SPECIFIC LEARNING DIFFICULTIES
UNIT 14
What is dyslexia?

Learning objectives

- Understand the Rose 2009 definition of dyslexia including:
    - Core features of dyslexia
    - Dyslexia as a continuum of difficulty
    - Co-occurring difficulties

ONLINE RESOURCES

The content and tasks throughout these PDFs are supported by online resources that are designed to facilitate and supplement your training experience.

Links to these are signposted where appropriate. The resources use graphics and interactive elements to:

- Highlight salient points
- Provide at-a-glance content summaries
- Introduce further points of interest
- Offer visual context
- Break down and clearly present the different stages and elements of processes, tasks, practices, and theories

The online resources offer great benefits, both for concurrent use alongside the PDFs, or as post-reading revision and planning aids.

Please note that the resources cannot be used in isolation without referencing the PDFs. Their purpose is to complement and support your training process, rather than lead it.

You should complete any learning or teaching tasks and additional reading detailed in this PDF to make full use of the Advanced training materials for autism; dyslexia; speech, language and communication; emotional, social and behavioural difficulties; moderate learning difficulties.

To find out more about the resources, how they work, and how they can enhance your training, visit the homepage at: www.education.gov.uk/lamb

The first resource for this unit can be found here:
www.education.gov.uk/lamb/spld/dyslexia/intro

Introduction to the unit

This module is concerned with understanding dyslexia as a specific learning difficulty. Study undertaken in units 1 and 3 will support the learning in this unit since an understanding of normal learning processes for reading and spelling is an essential prerequisite to understanding how difficulties might be explained.

Dyslexia is one amongst several different specific learning difficulties (SpLDs). Other specific learning difficulties include attention deficit hyperactivity disorder (ADHD), developmental co-ordination disorder (DCD, also sometimes called dyspraxia) and mathematics learning difficulties (sometimes called dyscalculia). The focus of this unit is on dyslexia and on difficulties with literacy learning.

Defining dyslexia

'*Dyslexia is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling.*

- *Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed.*
- *Dyslexia occurs across the range of intellectual abilities. It is best thought of as a continuum, not a distinct category, and there are no clear cut-off points.*
- *A good indication of the severity and persistence of dyslexic difficulties can be gained by examining how the individual responds or has responded to well founded intervention*.' Rose (2009) pp 30

This is the definition agreed in 2009 by the expert advisory group for the Rose Report entitled 'Identifying and teaching children and young people with dyslexia and literacy difficulties'. This definition has been adopted by the major UK dyslexia organisations including BDA, Dyslexia Action, PATOSS, and The Dyslexia-SpLD Trust.

Ensure that you have read through Rose (2009) pp 30-36 about this definition and the brief discussion of the evidence relating to each part of the definition. Make notes in your learning log about the defining features of dyslexia.

Dyslexia is defined as a learning difficulty that affects reading and spelling abilities. Dyslexia has historically been understood as the unexpected difficulties some otherwise intelligent pupils have when learning to read and spell. This definition categorically states that issues of intelligence are irrelevant to discussion about whether or not a pupil may be dyslexic. Pupils with a range of other needs and talents may have dyslexia.

The core features of dyslexic identified in the Rose (2009) definition are difficulties with:

- Phonological Awareness – the ability to hear and analyse the sounds within words. Phonological awareness skills include the ability to rhyme, blend sounds to make words, segment sounds in a word, delete sounds or swap sounds around as in spoonerisms and word play. Phonological awareness is understood to be the key skill that enables the learning of phonics and therefore the acquisition of the alphabetic principle (See unit 10 for more detail)

- Verbal memory – the ability to remember and manipulate information heard or presented orally, such as hearing a repeating a word never heard before. For an adult verbal memory is used when trying to repeat a foreign word.

- Verbal processing speed - the ability to access, rapidly, spoken information from memory. This is often tested by asking pupils to read out long lists of digits, or name objects and timing how long it takes.

Difficulties in these areas can be thought of as reflecting a core weakness in the systems that are involved in processing information about word-sounds (phonology) and their impact is primarily seen on the development of decoding and encoding skills in reading and spelling.

See online resource:
www.education.gov.uk/lamb/spld/dyslexia/features-of-dyslexia

Go to unit 2 for further discussion of the impact of phonological awareness and phonological processing on the development of literacy skills.

The definition then goes on to name a series of other difficulties that often co-occur with dyslexia.

Co-occurring Difficulties

The term co-occurring in this context is taken to signal a connection with the dyslexic difficulties not just a ‘co-incidence’.

