

Dyslexia - What is it?

The word dyslexia comes from the Greek language and means 'difficulty with words'. Modern brain imaging techniques show that dyslexic people process visual information differently, and this affects the underlying skills that are needed for learning to read, write and spell.

Around four per cent of children in the UK are severely dyslexic. A further six per cent of boys and girls have mild to moderate problems. Dyslexic children can learn effectively but often need a different, multi-sensory teaching approach, including access to appropriate technology and sympathetic, individual or small-group tuition.

Children with dyslexia display a puzzling mixture of strengths and difficulties; they often have distinctive talents as well as typical clusters of difficulties:

POSSIBLE DIFFICULTIES

Poor speech development

Hesitant reading

Misreading, leading to poor comprehension

Erratic spelling

Sequential difficulties, e.g. setting dates or event in order

Confusion between left and right

Difficulty dressing

Poor organisation and/or time management

Difficulty organising thoughts clearly.

POSSIBLE STRENGTHS

Innovative thinking

Lateral thinking

Good trouble shooting

Intuitive problem solving

Creative in many ways.

Dyslexia

A practical Montessori response

Wendy Fidler discusses ways in which a prepared Montessori learning environment can help children with dyslexia and other vision difficulties.

Why and how does dyslexia happen?

Recent research*, using a body scanner to monitor brain activity during reading, has compared the abilities of dyslexia sufferers in different countries. The research has identified the biological basis for dyslexia, and suggests that the part of the brain crucial for reading (in the temporal lobe) shows less neural

activity and is therefore neither working correctly nor efficiently in dyslexics.

The researchers found that English-speaking dyslexics have more difficulties with reading than many of their European counterparts. The research concluded that this is because of the complexities of languages such as English and French, with many words and sounds spelt the same but varying in pronunciation or vice versa. For example,

The Montessori insets for design encourage cross-midline tracking movements, which support both reading and writing development.

The Montessori botany materials help children master perception and classification skills in addition to promoting language development.





Practical life spooning exercises help with left to right eye tracking, and co-ordination of hand and eye.



Pincer grip: sorting small objects by hand contributes to training the hand muscles for writing.



Matching, grading and sequencing; refining perception and classification skills using leaf form cards.

‘bread’ and ‘bead’, or, ‘au temps’ and ‘autant’.

The English language is made up of 40 sounds, but these can be combined for spelling and reading in over 1,000 different ways. By contrast, the Italian language’s 25 sounds are made up in just 33 ways.

Dyslexic confusion happens far less often in phonetically-correct languages such as Italian. Indeed, it is because of the phonic regularity of the Italian language that Montessori scholars in the Casa dei Bambini – the early Children’s Houses in Rome – were able to predict the spelling of words once they had successfully learned to sound and blend individual letters. Hence, the Montessori children’s apparent “explosion into writing” (*The Montessori Method*, 1912, Chapter XVI *Teaching Reading and Writing*: Maria Montessori, 1912).

How can Montessori nurseries and schools help dyslexic children?

Early identification and assessment of dyslexia, together with appropriate adaptations to both the learning environment and teacher interactions are the keys to developing children’s literacy and organisation skills.

Montessori Foundation Stage settings are uniquely geared to identify children who are likely to develop difficulties when they begin work on recognising the shapes and sounds of letters. This is because Montessori teachers have the benefit of detailed study of the Montessori method, which includes the study of ‘the linguistic defects of the child’ (Chapter XVI, p.265 as above); and Montessori settings are equipped

with a range of multi-sensory literacy aids through which children make audio, visual and motor observations.

Maria Montessori discovered that when children in the Casa dei Bambini were asked to identify the sound of a letter by looking at it they succeeded less often than when they also traced round the letter in the fashion of writing.

“Touching the letters and looking at them at the same time, fixes the image more quickly through the co-operation of the senses. Later, the two facts separate; looking becomes reading; touching becomes writing. According to the type of individual, some learn to read first, others to write.” Chapter XVI p.266

Interestingly, we note from Montessori’s original texts, that the early painted wooden vowels were red and the consonants blue, the reverse colour-way of most modern commercially produced Montessori moveable alphabets and sandpaper letter cards.

Speaking and writing

Montessori was greatly surprised at the ease with which ‘deficient’ children were able to scribe ‘firmly’ the entire Italian alphabet, unprompted. She further noted that the muscles for writing developed most easily in infancy.

