Learning Difficulties

The difference between a learning difficulty and a learning disability

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LEARNING DIFFICULTIES:

Factsheet 1: The difference between a learning difficulty and a learning disability

The terms used to describe the unexpected and persistent learning problems experienced by some students, in specific academic domains, vary both nationally and internationally. In the United States students are identified with 'Learning Disabilities' or 'Learning Disorders', whereas in the United Kingdom there is a preference for the term 'Learning Difficulty'. Some Australian States and Territories encourage the use of the term 'Learning Difficulties' for all students struggling to develop skills in literacy and/or numeracy, while others separate this quite large body of students into a number of categories.

Dyslexia is a specific learning difficulty that is neurological in origin. It is characterised by difficulties with accurate and / or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.

For the purposes of this Fact Sheet, 'Learning Disabilities' will be viewed as a sub-set of the larger group of students generally referred to as experiencing learning difficulties. This is in line with the Australian National Health and Medical Research Council, the *Australian Disability Discrimination Act (1992)* and the Australian Disability Standards for Education (2005).

Students with learning difficulties underachieve academically for a wide range of reasons, including factors such as: sensory impairment (weaknesses in vision or hearing); severe behavioural, psychological or emotional issues; English as a second language or dialect (ESL or ESD); high absenteeism; ineffective instruction; or, inadequate curricula. These students have the potential to achieve at age-appropriate levels once provided with programs that incorporate appropriate support and evidence-based instruction.

Students with learning disabilities have difficulties in specific areas of academic achievement as a result of impairment in one or more of the cognitive processes related to learning. One of the defining features of a specific learning disability is that the difficulty continues to exist, despite appropriate instruction and intervention.

A learning disability has nothing to do with a student's intelligence. Students with a learning disability:

- have difficulties which are inherent to the child and are lifelong
- can occur across the range of intellectual ability
- often have a family member with learning difficulties
- do not respond to intervention in the expected way.

Left unidentified, without appropriate intervention, a learning disability puts students at significant disadvantage, with little likelihood of achieving at levels close to their academic potential.

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Factsheet 2: What do we know about Dyslexia?

Dyslexia is the most common form of learning difficulty. Problems with reading and related difficulties with comprehension, spelling and writing are common for these students. Many people with dyslexia also experience difficulties with working memory, attention and organisational skills.

An internationally recognised definition of dyslexia appears below:

Dyslexia is a specific learning difficulty that is neurological in origin. It is characterised by difficulties with accurate and / or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.

What you might see in the classroom

Lower Primary School	Upper Primary School	Secondary School
• Difficulties with oral rhyming, syllabification, blending a nd segmenting of sounds in words. • Delayed speech and language development • Limited spoken vocabulary • Poor understanding of lettersound correspondences • Difficulty in the acquisition of letter knowledge • Slow and inaccurate word recognition • Inability to read nonsense word • Poor spelling • Difficulty understanding reading material • Difficulties with tasks requiring reasonable working memory capacity - such as following instructions or remembering sequential information	• Reduced ability to isolate and manipulate individual sounds in words • Difficulties holding verbal information (e.g. instructions) in working memory • Slow to complete literacy-related tasks • Reading is slow and dysfluent • Visually similar words are often confused when reading • Trouble decoding unfamiliar words • Poor reading comprehension • Limited retention of orthographic knowledge including spelling patterns • Numerous spelling errors (phonetic or non-phonetic) • Significant discrepancy between verbal ability and written skills • A lack of interest in or avoidance of reading and writing tasks • Ongoing difficulties in working memory	• Poor reading fluency • Reduced reading comprehension (may need to re-read material many times to comprehend) • Poor spelling, including lack of knowledge of patterns in words and morphological knowledge (affixes and base words) • Poor writing fluency • Difficulties writing in a structured manner (i.e. poor sentence and paragraph construction, unable to structure essays) • Slow speed of writing • Disorganisation and difficulties with planning • Limited working memory • Word finding difficulties • A lack of interest in or avoidance of reading and writing tasks • Working memory difficulties may become more pronounced as the demands of schooling increase

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Factsheet 3: What do we know about Dysgraphia?

