SPECIFIC LEARNING DIFFICULTIES
UNIT 10
LEARNING TO READ

Learning Objectives:
- Knowledge of two key models related to reading
  - The simple view of reading
  - The dual route cascade model
- Applying the models to assessment
- Understand key factors in reading acquisition

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/learning-to-read/intro

This unit begins by explaining how pupils learn to read. It is important to start here since an understanding of typical processes underpins knowledge about what might go wrong in the case of specific learning difficulties such as dyslexia or specific comprehension difficulties.

Activity 1: What do successful readers look like? In your learning log list the skills and knowledge you think are needed to be a successful reader. Ask a colleague to do the same thing, and combine both lists. For suggestions see activity sheet 1.

Now try dividing this list into two:
- Skills related to decoding or reading the words, and
- Skills related to understanding or interpreting the text.

Introducing the simple view of reading

Achieving reading comprehension is the aim of all reading instruction. In the Simple View of Reading (Hoover & Gough, 1990) reading comprehension (which is the ultimate aim of learning to read) is described as having two dimensions: decoding the words (by sight recognition or phonics) and understanding what is being read. The two dimensions, decoding and language comprehension, are viewed as essential to successful reading comprehension, but insufficient on their own to result in good reading comprehension. Imagine the reader who can read aloud any text that they encounter, but who has little or no understanding of it, this learner is not really reading, merely decoding or 'barking at print'. Readers may also struggle to decode print but show good comprehension when read to by an adult. A pupil could experience difficulties with either, neither or both of these dimensions. Thus there would be pupils who were:
- Good comprehenders and good decoders
- Poor comprehenders and good decoders
- Poor comprehenders and poor decoders
- Good comprehenders and poor decoders

Fig 1 The simple view of reading
Hover and Gough (1990)
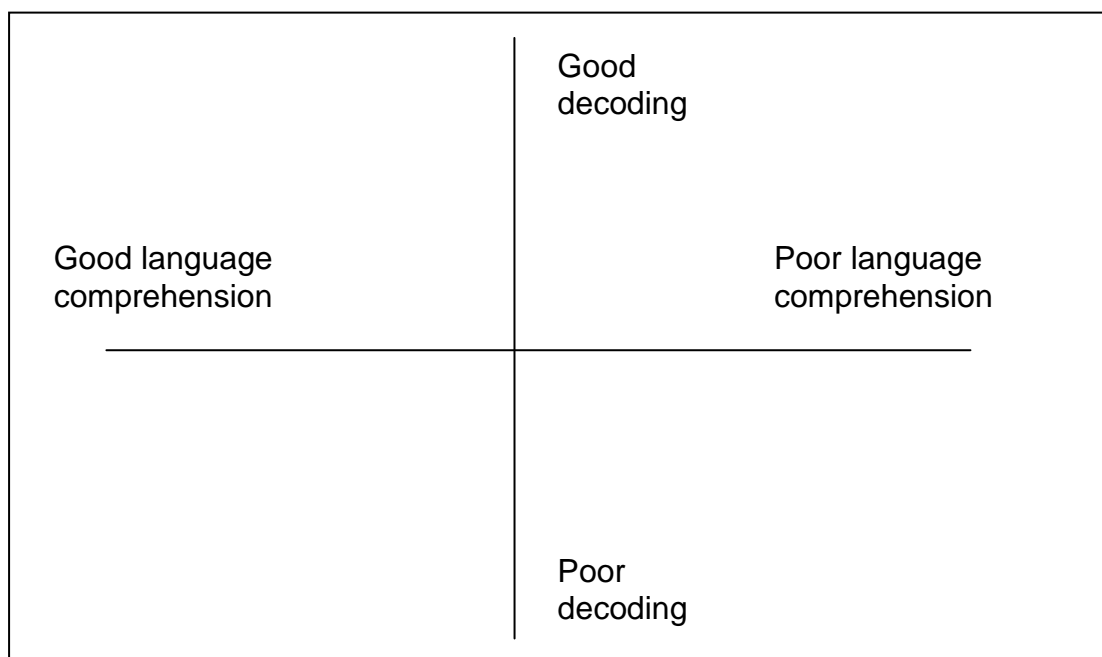
	Good decoding
Good language comprehension	Poor language comprehension
	Poor decoding

The simple view also implies a continuum of ability in each dimension. Readers may experience more or less difficulty or expertise in each dimension.