The well equipped modern Montessori prepared learning environment offers plenty of opportunities for children to develop and co-ordinate hand and eye muscles in preparation for writing; these might include:

- pincer, lifting and lowering movements using knobbed and knobless cylinders and jigsaws;
- whole arm and hand bowing

movements tracking left to right across the body mid-line with the long rods and number rods;

- squeezing and directing the hand during scissor work;
- matching, grading and sequencing; refining perception and classification skills using geometric or botany cards;
- practical life involving spooning, pegging, twisting, turning and scribing movements.

While the muscles for writing are developing, Montessori children are also introduced to the shapes and sounds of lower case letters, most usually in pink or red for consonants and blue for vowels. The activities usually include:

- tracing and sounding out letter shapes on sandpaper letters; in rice, flour or jelly, with paint and in the air during dance;
- identifying the initial sounds of everyday objects;
- playing ‘eye spy’, using only a small tray of phonically correct objects to maintain control of error;
- identifying letters within the environment, for example on alphabet friezes, in books and on name labels.

As with all Montessori presentations, children are introduced at first, using the three period lesson, to just a few letter shapes and sounds until they have fully consolidated their understanding of them before moving on gradually to more or all of the alphabet. In this way, Montessori teachers can assess children’s progress and ensure that each child builds steadily on what she already knows and can do.

Children who are having difficulty identifying and matching letters can be included in extra, individual lessons. This is the learning stage at which, if rushed, children begin to confuse 'b' with 'd', 'i' with 'j', 'f' with 't' or 'p' with 'q' and so on.

Effective Montessori teachers often invent and hand-make individual pre-reading materials for the children in their care, for example, putting into a small basket the letter 'p' and a small object such as a 'pig', the letter 's' and a small picture such as a 'sun'. In this way children can repeatedly practice language activities which are relevant to and extend their own interests. These activities are often taken home to develop the partnership with parents, which is always important, but especially so if there are early signs of communication or literacy problems.

There is no need to wait until children can identify the shapes and sounds of all the lower case letters before playing 'blending' games; the two skills are quite different and can be learned in tandem.

So for example, a small child who confidently recognises the two very different letter shapes of 'e' and 'g' and who can sound them out successfully, is ready to play a simple sound blending

Reading material needs to be sufficiently relevant to grip the interest of the dyslexic child.



Identifying the initial sounds of everyday objects.

game of 'e'– 'g' and begin to make the connection between the blended sounds he makes and the object he knows as an 'egg'. At this stage it is of no consequence that there are two 'g's in the word 'egg'; equally, it is just as much fun to make the nonsense sound 'ag'.

"In writing, the child, under dictation, materially translates sounds into signs, and moves, which is always easy and pleasant for him." Chapter XVI p.267

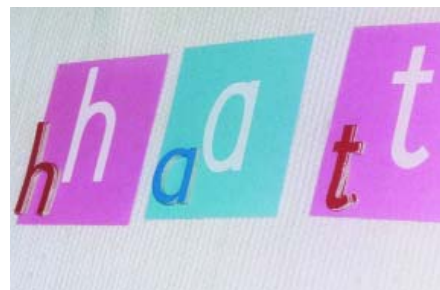
Writing develops in nursery-age children with facility and spontaneity, similar to the development of spoken language, and is a motor translation of audible sounds.

Children at the foundation stage can easily be confused in their literacy development by saying or singing the alphabet using capital letter sounds. Montessori teachers are aware of the importance of keeping the two alphabets and their associated activities as separate as possible. Naturally, small children see capital letters in their own everyday living environments, and some, such as the initial letters of their names, are very important to their sense of self-worth and self-esteem.

Montessori insets for design

The one essential, over-arching piece of apparatus necessary for the development of pre-writing and reading skills in all Montessori schools, and for the early identification of dyslexia, is the tracing apparatus known as the insets for design. Used correctly and regularly, this remarkable teaching and learning tool can iron out any pre-disposition to left and right confusion and helps correct and develop the neurological pathways necessary for reading and writing.

The insets for design are probably the most useful piece of Montessori



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equipment for special needs children of all ages. The multi-sensory use of the templates and insets involves, by progression, hearing and saying the name of the geometric shape, tracing the inner and outer edges of the shape with the writing fingers, positioning and holding first the template and then the inset steadily whilst tracing them with a choice of coloured pencils and finally filling in the outlines with ever-closer parallel lines.