A specific learning difficulty in Written Expression

Dysgraphia is a specific learning difficulty that often remains undiagnosed. It is a persistent difficulty with written expression, handwriting and/or spelling that may occur in isolation or in addition to dyslexia.

A formal definition of Dysgraphia appears below:

Dysgraphia is a specific learning difficulty that is neurological in origin. It is characterised by difficulties with accurate and / or fluent written expression and by poor spelling and handwriting skills. These difficulties typically result from a deficit in the phonological component of language, frequently related to difficulties in the speed and efficiency of language processing. These ongoing delays in writing are often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction.

It is commonly recognised that Dysgraphia can be separated into 2 subtypes: Motor-based Dysgraphia and Language-based Dysgraphia. Both subtypes of dysgraphia are likely to have a detrimental impact on the writing process and both will result in the student facing a number of writing challenges.

Motor-based dysgraphia can be viewed as difficulties with the mechanical aspects of writing. Often students with this type of dysgraphia are able to structure and sequence their ideas effectively, but struggle with the manual aspects of handwriting. This results in writing becoming a tiring, laborious and sometimes painful process for the student.

Language-based dysgraphia is more consistent with delays in processing and sequencing ideas in writing. The content of the writing is well below the level expected, despite students being able to present their ideas clearly and concisely orally. Often there is no difficulty in the handwriting aspects of writing in a student with language-based dysgraphia.

When handwriting, spelling and composition of sentences and texts are explicitly taught, students have a greater chance of achieving an acceptable standard of writing. Automaticity in handwriting, and a solid understanding of English orthography, allow students to reduce cognitive overload and ‘free up’ their working memory to concentrate on high order writing skills, such as the planning of both content and structure.

While explicit instruction can benefit students with dysgraphia, weaknesses in writing fluency are likely to endure. Students with dysgraphia often have to work much harder and longer to produce written work to the same standard as an individual with typically developing writing skills.

What you might see in the classroom

Lower Primary School	Upper Primary School	Secondary School
• Reading appears adequate but difficulties with writing are apparent • Avoids writing tasks • Letters are poorly formed • Handwriting shows poor spacing and sizing of letters and words • Letter forms are frequently confused • Poor spelling • Difficulties learning basic sentence structure and grammar	• Writing is slow and dysfluent • Difficulties are more apparent as demands on writing ability increase through middle and upper primary school • Process of writing is effortful and tiring • Handwriting is immature • Poor orthographic knowledge and lack of automaticity in spelling • Difficulty choosing correct spelling alternatives • Sentence and paragraph structure is poor • Significant discrepancy between verbal ability and written skills	• Legibility of handwriting is poor • Difficulties writing at the same speed as their peers • Great difficulties noted in transferring thoughts into written words • Apparent gap between oral and written language skills • Knowledge and application of essay structure is underdeveloped • Lack of detail in written expression • Written output is limited with far less work being produced in allocated writing time • Writing and spelling skills do not appear automatic

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Factsheet 4: What do we know about Dyscalculia?

A specific learning difficulty in Mathematics

Dyscalculia is an innate difficulty in learning or comprehending mathematics. Students with Dyscalculia have trouble understanding numbers, learning how to manipulate numbers, learning mathematical facts, and a number of other related difficulties.

Currently there is no single widely accepted specific definition of Dyscalculia, but a number of definitions exist.

One example appears below:

Dyscalculia is 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.

The severity of mathematical impairment differs depending on the individual. Although it can be argued that many of the defining features of Dyscalculia can also be seen in students who do poorly in mathematics, it is the degree of these difficulties and the resistance to remedial intervention that set students with Dyscalculia apart from others with learning difficulties.