Those who have good comprehension and poor decoding skills are those who would classically be termed dyslexic. However in older dyslexic pupils, lack of experience with texts (perhaps due to reduced interest and access to reading) and an inability to use reading as a learning tool can mean that language comprehension skills may also be poorer than those of their peers. There will also be pupils who are both dyslexic and have language difficulties that impact upon reading comprehension. The model also predicts pupils who have decoding skills that are better than their language comprehension skills who might be described as having specific comprehension difficulties. Reading comprehension difficulties are thought to be strongly linked to language comprehension difficulties. Pupils who speak English as an additional language, or who have speech and language difficulties may have more difficulty with comprehension than decoding. At its most extreme specific comprehension difficulties can become 'hyperlexia'. Hyperlexic pupils are usually those who have autism spectrum conditions (ASC), or similar

needs. They are able to decode efficiently at an early age, but have little understanding of the communicative function of reading. Hyperlexia is a rare condition, not all pupils with ASC can be described as hyperlexic, though most do struggle with aspects of comprehension.

Phonological awareness

Phonological awareness is the skill that underpins the development of decoding through phonic knowledge. It has been divided into four sub-skills by Muter (2003):

- Rhyming: filling in the missing rhyming word in a nursery rhyme or song, creating rhyming strings of words.
- Syllable and phoneme segmentation: dividing words up into syllables; al-pha-bet or phonemes /c/ /a/ /t/, /sh/ /i/ /p/
- Sound blending: sounding out words or even nonsense words (sometimes known as non-words or pseudo-words); the phonemes (sounds) /c/ /a/ /t/ are blended together to make cat; the phonemes /p/ /igh/ /t/ /i/ /c/ are blended to make a non-word. The word duck is segmented into phonemes /d/ /u/ /k/. [1]
- Phoneme manipulation: much the hardest activity, involves wordplay such a spoonerisms (car park become par cark) and phoneme deletion (bark without the /b/ becomes ark).

Rose (2006) found that whilst primary school teachers spend a lot of time teaching letter sounds, insufficient time is spent on teaching pupils the much harder skills involved in segmenting and blending whole words.

Learning to read and phonological awareness are a 'two way street'. Some phonological awareness skills are present in pre-school children, and phonological awareness is indeed necessary for learning to read, other higher order phonological awareness skills are only developed by the process of being taught to read (in alphabetic reading systems). For this reason the programme Letters and Sounds Principles and practice of high quality phonics (2007) recommend that phase two (the introduction of first letter sounds) and phase one developing phonological awareness should be taught together. The programme is strong in the teaching of segmenting and blending skills. As soon as pupils are introduced to letter sound correspondence (in phase two) they are taught to blend and segment with the sounds they are learning.

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[1] Where letters are seen like this /k/ this means the phoneme is being referred to, not the correct letter for spelling. This convention is used in *Letters and Sounds Principles and practice of high quality phonics* DFES-00281-2007. In other texts phonemes might be written in the symbols of the international phonetic alphabet, often used by speech and language therapists.

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Learning phonics remains an important skill even in older readers as it underpins the ability to read words that have never been met before.

See online resource:
www.education.gov.uk/lamb/spld/learning-to-read/phonological-awareness

The alphabetic principle
Pupils who can orally segment speech sounds, and are therefore phonologically aware, tend to do better at reading, because this is fundamental to the alphabetic principle (Byrne 1998). The alphabetic principle is acquired when a beginner reader understands that letters can be mapped onto sounds in a regular way. Once this is understood the code is cracked. The acquisition of this principle is believed to be so powerful Share (1995) called it a 'self teaching tool', since once readers have understood this principle they experience acceleration in reading development. There are those who would argue that written English is insufficiently regular or phonically predictable for this to be so. However there are few words that are totally phonically irregular and even 'said', an irregular word that pupils encounter early on, has two letters that are doing exactly what they should. So most words that we think of as irregular, are only irregular in part. Share found that acquiring the alphabetic principle even had a positive effect on irregular word learning.

The dual route cascade model
The dual route cascade model (Coltheart, 2004) describes the processes involved in the decoding aspect of the simple view of reading. The model makes no reference to reading comprehension. This is a model of skilled reading as it assumes that all readers, even those in the early stages of learning, use the same approaches, those that a skilled reader would use, albeit with less complete knowledge.

