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A geography teacher is not a maths teacher

Tony Attwood makes an impassioned plea for greater awareness of dyscalculia amongst teachers of all school subjects

In a top ten of blindingly obvious statements, the title of my article this issue must deserve at least a top three place. The geography teacher teaches, not to put too fine a point on it, geography. Except that, whether teaching at Key Stage 1 or A level, the geography teacher will be dealing with topics such as measurement and distance. As the pupils get older, the teacher will also introduce latitude, time changes, the extremely odd concept of the international date line and, when it comes down to it, concepts as varied as timetables and the changes that happen across geological eras. And all those different concepts, measurement, distance, latitude and so on, have one thing in common. They are all built upon mathematics.

The same sort of thing happens in history, which is quite obviously based around time, itself dependent on numerical systems. Indeed, to understand the development of civilisations across time, you need to be able to grasp the notion of the century. If you don't understand time, it's hard to understand why Alfred The Great did not have to worry about dinosaurs while he was plotting the downfall of the Danes.

Then there's science, which is riddled through with maths. How do you deal with temperature without maths? And if

temperature remains a mystery, then how does one deal with the three fundamental states of matter?

Moving on to design technology, we find even more maths. Put simply, get your measurements wrong and everything falls apart. Even English has maths in it, when you start to discuss Shakespeare and iambic pentameter, and an understanding of much of poetry is dependent upon a grasp of meter.

As for music, even the youngster who is perfectly well accustomed to everything to do with numbers and counting can find

"...if you don't understand time, it's hard to understand why Alfred The Great did not have to worry about dinosaurs..."

it hard to get the hang of 6/8 time. And, while the dotted crotchet might be out of favour as a concept when creating music on a computer, as an understanding of music develops, a knowledge of the underlying theory of traditional notation has to be taught to anyone who wants to understand what happened in Western music after 1500.

Of course, there is some relief from maths in the curriculum. You can get away without much maths in art, although even here we can find mathematical issues in a discussion of the relative proportions



Tony Attwood

of the human form. In fact, maths is almost everywhere. In sport you might not need it, unless you want to be a referee or an umpire, but even most foreign language courses include counting in the language.

So my point is, while the geography teacher is not a maths teacher, s/he still has to deal with some maths. The question is, does this matter?

The answer, for me, is a resounding yes. On average, every class will contain one or two children who are dyscalculic: pupils and students for whom the very notion of number and counting is as alien as quantum mechanics is to most of us.

Of course, special needs teachers will understand these dyscalculic pupils, and work with them in specific ways,

teaching them about number in a multi-sensory way, and using tools such as counters, cards and cut-outs. But what of our colleagues outside of the special needs department? How are they going to appreciate the particular problems these young people have?

This is a very important question because, to the non-dyscalculic majority, a total inability to make heads or tails of a timetable, or the notions that underlie the periodic table, seems too odd for words. Surely everyone can understand numbers, can't they?

I firmly believe that once a year schools should run an in-service training session for all staff members on the issue of dyscalculia. This would help every teacher, no matter what subject s/he specialises in, and no matter what age range s/he teaches, to understand what is going on when an above average ability thirteen-year-old seems quite incapable of appreciating, for example, that the 15th century came before the 19th century, and that the year 2010 is a year within the 21st and not the 20th century.

I don't advocate a long session to explain dyscalculia; an hour or so is all that is needed. But if you can get that hour long session in once a year, it can be worth its weight in gold. Newcomers to the school can be made aware that this is a school that recognises this particular special need, which runs through almost

every subject. Those who have been at the school longer can reflect on the situations they have encountered in the past year, and may be reminded to refer a particular pupil or student on to the SENCO as a possible dyscalculic.

Teachers who work with dyslexics have been aware of this need to spread the word for years, and many schools do run annual, all-school sessions like this on dyslexia. Some also circulate occasional newsletters, and transmit information to staff members about which pupils have dyslexia. Some schools even run sessions for parents and governors on dyslexia. I believe it is time that dyscalculia caught up.

I suggest that this short annual session should also cover the causes of dyscalculia and the causes of dyscalculia-like effects, which have a social rather than a genetic origin. I also recommend that the session should go over the ways in which one or two mathematical principles can be taught to dyscalculic pupils. Once colleagues have begun to get the idea of what dyscalculia is, they can quickly appreciate the sort of difficulties that these pupils will have in comprehending the notion of $\frac{2}{5} + \frac{1}{5}$. How such a concept can be taught to dyscalculics can be shown in a matter of minutes, and can prompt quite a revelation.

In summary, the essence of such a session should always be the same; once

we understand and accept the causes of dyscalculia, we can adopt appropriate methods of teaching to overcome the problem.

These issues run through all subject areas and are not restricted to maths.

This does not mean that everyone has to become a maths teacher and dyscalculia expert, but everyone teaching in the school should be aware who the dyscalculic students are. And they should know that research suggests that most children who gain appropriate help in school can overcome their dyscalculic difficulties and maximise their abilities in each subject area, despite their special need. If we can spread such awareness throughout all teaching staff in our schools, then anything is possible. ■

Further information

Tony Attwood is the author of *Methods of Teaching Maths to Pupils with Dyscalculia* published by First and Best in Education:

<http://tiny.cc/sYyAb>

For further information about dyscalculia visit:

www.dyscalculia.me.uk