What you might see in the classroom

Lower Primary School	Upper Primary School	Secondary School
• Difficulties organising objects and sets of items in a logical way • Difficulties recognising printed numbers • Poor counting skills and knowledge of counting strategies • Difficulties using counting strategies (counting in 2's, S's etc) • Difficulties with mastering number knowledge (recognising how many items • make a set without counting) • Delays in using effective counting strategies for addition (counting all instead of counting on) • Difficulties decomposing numbers • Difficulties remembering arithmetic facts	• Counting skills mastered but continues to use ineffective strategies for calculation • Difficulty telling the time and recalling times tables • Delays in the retrieval of overlearned maths facts • Difficulties with inattention to numerical operator (e.g. +,-,x.-;.) • Delays in applying concepts of borrowing and carrying (place value) • Difficulties with measurement and understanding spatial relationships • Difficulties with multi-step calculation procedures • Increased anxiety and negative attitude towards maths	• Difficulties learning maths concepts beyond basic number facts • Difficulties with mental maths • Difficulties finding more than one way to solve a maths problem • Delays in learning and recognising maths vocabulary • Difficulties in reading and interpreting graphs, charts and maps • Poor perception of the passage of time and difficulties sticking to a schedule • Poor budgeting skills • Delays in spatial directions

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What do we know about Dyscalculia?

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Factsheet 5: What is working memory?

Students with learning difficulties generally have difficulties processing information accurately and automatically, and many students have a weakness in working memory.

Working Memory is the ability to hold information in mind and manipulate it as necessary for a brief period. It is a person's mental workspace. A student's working memory capacity depends on their age and innate abilities. Lower primary students are only able to hold, manipulate and recall a small number of items or 'chunks' of information (e.g. two or three items) whereas secondary students can deal with more (e.g. four or five items). Working memory capacity increases with age until approximately 16 years, although no matter what the age, there will be some students with larger working memory capacities than others. Working memory is highly correlated with both literacy and numeracy achievement levels and is resistant to change. Students with poor working memory at the beginning of their schooling are likely to have poor working memory as teenagers and adults.

Examples of classroom tasks that place a heavy load on working memory:

- Remembering multi-step instructions
- Performing mental maths sums
- Reading comprehension
- Constructing written expression
- Spelling a long or complex word
- Recalling details from a spoken passage or story.

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Factsheet 6: What is phonological processing?

A key component in the definition of Dyslexia and Dysgraphia is a deficit in the phonological component of language.

Phonological processing comprises of three areas of functioning:

1. Phonological Awareness
2. Phonological Memory
3. Rapid Automatised Naming

Students who have a weakness in one or more of these areas are more likely to experience literacy-learning difficulties.

Phonological and Phonemic Awareness

Many students with learning difficulties have difficulty attending to the sounds and oral language patterns within words. This ability is called phonological awareness. In the early years of schooling, students may show difficulties in:

- detecting and creating rhyming words
- breaking words into syllables
- identifying the phonemes (individual sounds) at the beginning and end of words
- isolating, deleting and substituting phonemes within words.

Frequently, older students with dyslexia also demonstrate difficulties in some of these more complex phonological processes (especially in accurate and efficient phoneme identification and manipulation).

The ability to work with syllables, and to blend and segment phonemes in words, is critical to the development of good reading and spelling skills. Students need to learn that the sounds they are making when they speak relate directly to the letters they use when reading and writing. Essentially, we blend to read and we segment to spell.

Phoneme blending requires listening to a sequence of separately spoken sounds and combining them to form a recognisable word, for example, the sounds /sh/ /o/ /p/ form the word shop.

Phoneme segmentation requires breaking a word into its sounds by tapping out or counting the sounds, for example, "How many phonemes in block?" (four: /b/ /l/ /o/ /ck/).

Phonological Memory

The ability to hold on to speech-based information in short-term memory is called phonological memory. We rely heavily on our phonological memory when reading and spelling.

This skill is assessed by asking students to remember strings of numbers or to repeat nonsense words of increasing length and complexity. Students with poor phonological memory are unable to

hold as much phonological information in mind as their age-matched peers. When recalling nonsense words, they tend to forget parts of the word and/or confuse the sounds and sequence of sounds in the word.