> ‘*Co-occurring difficulties may be seen in aspects of language, motor co-ordination, mental calculation, concentration and attention, personal organisation, but these are not, by themselves, markers of dyslexia’* (Rose 2009 pp30)

This recognises that people with dyslexia often experience difficulties in areas beyond literacy. However it is quite possible to have these difficulties without being dyslexic and having one or all of these difficulties in the absence of the characteristic features of dyslexia would not mean that you were dyslexic. These co-occurring difficulties are often itemised on the checklists for dyslexia that are offered by some organisations. Since co-occurring difficulties are not diagnostic features of dyslexia, checklists which aim to identify dyslexia and include co-occurring difficulties should be avoided.

Difficulties in these areas can also be signs of other kinds of specific learning difficulties. Attention and concentration difficulties is a good example, some individuals with these difficulties may read and spell very well; others have these difficulties along with reading and spelling difficulties; and some have no such problems but struggle to read and spell. Some may have more severe difficulties and get a diagnosis of ADHD. Some pupils with severe difficulties in motor co-ordination and personal organisation may have dyspraxia.

Aspects of language

Many pupils who have a history of mild language difficulties (in grammar and vocabulary for example) often not severe enough to need speech and language therapy go on to have literacy difficulties. Pupils with specific language impairment often also have literacy difficulties. Dyslexia is often described by researchers as a difficulty which is based in language. Early difficulties with speech sound production, for instance children whose speech is difficult to understand, are thought to affect literacy skills only when the difficulties remain past the sixth birthday (Snowling and Hulme 2005). Even then some pupils with these difficulties hear and understand speech sounds well despite their speech difficulties and so experience no particular phonologically based difficulties with literacy.

One of the characteristics of dyslexia is slow access to verbal labels. This is typically measured by asking children to name sequences of pictures or digits but sometimes also just by picture or object naming. If there are significant difficulties in gaining rapid access to the names of things this can affect everyday communication; words do not come to mind easily.

Difficulties retaining spoken information in short term and working memory is another of the characteristics of dyslexia and this too can affect both comprehension and expression. Short term and working memory are needed for the temporary storage of incoming information and processing information or 'making sense out of it'. Reduced efficiency of working memory can contribute to comprehension problems, especially when information is given in a complex or confusing way. Similarly working memory is needed to help store and organise words for spoken expression so inefficiencies in this area can contribute to expressive language difficulties. (For more on working memory see units 1 and 2).

Muter and Snowling (2009) found that those pupils with dyslexia who have good vocabulary and grammar skills alongside their difficulties with phonology are to some extent protected from the poorest outcomes in literacy development. This is thought to be because they can use their language skills to support their poor phonological skills. For instance they may use the context of a passage to work out an unknown word, boosting their unreliable phonic decoding. These pupils typically find reading single words out of context more difficult than reading a passage.

Motor co-ordination

Difficulties in motor co-ordination are another example of co-occurrence. This linkage is probably due to common causal influences rather than a direct connection between the two, but there is as yet, no clear understanding of the different roles of genetic and environmental factors. Pupils with the greatest difficulties in motor coordination may have dyspraxia.

Mental calculation

Doing arithmetic, especially mental arithmetic, also depends on quick access to stored information from long-term memory and on processing information in short term memory. Difficulty with arithmetic is not included in the characteristic features of dyslexia because:

- Memory difficulties are variable and so may not be severe enough to impact on maths.
- Memory difficulties can be quite specific to certain kinds of information. Dealing with numbers is not, for many dyslexic pupils, as hard as dealing with spoken words.
- Some dyslexic pupils will be at least average at maths

Mathematical abilities are affected by a wide range of factors other than memory – both cognitive and educational – which makes it harder to interpret both good and poor levels of performance.

For more detail on dyscalculia, go to unit 7 of this module.

Concentration and personal organisation

These difficulties can occur in the absence of dyslexic-type difficulties, but they are known to occur along with dyslexic difficulties more often than would be expected by chance, or co-incidence, alone. This suggests that there is some connection between the two and, as with any such connection there are three possible explanations:

1. Poor attention is a reaction to finding it hard to engage with learning because of poor literacy skills, apparent distractibility or lack of focus is therefore a consequence and not a cause of the primary difficulty with literacy: addressing the literacy problem should remove the attention difficulties.
2. Poor attention and concentration results in poor engagement and therefore poor learning of literacy skills. Addressing the attention problem should mean that the reading problem is solved (or can be easily solved).
3. There is a third common factor that lies behind both attention and literacy difficulties, and there is perhaps no direct relationship between the two. In the case of dyslexia and ADHD it does appear that there are common genetic risk factors which lead to an increase in co-occurrence. What this means is that similar genetic influences appear to predispose an individual to *either* dyslexia *or* ADHD *or to* both. Which one of these happens is influenced by other genetic and environmental factors but the overall result for a group of people with dyslexia is that a significant number will also have, or have features of, ADHD.

