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Using parents to help children overcome dyscalculia

Tony Attwood spells out the most effective way of helping dyscalculic children learn about maths

This is the story of a research programme that has been running for a number of years. The aim of the research was simple: to try and find a way to increase the speed at which dyscalculic children could improve their ability to do maths. Central to our approach was the desire to come up with practical answers. We wanted something that would work, and which could be implemented in most schools.

As the project progressed, it became quite clear to us that the effectiveness of maths education for dyscalculic children depended not only on the materials used, but also on the regularity with which help and support could be given.

Put at its simplest, a child who was given two sessions a week of specialist help would progress at roughly twice the speed of the child who only got help once a week. It also became clear that a number of short sessions, of say ten minutes each, was far more valuable than one longer session which equated to the same amount of time. This led to an obvious practical problem: school processes are not based around ten minute slots. How on earth could a school fit in with such a system?

It is, of course, possible to increase the number of special maths sessions a child

might have each week by using not just the SENCO, but also teaching assistants. But still, we were left with the problem of having enough short sessions to make our approach work.

However, we did have a starting point: we knew that we had to create teaching materials that could be used by people

We wanted something that would work, and which could be implemented in most schools

who had no specific training in dyscalculia. In the end, we hit on the idea of producing materials which could be expressed as little more than simple instructions. Associated with these materials would be a requirement to have a minimal amount of extra equipment available. We managed to get our essential equipment list down to four items:

- cardboard and/or paper
- scissors
- small cut out cards (typically three by two) on which numbers, multiplications, etc. could be written
- counters (of the type used in games like Ludo).

To give an idea of how our instructions started to look, here's an example from our instructions on work with children who have got very little idea of the fundamentals of number. I would stress that this is not the starting point, and nor is this something that we would want every child to do. The example is simply meant to show the style we adopted.

1. Ask the child to set out the odd numbered cards and recite them. Set the numbers out in a sequence across the table:
1 3 5 7 9
2. Now place the number 11 under the number 1, and announce that the next number in the sequence is 11. Do the same with 13, but place it under the number 3. The table will now look like this:
1 3 5 7 9
11 13
3. Ask the child what comes next. The child has to find the number 15 and place it under the 5, and then do the same with 17 and 19.
4. Ask the child to say the odd number sequence from 1 to 19.

Our experimentation here followed on from the fact that we knew that this approach worked well as a way of teaching children "odd" and "even" when they had failed

to learn it in the normal maths lessons. What we were therefore wanting to see was if anyone could and would follow this approach and get results.

Clearly, any assistant teacher would be able to see what we were doing, but our concern was that they might feel tempted to vary the process, feeling perhaps that it was too slow, or too obvious. What we had already found was that varying this approach could lead to confusion, so we wanted it done exactly as it was written.

We also experimented along the same lines with material from later in our work, as the example below shows.

1. Ask the child to take a piece of paper, draw a circle, divide it into quarters and cut the paper into those quarters.
2. Now ask the child to draw a second circle of the same size and to draw a line which divides the circle in half, but this time not to cut the circle up.
3. Ask the child to label the four quarters that have been cut up with the sign for a quarter and with the percentage. Ask the child to label the two halves of the circle which remain joined together with the fraction and percentage.
4. Now ask the child to take two quarters and then place them next to each other on the still complete circle. Point to each of the

segments and ask what it is (it is a quarter). Ask the child how much of the circle is now covered up. The child might say "one half" or "two quarters". Whichever answer you get, ask the child what else we could say, so that the child knows that the answer is either two quarters or one half.

5. Write out the following sum for the child

$$\frac{1}{4} + \frac{1}{4} =$$

It was possible to give the dyscalculic child support five days a week by using the parents

When we experimented with this, none of those teaching with the materials in school had any problems. The fact that the materials could be passed from, for example, a SENCO to a teaching assistant meant that the pupils could get help several times a week.

Once we had the materials ready and tested in school, we then decided to take the matter a stage further and invited parents to try working for ten minutes each day with their child.

We were aware that many parents felt worried about this, saying that they never understood maths at school (a common

reaction). But, once again, we found this could work, and we had a solution to our issue. It was possible to give the dyscalculic child support five days a week by using the parents, perhaps doing ten minutes work for four evenings a week, and the SENCO or the teaching assistant who would deliver one longer session, once a week.

To ensure the materials were all fully available, we then produced our approach as a parents' volume and a teachers' volume, thus ensuring that everyone could work from the same script.

The results have been far better than we had anticipated, and we have tried this same approach as a method of helping children with attention deficit hyperactivity disorder as well, again with similar success. It is a process that I would recommend to anyone who is looking to speed up progress with dyscalculic pupils and students. [SEN](#)

Further information

Tony Attwood is a member of the Dyscalculia Centre. Details of his work and the Centre's materials are available at:
www.dyscalculia.me.uk