Students with dyslexia and/or dysgraphia often have weaknesses in phonological memory.

Rapid Automatised Naming

A skill that is commonly assessed in the identification of both Dyslexia and Dysgraphia is referred to as Rapid Automatised Naming (RAN). It requires an individual to quickly identify and name a series of common stimuli (e.g. letters, numbers, colours, objects). People with learning Difficulties – particularly dysgraphia – often take longer to name these items when compared to their peers.

RAN provides information about an individual's ability to retrieve words quickly and easily from long term memory. Students with a poor RAN score (and, therefore, difficulties with rapid word retrieval) tend to have weaknesses in reading and writing fluency. These difficulties often become apparent later in a student's education.

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Factsheet 7: What is orthographic processing?

Learning Difficulties
What is orthographic processing?

Becoming a fluent reader requires both the capacity to utilise sound-based decoding strategies and the ability to accurately recognise familiar letter patterns either as whole words (e.g. was) or within words (e.g. night). The ability to rely less heavily on sound-based decoding strategies is very much dependent on the development of orthographic processing.

Orthography refers to the conventional spelling system of any given language and includes rules around letter order and combinations as well as capitalisation, hyphenation and punctuation. Orthographic processing is the ability to understand and recognise these writing conventions as well as recognising when words contain correct and incorrect spellings.

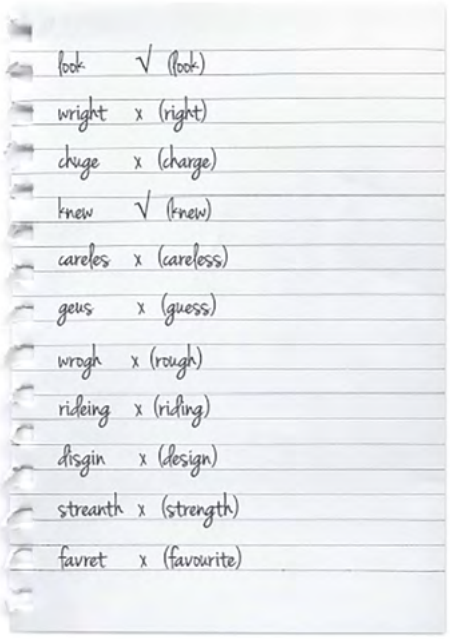
Students with weak orthographic processing rely very heavily on sounding out common words that should be in memory, leading to a choppy and laborious style of decoding. These students are also more likely to have difficulty applying knowledge of root words in order to decode a variation of a word and confuse simple words like 'on' and 'to' when reading.

Delays in orthographic processing are also linked to ongoing difficulties in letter recognition and letter reversals. If the shape and orientation of a letter is not fully consolidated and stored in visual memory, then students are more likely to make reversal errors and be unable to recognise when they have made a mistake.

As skilled readers need to recognise words automatically, there is a heavy reliance on orthographic processing in the development of reading fluency. Delays in this area are likely to inhibit a student's applied reading skills and ultimately affect his/her reading comprehension skills.

In addition, poor orthographic processing will almost certainly result in both a high rate of spelling errors and poor written expression. Students find it difficult to remember the correct spelling pattern for a particular word and don't seem to benefit from the editing tool, "Does it look right?" Rather, they demonstrate the tendency to over-rely on phonological information, writing words like 'rough' as 'ruff ' and 'night' as 'nite'.

Delays in orthographic processing are also linked to ongoing difficulties in letter recognition and letter reversals.



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Factsheet 8: Identifying and Diagnosing Specific Learning Difficulties

The diagnosis of a learning difficulty is a complex process that requires a deep understanding of the individual's learning challenges, the quality of intervention that they have received, and the profile of strengths and weaknesses that are common to specific learning difficulties.

A learning difficulty is widely-understood to be a processing disorder - neurobiological in origin. In the case of Dyslexia, there is a high degree of research evidence linking poor phonological processing with inadequate reading development. In Dysgraphia, the primary processing impairment is also phonological in nature but frequently relates to speed of language retrieval from long term memory (RAN).