The Rose definition included difficulties in personal organisation as a co-occurring difficulty. It seems that difficulties in working memory and verbal retrieval can impact on one's ability to keep on track in other kinds of tasks, particularly those where sequencing and timing is important, which can lead to the appearance of disorganisation. This trait is variable according to the degree of memory difficulties, and the presence of other factors and influences. Organisational difficulties are made more likely by the working memory difficulties in dyslexia but they are not an inevitable consequence. There is a lack of research evidence about personal organisation in relation to dyslexia.

See online resource:
www.education.gov.uk/lamb/spld/dyslexia/co-occurring-difficulties

Other difficulties

See online resource:
www.education.gov.uk/lamb/spld/dyslexia/other-difficulties

Self Esteem

Issues of low or fragile self-esteem can sometimes be associated with dyslexia. It may arise because of a pupil's experience of the impact of dyslexic difficulties, and of others' reactions to their difficulties. However not all pupils with dyslexia experience low self esteem and those who do generally experience it only in specific areas, most likely poor *academic* self esteem (Carroll, Maughan, Mawood and Rutter, 2005). In other areas such as in friendships, sport and art they may have high self esteem. Poor self esteem is not an inevitable consequence of dyslexia, and schools can do much to protect against this.

Teachers can make significant impacts on the Dyslexic/SpLD learner's motivation, confidence and attainment through the use of stimulating teaching and socially constructed learning (see Units 4 and 6). The use of Thinking Skills strategies in the classroom can facilitate this approach (McGuinness, 1999). In 'Thinking through Primary Teaching' (Higgins, Baumfield and Leat, 2003) a number of strategies are described which are designed to stimulate higher-order thinking (N.B. These strategies are transferrable to secondary school and HE/FE contexts). Examples of these techniques, which support thinking and discussion, but reduce the reliance on literacy skills include:

- Odd-one-out

- Maps from Memory
- Using visual conceptual frameworks such as Venn, Carroll and classification-flow diagrams to structure information
- Group work eg Numbered Heads
- Think-Pair-Share
- Opinion lines/list ranking
- Fortune-Line Graphs
- Sequencing cut-up text/matching words to definitions
- Piecing together diagrams
- Jigsaw reading

Activity 1
Devise an 'Odd-one-out' activity to suit a particular topic, such as:
Pictures of 'duck/bat/dolphin' to stimulate discussions on habitat or classification of species '0.5; 0.75; ½' to stimulate mathematical discussions
'which/witch/why' to elicit thinking about homophones and other spelling rules

Use your 'Odd-one-out' as a starter activity to elicit group discussion. Encourage a range of different responses, accepting all ideas with an intelligible logical reasoning around your chosen topic. Observe the response of your pupils, particularly those with Dyslexia/SpLD. What types of impact on motivation or involvement do you observe? In what ways does the activity impact on subsequent attainment in other class activities?

Now, listen to the audio clip entitled "Classroom strategies for supporting children with SpLD". In your learning log, write down how many of the approaches outlined you currently use and those that you could develop.

Listen to this clip:
www.education.gov.uk/lamb/spld/dyslexia/strategies-audio

Visual difficulties
Visual difficulties, in which the glare of the page (black text on white paper) causes odd visual effects such as 'strobing' or 'moving' words, are sometimes thought to be part of dyslexic difficulties. Because of this you may find some practitioners suggesting the use of coloured overlays or wearing glasses with coloured lenses will 'cure' dyslexia. These difficulties are well documented and described, (for example, Singleton and Henderson 2006) however they do occur quite frequently in many who have none of the other features of dyslexia such as

literacy or phonological difficulties. Thus it is more useful to consider visual difficulties as a possible co-occurring difficulty for which coloured lenses and overlays may provide some relief. There are also some problems with the research evidence around visual difficulties. The placebo effect in which any 'treatment' produces some kind of effect is difficult to control for in research in this area, since the reader will always know that they are using an overlay. It has also been difficult to agree protocol for the 'diagnosis' of visual difficulties of this sort.

Severity and response to intervention

The Rose definition is explicit in describing dyslexia as a continuum with no cut off point. What this means is that there will be pupils with milder dyslexic difficulties, and pupils with extremely severe difficulties along a continuum. The Rose report suggests that the severity of dyslexia can be measured through the pupil's response to well founded intervention. This approach whilst it appears sensible requires some unpicking.