Essentially the dual route cascade model (DRCM) describes two processes (or dual routes) that occur when a word is read. The word might be decoded using either the lexical or non-lexical route.

- The non-lexical route matches the word letter by letter to sounds, converting the word into phonemes and blending them into a word. This is what many teachers would call 'sounding out'. In order to do this it is not necessary to know the meaning of the word, or to have seen the word before. Read this word:
  Trepichep
  Although this is a non-word or nonsense word and you are unlikely to have seen it before, or to be able to say what it means, you can read it! Of course this non-lexical route is only necessary if you do not

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immediately recognise the word, and will only work if the word is sufficiently regular (it is made of letter sound correspondences that you know). An inexperienced reader who did not know the sound /ch/ would be unable to decode it accurately.

- The lexical route matches the word against a printed word store (words the reader knows and recognises instantly by sight). This store may be small, in the case of an inexperienced reader, which would result in frequent activation of the non-lexical route, or large as it would be in the case of a highly experienced reader who rarely needs to resort to phonic decoding. The lexical route is needed for reading irregular words, since using the non-lexical route will only result in errors for words such as 'was'. The lexical route also makes use of a word meaning store, and a word pronunciation store, since inevitably a known word will have a meaning attached to it and you will know how to pronounce it.

See online resource:
www.education.gov.uk/lamb/spld/learning-to-read/drcm

Fig 2 Dual route cascade model
Coltheart (2005)
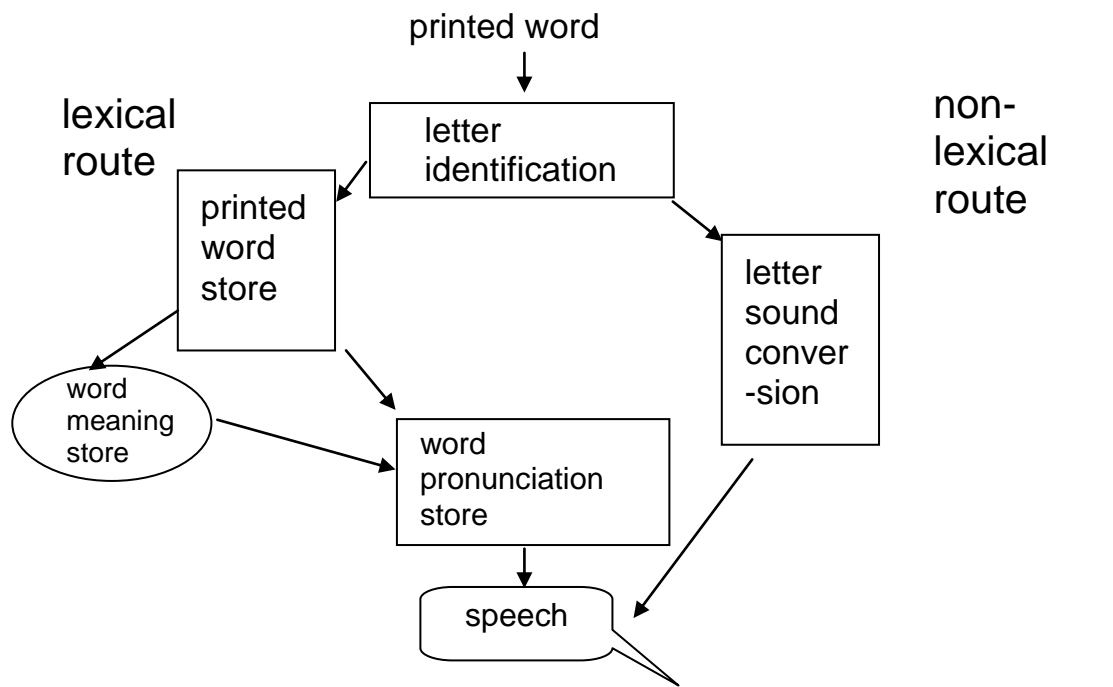
The model is described as 'modular'; each of the boxes on the diagram is a module contributing towards efficient reading. In unit 11 on assessment of

reading trainees will be looking at what might be observed in a reader experiencing difficulties with each of the modules of the DRCM.

The place of phonics
The DRCM emphasises that learning phonics (blending letter sound correspondences to read) is essential for the proper functioning of the non-lexical route. Frequent encounters with a word, and knowledge gained by phonic decoding both ensure that the quicker lexical route is strengthened.