In Dyscalculia, the ability to process the concept of number is frequently implicated, as is working memory capacity. The most commonly diagnosed learning difficulty is Dyslexia, accounting for approximately 80% of all identified students. Dysgraphia and Dyscalculia tend to be diagnosed later than Dyslexia, especially once the academic demands of school increase.

Who can diagnose a Specific Learning Difficulty?

Although teachers are well positioned to observe firsthand the struggles and challenges that a student has in any given academic area, it is important that the actual diagnostic process be undertaken by a specialist in the area. This generally involves:

- a psychologist (preferably with educational and/or developmental training) in the identification of Dyslexia, Language-based Dysgraphia and Dyscalculia;
- an Occupational Therapist in the diagnosis of Motor-based Dysgraphia or Developmental Coordination Disorder; and,
- a Speech Pathologist for difficulties related to a Specific Language Impairments (SLI) and Verbal Dyspraxia

It is important that the diagnosis is made by a practitioner who is qualified to administer the range of standardised assessment tools required to make a clinical diagnosis. These tests generally include standardised measures of: intellectual ability and cognitive skills; expressive and receptive language ability; underlying processing strengths and weaknesses; and, academic achievement across a range of domains. In order to administer these tests, additional training in test administration and registration with a regulatory body such as the Australian Health Practitioners Registration Authority is required. The diagnosis of Dyslexia, or any other specific learning difficulty, cannot be made by someone who assesses vision, hearing, movement or any other skill in isolation.

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Factsheet 9: Use of Assistive Technology

When considering the processing difficulties frequently evident in the profiles of students with learning difficulty, it is not surprising that the challenges to participate becomes even more difficult as the demands of schooling increase.

Whilst remediation and good quality literacy instruction go some way towards improving the students underlying skills, the use of assistive technology not only allows students the opportunity to improve their understanding and engagement in the learning process, it also allows them to better demonstrate their skills and knowledge more independently and at a level more commensurate with their overall understanding.

What is Assistive Technology?

The term 'Assistive Technology' is usually applied to electronic devices and computer hardware and software that increase or maintain the capabilities of an individual with a difficulty. Assistive technology (AT) includes those devices that assist all students, regardless of the presence of a difficulty, and those devices that have been specifically designed to assist individuals with a difficulty (adaptive technology).

For students with learning difficulties, the opportunity to use AT to support and reinforce the learning process along with reducing the functional impact of their learning difficulty, means that their overall level of success is greatly improved. As with other classroom accommodations, the purpose of using AT is not to provide the student with an advantage but rather, it reduces some of the burden of lower literacy or numeracy proficiency.

All students, including those without a learning difficulty, can benefit from using some of the assistive technologies available. AT can be used in a variety of manners within the classroom environment to support the general teaching process and to provide additional remedial support as it allows for repetition and rehearsal of learnt skills. AT use for general classroom instruction also allows for multisensory teaching opportunities that will not only benefit the student with a learning difficulty, but all students within the classroom.

The applications of AT are far and wide and for each student the usefulness of AT will vary depending on their ease at using the AT and depending on their individual needs and difficulties.

Examples of effective AT options for the student with a learning difficulty include:

- The use of multimedia and electronic information allows students with reading difficulties to improve their comprehension of a topic or idea without being dependent on their reading ability
- Computers and word processors can reduce the burden of editing and re-writing assignments, making the writing process faster and students can work more independently
- A photo taken with any device that has a camera may be used instead of copying information from a whiteboard. This information can be stored digitally and in some cases converted to text
- An MP3 recorder on any device can record ideas and help overcome short term memory difficulties

What are some examples of assistive technology?