Imaginative, artistic designs, sometimes crosshatched and interwoven, provide an ongoing record of children's progress in creativity, manipulation and concentration. The activity, which involves tracking left to right across the 'mid-line' of the body, also develops and co-ordinates the muscles of the hands and eyes in preparation for reading and writing. Regular use of the Montessori insets for design reaps lasting benefits in learning for children with dyslexia, or organisation and concentration problems.

Reading

Reading involves the interpretation of signs and modulation of the accents of the voice in order that the words may be understood; it demands greater

intellectual development and more direct study than writing.

In Montessori settings this largely mental task is achieved through progressive use of the very enjoyable and often humorous pink, blue and green reading schemes. Children build on their understanding of initial sounds and early blends as they work through reading materials, which include a graded range of phonically correct words.

As children match words with objects and pictures, identify similar sets of words and build on their early sound-blending skills, they:

- refine the association of visual and muscular-tactile sensations with the letter sound;
- recognise, compare and perceive the meaning of the string of letters which combine to form words;
- consolidate their learning through language: their spoken words, or reading, and their actions when successfully matching objects or pictures to written words, confirm their understanding of the meaning of words.

In this way, Montessori children have ongoing opportunities to develop and refine their ability to use the words purposefully in meaningful activities, which increasingly reflect their understanding.

As children progress through the foundation stage and into primary schooling, the range of Montessori language and grammar materials for construction and comparison of words, and for composition of sentences both orally and in writing, offers good, progressively structured support for children with dyslexia.

Special reading aids for children with vision difficulties

As many as one in five children, not necessarily only those who are dyslexic, have difficulties with vision and often prefer to read from yellow, cream or pale cream paper. For these children traditional text – black print on white paper – seems to jump about and the lines become blurred.

In effect, the lines of text confuse the nerve cells in the brain, causing them to fire inappropriately; the words seem to ‘jump’ on the page and become distorted.

Simply changing the colour of the page (dark green ink on pale green paper works well), or wearing tinted spectacles (pink often works well) can make it easier for many children to read printed words. The size, style and spacing of the



The Montessori knobbed cylinders help children discriminate between visual perceptions of height and diameter whilst perfecting the pincer grip necessary for writing.

font are important as well and children often appreciate text on one side of a page only.

Many schools now use overlays – coloured plastic sheets to place over pages to soften the effects of reading traditionally printed texts, which can otherwise be very exhausting work for many children. Overlays are very cost-effective; once children with vision problems are identified, overlays can be a very quick and effective way of helping them to overcome their problems. Colour can also have a calming effect, which also helps children read more easily.

Older dyslexic children are often encouraged to use laptop computers for school-work; accessibility to screen text and ‘viewing options’ such as background and font colours, brightness and magnifying tools can help to adjust the screen display to suit an individual child.

Choice of texts for children with dyslexia

Where language development and perception are developing more slowly, as is often the case with dyslexia, the choice of reading matter is very important. Complicated spellings such as ‘suspiciously’, and idioms such as ‘biting the bullet’ only add to children’s confusion. Specialist publishers mark up texts, adjusting difficult words and help to overcome the basic stumbling blocks which dyslexic children face and which often make them reluctant to try to read.

Providing a story or factual material that is easily comprehensible is important. Above all, the reading material needs to be sufficiently relevant to grip the interest of the dyslexic child and encourage the enthusiasm for reading which is the first

and most important step to conquering the problem.

With the ever-increasing scientific knowledge and understanding of dyslexia, and the effective use of the full range of Montessori materials specifically designed for special educational needs, there is no reason why dyslexic children should not realise their full learning and creative potential. ■

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Resources:

The Dyslexia Institute (especially useful for advice on computer viewing options and magnifying tools): tel. 01784 222 300 www.dyslexia-inst.org.uk

British Dyslexia Association (BDA) www.bda-dyslexia.org.uk

*BBC Report ‘Scientists Find Cause of Dyslexia’, Education, 16 March 2000, first published in Science magazine. <http://news.bbc.co.uk/1/hi/education/1225119.stm>

On We Go Montessori Pink Scheme Reading Lists: WMS Publications: tel. 020 8858 4368.

Barrington Stoke specialist publishers: books for reluctant, dyslexic, disenchanted and under-confident readers: www.barringtonstoke.co.uk

There is useful information in the DfES booklet *Special Educational Needs: A Guide for Parents* - call 020 7925 5000 (UK) or 0131 222 2400 (Scotland) for a copy.

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