Well founded here means intervention that would normally be expected to have a useful impact, for which there is research evidence which indicates best practice. See unit 6 for further discussion of this. There is a growing literature on factors that predict a poor response to intervention. A review by Nelson, Benner, & Gonzalez (2003) showed that factors predicting a poor response were:

- Low scores on measures of rapid naming
- Teacher ratings of low attention and other 'problem behaviour'
- Poor phonological awareness
- Weak skills in applying the alphabetic principle (knowing how letters map onto sounds)
- Low scores on measures of memory

See online resource:

www.education.gov.uk/lamb/spld/dyslexia/poor-response-factors

It is therefore probably wise to ensure that pupils who have these characteristics should receive more intensive support, preferably before they have shown 'poor response' to the more standard forms of support. We should always seek to avoid the 'wait and fail' approach to SEN support. Early intervention is known to be best practice.

The biology of dyslexia

Along with the learning factors identified above much research has been done into the biological factors that might influence dyslexia. This work can be divided into two approaches, brain study and genetics.

Dyslexia is understood to have a basis in the brain. Dyslexic people often have identifiable differences in their brain architecture which may lead to the learning difficulties associated with dyslexia. Differences are small and distributed throughout the brain and there appear to be no discrete areas that are dedicated to literacy acquisition. Instead the areas affected seem to be those to do with language, attention and memory. There is also research that indicates that learning to read and spell changes the 'shape' of the brain and its organisation. Specifically there is evidence (Price and McCrory, 2005) that intervention that improves reading and spelling changes neuroanatomy. So it appears that the differences in brain structures noticed for many years do not mean that nothing can be done about dyslexia, indeed quite the reverse. Learning changes brains! This is true at all ages, though the young child's brain is the most plastic of all.

There is also a body of research regarding genes associated with dyslexia. Dyslexia is noticeably heritable (Pennington and Olson 2005). If you have a parent or sibling with dyslexia you are much more likely to have it. However it should be remembered that parents and children share environments and this may well also have a strong effect since parents with literacy difficulties may well find it harder to support the learning of their children. There are no specific literacy genes. Instead it appears that many genes with small effect may be implicated in dyslexia, and that this is probably mediated through language, attention and memory which are hardwired into genes. Genes will affect neuroanatomy, and neuroanatomy affects learning. However there is no inevitability in dyslexia. Effects of genes and brain differences can be cushioned by good environmental factors such as excellent support at home and school.

Activity 2

Statements activity

Print out the Activity sheet 2. Work with colleagues to make decisions about what you believe to be true or false regarding dyslexia. Discuss each statement, making reference to the information in this section to inform the discussion. Make a note of any further questions this discussion raises and seek answers from the other units in this module. The purpose of this activity is to generate discussion and ensure that learning around key aspects of dyslexia is embedded. Please be

aware that these issues are complex and can rarely therefore be wholly true or false.

Identification and assessment of dyslexia

Identification of dyslexia should not be seen as something necessarily requiring elaborate or extensive assessment. All teachers should be aware of the identifying factors during the course of their everyday teaching.

> *'The first step in identifying that children may have language learning difficulties, including dyslexia, is to notice those making poor progress in comparison with their peers, despite receiving high quality wave 1 literacy teaching'* (Rose 2009 pp43)

Literacy skills build on language skills, and some children could be identified as being at risk of experiencing literacy difficulties on the basis of delays in the development of early language skills. It is therefore recommended that the Early Years Foundation Stage Framework should be used to monitor language development in pupils less than five years old, so that where emerging difficulties with language and literacy are noted, practitioners can effectively intervene.

The Rose report adopted a three level assessment framework as outlined below.

The Three Level Assessment Framework

The three levels of identification and assessment are focused on

- Identifying those children who require additional support and
- Assessing strengths and difficulties to plan that support.

<table>
<tr><td rowspan="2">Level 1:
Monitor Progress:</td><td rowspan="2">What?
Monitor response to teaching, notice those making poor progress in comparison with their typically developing peers
Check hearing and vision in children making slow progress</td><td>Who?
class teacher or teaching assistant

discuss concerns with parents / carers.</td></tr>
<tr><td>Outcome
Adjust whole class teaching to improve progress.</td></tr>
</table>

Level 2: **Skills Assessment**	**What?** Assessment for learning focused on identifying strengths and weaknesses and an analysis of what needs to be learned. Produces a 'skills profile'. (This is the approach followed in units 2 and 4 of this module.)	**Who?** Class teacher or teaching assistant with support/training SENCo Parent/carer's views are sought, and they are kept fully involved in the process.
		Outcome Understand more about particular areas of difficulty and strengths to be developed Identify the use of 'helpful strategies' and 'unhelpful strategies'. Informs class teaching and helps to determine the appropriate interventions.

