

Briefing Sheet no. 1

It's not just about dyslexia

Background

Awareness of dyslexia and the needs of learners with dyslexia are relatively well established in the HE and FE sectors in England. There are some areas where support for learners with dyslexia is less well established, such as in offender learning and work-based learning, but overall dyslexia has a relatively high profile.

In contrast, other, related learning differences, such as **dyscalculia** and **dyspraxia** are less well known and less well understood. This briefing sheet will outline the key features of these learning differences, how they may affect adult learners, and where further information, training and resources are available for those engaged in supporting learners who are affected by them.

As understanding of dyslexia and the way in which the brain processes information has increased we have moved from using an umbrella term, “specific learning difficulties”, to one where clearer distinctions are made between the particular characteristics of dyslexia, dyspraxia, and so on.

Many learners find that they are affected by more than one “dys...” and it can help our understanding of a learner’s needs and improve our support for them, if we are clear about each learner’s particular profile. In addition, we may be able to gain greater understanding of learners who do not fit the dyslexia “pattern” but who clearly have some additional needs that need to be addressed.

For all of the learning differences addressed in this briefing sheet, there are fewer resources and training opportunities available than for practitioners and managers interested in dyslexia. This briefing sheet will signpost those currently available.

Dyscalculia

There is no one accepted definition of dyscalculia. However, dyscalculia has been defined by the DfES as:

“A condition that affects the ability to acquire arithmetical skills. Dyscalculic learners may have difficulty understanding simple number concepts, lack an intuitive grasp of numbers, and have problems learning number facts and procedures. Even if they produce a correct answer or use a correct method, they may do so mechanically and without confidence.¹”

Professor Mahesh Sharma estimates that dyscalculia affects approximately 4% of the population². He goes to explain that the causes of dyscalculia are not yet fully understood. Like dyslexia, dyscalculia seems to be unrelated to overall ability.

To determine if a learner has dyscalculia, it is currently necessary to have an assessment from a psychologist. However, there are some screening tools for dyscalculia available or being developed:

- Beacham & Trott have developed a dyscalculia screener for HE learners. Information is available in an article (MSOR Connections Feb 2005 Vol 5 No 1).
- A screening questionnaire is available to print at <http://www.dyscalculia.me.uk/testing.html> although there is little information about how the questionnaire was designed and whether it has undergone a formal trialling process.
- Brian Butterworth has published a dyscalculia screener, but it is only suitable for use between ages 6-14 years.

Dyscalculia affects the understanding of numerical or mathematical concepts, as well as the reading, writing and conceptualising of number. It also has an

¹ DfES (2001)

² www.bbc.co.uk/skillswise/tutors/expertcolumn/dyscalculia accessed on 22.1.08

impact on carrying out mathematical operations, understanding numerical systems and representations, such as graphs.

Case study: Jo was a nursery-nursing student on a level 3 course. She was coping well with her course and was doing Communications at level 3 too. However, she had difficulty coping with Application of Number at level 1. She found it difficult to understand and remember concepts such as percentages, fractions and ratios, and is able to carry out even simple addition or subtraction operations only by using the same, lengthy procedure every time. She has no memory for number bonds.

When she experienced an uncharacteristic difficulty with one of her observations of children's learning in her placement setting, it became clear that this was linked to her difficulty with mathematical concepts. In the observation she was asked to assess a child's understanding of Piaget's "conservation of volume" concept using differing sized jars and an amount of liquid. When Jo discussed the experiment and her observations with her learning support tutor it became clear that she did not fully understand this concept herself.

Jo was able to achieve a pass in her Level 1 Numeracy test, having received 1:1 support throughout the year. This support focused on strategies for taking the exam, such as how to read and interpret the multiple choice questions, strategies for managing anxiety about maths, but most importantly on multi-sensory teaching using games. This was effective because it provided a variety of means by which Jo could practice and over-learn information such $\frac{1}{2} = 50\%$. The games were designed to be self-checking, so that practice could take place at home. They were effective in helping Jo to remember key mathematical information.

Dyspraxia

Dyspraxia is a learning difference that affects the organisation of movement. It is also known as DCD (Developmental Co-ordination Disorder) and Perceptuo-Motor Dysfunction. The Dyspraxia Foundation estimates that one in thirty people are affected by dyspraxia.

Dyspraxia affects both the planning of movement and the ability to carry it out. It can affect both gross and fine motor movements, speech and language, eye movements, sensory perception, memory, thought and learning. There are also associated emotional effects. The Dyspraxia Foundation website contains a full list of the potential effects of dyspraxia.