Phonics is taught because it is efficient. It is hard to learn to recognise many words by sight and early reading without phonic decoding leads to lots of errors. Thus it is essential that phonic skills be taught systematically and well.

In essence what the dual route cascade model states is that pupils need to be systematically taught both phonics and irregular word recognition to be competent decoders.

Comprehension

See online resource:
www.education.gov.uk/lamb/spld/learning-to-read/comprehension-data

It is thought that around one in ten of seven to eight year olds has significant comprehension difficulties (Oakhill & Garnham, 1988). There are thought to be fewer older pupils with these difficulties, however they are likely to be more severely affected as difficulty in learning language can become a language based learning difficulty. Reading comprehension depends upon similar processes to comprehension of the spoken word, and so difficulties with speech and language are likely to have an impact on reading comprehension (Rose, 2006). These difficulties with comprehension can occur alongside difficulties with decoding.

According to Oakhill and Yuill (2002), there are three skills that readers must develop in order to understand text well:
- Inference skills

The pupil understands the text at a level deeper than a literal understanding. For instance a good comprehender would understand that the phrase 'he pedalled hard up the hill' meant that the male in the story was riding a bike, where a poor comprehender may not. This is thought to be a skill that requires the ability to integrate general knowledge with what is read. Inferential questions ask about something that is not obvious in the text, but which could be assumed, given understanding of the context. Literal questions ask about things that can be directly quoted from the text.
- Understanding of text structure

The pupil understands how narrative events are linked. This understanding is often tested by observing the use of connectives when telling a story from pictures. Poor comprehenders tend to tell stories that are list like and use few connectives such as and, then, when, but or because. Their stories also make little use of the past tense, and they may later on have difficulty switching between tenses when telling stories. Understanding text structure also enables pupils to make predictions about their reading.

- Comprehension monitoring

Pupils check their understanding as they read. If a comprehension problem occurs they should stop and seek clarification. This clarification might be achieved by:

- o rereading the text or by looking ahead in the text,
- o by identifying difficult vocabulary,
- o by trying to visualise descriptions,
- o by trying to think of concrete examples of difficult ideas,
- o realising that the text may be at fault.

A poor comprehender is not likely to realise when what they have read does not makes sense, or be able to explain why they cannot understand it. Even good comprehenders can find it surprisingly difficult to say what is wrong with a text that has errors, or to explain why they do not understand a text.

See online resource:

www.education.gov.uk/lamb/spld/learning-to-read/comprehension-skills

Memory and reading

Memory difficulties are a factor in all aspects of learning (Gathercole & Alloway, 2008) and there are three essential principles: encoding (getting information into memory), storage (how information is stored, in schemas or related concepts) and retrieval (getting at that information when it is needed). Difficulties with any of these memory processes will cause difficulties in learning.

See online resource:

www.education.gov.uk/lamb/spld/learning-to-read/memory-processes

In addition to the encoding, storage and retrieval processes it is useful to know about long term, short term and working memory.

- Long Term Memory: Stores anything beyond the last few seconds, and up to a lifetime ago. For example: your experiences, who you are, where you live, where you went on holiday, facts and general knowledge, skills that can be used automatically (touch typing, driving) and has potentially unlimited capacity.
- Short term memory: keeps track of what you are doing now; holds information long enough to make a decision, dial a telephone number, repeat a foreign word, or do a sum (a few seconds); has two different subsystems for remembering either visual or auditory information and has limited capacity, (adults can hold on average, seven bits of information).
- Working memory: uses the information stored in the subsystems of the short term memory and acts upon it, for example remembers two numbers and adds them together. Involves attention and may draw upon the long-term memory. Temporary storage, limited capacity.

Working memory matures at around age15 and working memory capacity cannot be easily increased. What we *can* do is learn ways of compensating for memory difficulties, becoming adept users of memory aids such as prompts, lists and mnemonics, using patterns and developing schemas.

Working memory measures predict success in literacy, scores in national tests, difficulties in comprehension, some aspects of maths, and severity of learning difficulties. The part of the working memory that is involved in remembering and using spoken information is particularly involved in reading.

Activity 2
Now put together and deliver a short staff meeting to introduce colleagues to the models and concepts in this section. Remember to ask colleagues to evaluate the session and discuss the impact this will have on their practice.

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