Level 3: **Comprehensive Assessment**	**What?** Previous interventions have not resulted in much progress. There are indicators of issues that cannot be easily investigated using the information and tools available to teachers at Level 2 All information gathered in previous assessments forms part of this comprehensive appraisal of the nature and extent of the child's difficulties, but further detailed assessment of the child's strengths and	**Who?** The school might seek help and advice: from specialist teachers[1], educational psychologists, speech and language therapists, and occupational therapists, as appropriate. Parent/carer's views are sought, and they are kept fully involved in the process.
		Outcomes Long term individualised intervention should be planned.

[1] Specialist teachers are defined by Rose (2009) as those who have ATS (accredited teacher status) or AMBDA (associate members of the British dyslexia association) qualifications.

	weaknesses will need to be made.	

Activity 3
Listen to the audio clip entitled ‘Planning for SpLD’. Consider how the teachers use their assessments at level 1 to ensure improved provision for pupils with SpLD. What processes that are used with all pupils also provide useful information about the progress and needs of pupils with SpLD (dyslexia)?

Listen to this clip:
www.education.gov.uk/lamb/spld/dyslexia/planning-audio

Now fill out the charts on the Activity sheet 3 in discussion with the school’s SENCo. Consider what is being done well and how your school’s approach to identification and assessment might need to change. Indentify resources (both human and material) that are needed. Are there implications for the practice of colleagues? Plan how you will support your colleagues with this. Make notes in your learning log.

Monitoring the impact of interventions
Assessment is at best when seen as part of the planning around a pupil’s needs, not as a once off ‘diagnosis’. The impact of support and adaptations to teaching should be monitored and fed back into further assessment and re-evaluation of pupil needs.

Where difficulties are relatively mild, progress within a short period of time – as little as 10 weeks – should be expected.

Use of standardised tests of reading and spelling are important for evaluating progress, along with evidence of progression through a structured programme. For further discussion of standardised assessment see unit 2 of this module.

It is important that those children who have responded well to interventions continue to be monitored, to ensure that progress is maintained and to notice whether there are subsequent difficulties involving aspects such as reading fluency and spelling.

See online resource:
www.education.gov.uk/lamb/spld/dyslexia/monitoring-interventions

Activity 4
In collaboration with the special educational needs coordinator and class teachers fill out the Activity sheet 4 regarding how many pupils you have on your SEN list who have identified literacy difficulties or dyslexia. Discuss the patterns of identification as indicated in the activity, considering how the school might respond to these to ensure that literacy difficulties are identified early.

Supporting the learner with Dyslexia/SpLD in the classroom
The Dyslexia-SpLD Trust have developed a Dyslexia/SpLD Professional Development Framework to support schools in developing staff knowledge and expertise. The online tool is free and will deliver a personalised report with a variety of continuing professional development activities, including key literature, teaching resources and workplace activities. It can be accessed at: http://www.thedyslexia-spldtrust.org.uk/professionaldevelopmentframework/
Many pupils with Dyslexia/SpLD benefit from the following examples of good teaching practice:

- Use of Writing Frames to structure written work
- Written instructions on White Board
- Differentiated work
- Dyslexia-friendly texts
- Careful formatting on worksheets, eg spacing, font size, illustrations
- Extra Reading and Spelling support
- Specific focus on phonological awareness programmes and other targeted programmes to support the Dyslexic learner

See online resource:
www.education.gov.uk/lamb/spld/dyslexia/supporting-pupils

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Snowling MJ and Hulme C, Learning to read with a language impairment. In, Snowling MJ and Hulme C, The science of reading. Blackwell, Oxford UK

Rose 2009 Identifying and teaching children and young people with dyslexia and literacy difficulties, can be found at: www.interventionsforliteracy.org.uk .

Dyslexia organisations:

British dyslexia association (BDA)
www.bdadyslexia.org.uk/

Dyslexia Action (DA)
www.dyslexiaaction.org.uk/

The dyslexia-spld trust
http://www.thedyslexia-spldtrust.org.uk/

The Professional Association of Teachers of Students With Specific Learning Difficulties (Patoss)
www.patoss-dyslexia.org/

Helen Arkell
www.arkellcentre.org.uk/