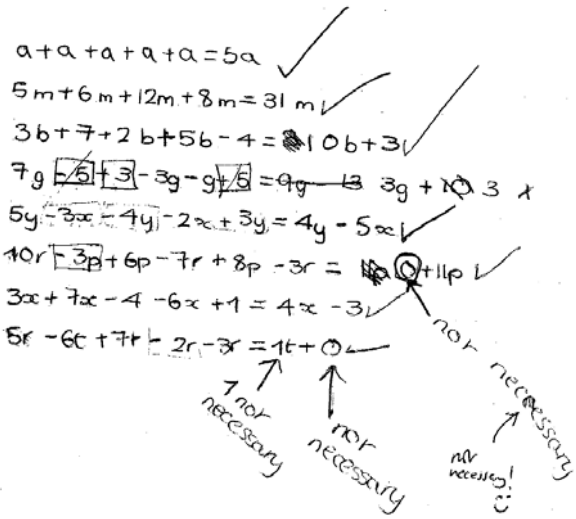

Figure 5: Not necessary

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