Assistive technologies include, but are not limited to the following:

Text to Speech	Allows any electronic text that can be highlighted to be read aloud by a computer or mobile device.
Voice Recognition	Allows a computer or enabled hand held device, to be trained in how you speak, and once trained, to write down everything you dictate into any active textbox.
Digital Recorders	Enables students to recall, plan, practise speeches, practise pronunciations, and dictate information.
iPads and Tablets	Provides a multisensory learning experience and there are a large number of apps that can be used to support students across a variety of learning areas.
Electronic Spell checkers	Uses phonetic patterns to suggest words for a poor speller when a computer is not available.
Word Prediction software	Uses phonetic and grammar patterns to suggest words as each letter/word is typed.
Visual Search Engines	Displays a picture of a page rather than the text headings or written content of a webpage.
Literacy Specific Software	Used to support reading and writing that includes templates for writing, graphic organisers, grammar checkers, and study tools.
Educational Software	Provides support for the development of phonological awareness and phonics.
Electronic Resources and books	Can be used with reading software and mp3 players/ipods.

When should Assistive Technology be introduced?

Some students will find it very beneficial to use assistive technology and educational software to support the early development of literacy skills and letter-sound awareness. Other students will find that their need for AT does not emerge until much later in their education.

Matching students' needs with the use of assistive technology should happen when the need arises.

Early on in Primary school, students are more likely to benefit from the use of educational software and online learning programs to help support reading and spelling development. Students at this level are also likely to benefit from the multisensory nature of iPads, tablets and the interactive whiteboard.

In Upper Primary and Secondary school, the use of AT may be extended to the provision of assistive technology to accommodate for the difficulties that the student may be experiencing. Software such as Text to Speech allow for better comprehension of information and independent learning, whilst software to support the writing process can be introduced to assist with the high demand on writing in the later years of school.

Technology to assist with organisation, study skills, time management and memory can be introduced at any stage.

Once I was given the opportunity to use a 'talk-to-text' program in many of my subjects, my academic results improved dramatically!'

Katie - Aged 16 years

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Factsheet 10: Explaining Dyslexia to your child

Most children who experience difficulties with learning at school feel that there is something different about them compared to the other students in their class. The knowledge that the child is experiencing difficulties with reading and writing due to the neurological differences underlying a Specific Learning Difficulty such as Dyslexia is valuable for both the child and his/her parents. Finding out that there is a reason behind why they are struggling can be very empowering. For a child with dyslexia, it means..."I am not dumb!" Their difficulties do not come from lack of trying.

It is important to explain to the child what Dyslexia is and what it means for them. While such an explanation should be tailored to the child's age and level of development, it is generally better to provide factual information rather than to leave the child wondering why they are struggling at school. An explanation of the diagnosis helps the child to understand why they have to work extra hard at certain tasks (like reading and spelling), why they may have to attend tutoring sessions, or remember particular strategies.

It should be made clear that having Dyslexia is no one's fault and the child should not feel ashamed. With extra support and persistence, there is no reason why the child should not achieve to his or her potential.

It's likely that other students in the class or school, or family members also have Dyslexia. Maybe one of these individuals could act as a role model for your child. There are plenty of good role models in the community who have utilised their "big picture" or "out-of-the-box" thinking to great advantage despite significant reading difficulties.

Famous Dyslexics include: *(and many others can be discovered through an internet search)*

- Actress Kiera Knightley
- Entrepreneur Sir Richard Branson
- TV Chef Jamie Oliver

Emphasise in your discussion that every person has strengths and difficulties. Some students may be excellent at solving mathematical problems but struggle to kick a football straight. Dyslexic students have significant difficulties with reading and writing but are likely to have strengths in a range of other areas such as visual art, sport or music. It depends on the individual. Explore with your child what their own personal strengths are (and that can include personal characteristics like kindness, generosity or friendliness).

One way to do this is to have a scrapbook or bulletin board dedicated to all the things the child loves to do and excels at. Add items that remind the child of their strengths (e.g. drawings, merit certificates, or graphs tracking the child's improvements in certain areas). These act as a concrete visual representation of everything the child can do – especially important for children with learning difficulties who sometimes feel like they can't do anything right!

Some of this information was inspired by: http://dsf.net.au/explaining-dyslexia/