Dyspraxia is assessed through a medical diagnosis. People with dyspraxia may receive support from speech and language therapists or occupational therapists as well as educational support. There is also a range of assistive technology that may help. Some people with dyspraxia find counselling a useful form of support and others find that dietary supplements are beneficial.

Case study: Matt was an IT student who was also taking Numeracy at level 2. He was assessed as having dyspraxia as a child and received support throughout his schooling. He would have preferred not to be supported at college, but acknowledged that it was necessary in his numeracy sessions. In particular, Matt found it difficult to draw accurately and manipulate objects such as a ruler. He also found work with shapes hard as he found spatial orientation difficult, so concepts like tessellation were problematic. The management of workload was also a problem for Matt; his mother contacted his support tutor when she discovered all the previous term's assignment briefs under his mattress when she was cleaning. None of the assignments had been submitted or completed.

Matt found the use of ICT very helpful. He was able to use his strengths in this area to compensate for his difficulties in using tools. Some specialist equipment was also useful, for example a ruler with a handle and a specially

designed compass. He was also awarded support during examinations to help him.

Further reading, resources & organisations:

Skills for Life Resources:

A Framework for Understanding Dyslexia (2004) DfES includes information about theories of dyscalculia.

Access for All (2002) DfES & ESOL Access for All (Parts 1 & 2) (2006) DfES make reference to both dyspraxia and dyscalculia and suggest resources and strategies to address learners' needs.

The Learning for Living guidance documents (2006) DfES do not deal with particular learning differences specifically, but they do provide information about person-centred approaches to literacy, language and numeracy learning that will be relevant for learners with dyspraxia and dyscalculia.

Dyscalculia:

www.bbc.co.uk/skillswise/tutors/expertcolumn/dyscalculia/printarticle.shtml

has an expert column on dyscalculia

www.bdadyslexia.org.uk/dyscalculiap.html has printable factsheets on dyscalculia

The Dyscalculia & Dyslexia Interest Group at Loughborough University <http://ddig.lboro.ac.uk/> has lots of ideas for further reading and links to recommended websites, as well as research information.

Abeel S. (2005) My thirteenth winter: a memoir, Scholastic

Ronit Bird (September 2007) The dyscalculia toolkit – supporting learning difficulties in maths, Sage

Butterworth, B (1999) The Mathematical Brain, Macmillan.

Steve Chinn (September 2007) Dealing with dyscalculia: sum hope

Henderson A, Came F (2003) Working with dyscalculia, Learning Works

Poustie, J. (2000) Mathematics Solutions: an introduction to dyscalculia, Next Generation.

Dyspraxia:

www.dyspraxiafoundation.org.uk is a website dedicated to dyspraxia, and includes information relating to adults.

Colley, M (2000) Living with dyspraxia – a guide for adults with developmental dyspraxia, Jessica Kingsley

Eckersley, J (2004) Coping with dyspraxia, Sheldon Press

Portwood, M (1999) Developmental Dyspraxia, David Fulton

Neurodiversity:

DANDA is an organisation concerned with neurodiversity (which includes both dyscalculia and dyspraxia). Their website is www.danda.org.uk. They publish information and run national events, and have an adult focus.

www.brainhe.com is a website connected with De Montfort university that gives a lot of information about neurodiversity, including case studies of HE learners with a range of neurodiverse conditions.

www.dyscovery.co.uk is the website of the Dyscovery Centre in Cardiff. They have expertise and experience in working with people who have a range of learning differences, including dyspraxia.

Training opportunities

Accredited training for teachers of adults with dyslexia and dyspraxia does not exist in the same way that it does for specialist dyslexia teachers. Dyslexia training usually makes some reference to dyscalculia and the motor aspects of dyslexia. The following options for training do currently exist:

- Dyslexia Action run courses on mathematics and dyslexia, with some time given to dyscalculia. The training focuses on using the Dyslexia Institute Mathematics Programme, and is designed for teachers of school pupils.
- The British Dyslexia Association have information about courses nationwide that meet AMBDA specifications, including some with a numeracy and an adult focus.
- NCETM have information about mathematics support courses nationwide.
- The Discovery Centre in Cardiff runs a range of courses for education professionals on dyspraxia (DCD).

When considering a training opportunity, practitioners and learning providers should make sure that the trainers have relevant experience and knowledge, and that the training is adult-focused. Training that relates to support for children may not always be appropriate for adult practitioners.