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Research for Teachers

Strategies for supporting dyslexic pupils

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What challenges does dyslexia present to schools and teachers?

According to recent studies dyslexia is a major cause of literacy problems; at current estimates as many as 1 in 20 children are believed to be affected to a significant extent. There may be others for whom the effects are less significant. In schools, almost all teachers will have some dyslexic learners in their classes. The Disability Discrimination Act requires all teachers to adopt strategies to meet the needs of these children.

In light of this an immediate question is: what help should non-specialist teachers give dyslexic students? In the current drive to improve literacy standards among children this is a key issue for schools to address. Teachers are very aware of the high expectations of them in relation to responding to the needs of all their pupils.

In this Research for Teachers (RfT) summary, we explore the findings from a literature review that focused on the nature, causes, diagnosis and various forms of support for dyslexic students based on different underpinning theories and philosophies. The research highlighted what teachers and schools have done to enhance the learning of students with dyslexia. This includes the kind of teaching and learning environment that was found to be supportive of these learners and the strategies that enhanced the learning of some of them.

The study on which we based the RfT is a literature review carried out by researchers at Glasgow University in 2007, in order to inform HM Inspectorate of Education's evaluation of the educational provision for children with dyslexia in Scotland:

Elliot, D. L., Davidson, J. K., and Lewin, J. (2007) *Literature Review of Current Approaches to the Provision of Education for Children with Dyslexia*, HM Inspectorate of Education

The authors identified a range of studies that were relevant to the purposes of the review which aimed to identify best practice in the teaching and learning of dyslexic students. Altogether the review authors extracted data from 102 studies, which they then analysed and from which they synthesised the messages from the research.

We think this RfT will provide teachers with useful background knowledge about dyslexia. We highlight ideas for ways forward in both the main summary and the accompanying case studies. The case studies include:

- a phonological approach to teaching reading
- forming a community of writers to help dyslexic learners overcome poor self-esteem, and

- what schools can do to build a dyslexia-friendly learning environment.

Like the review, this summary has adopted the British Psychological Association's definition of dyslexia: 'Dyslexia is evident when accurate and fluent word reading and/or spelling develops very incompletely or with great difficulty. This focuses on literacy learning at the 'word level' and implies that the problem is severe and persistent despite appropriate learning opportunities.'
Readers may be interested to note that, in England, Sir Jim Rose was asked by the Secretary of State for Children, Schools and Families (Ed Balls) in May 2008 to make recommendations about how dyslexic children learn best. His report, due to be published in Spring 2009, will be based on both research evidence and personal accounts from teachers, parents and pupils.
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Overview

Why is the issue important?

Dyslexia is a major cause of literacy problems. In schools almost all teachers will have some dyslexic learners in their classes. The Disability Discrimination Act requires all teachers to adopt strategies to meet the needs of these children. An immediate question is what help should non-specialist teachers give dyslexic students?

What did the review find out?

The study found evidence of a number of effective teaching and learning processes, including:

- the use of phonologically related techniques
- the creation of a 'dyslexia friendly' environment in schools
- development of teaching and learning strategies geared to meeting individually identified and maintained needs.

Other factors that can help dyslexic students learn well include approaches that allow them to:

- make personal, meaningful connections to secure things in their long term memory
- remember patterns rather than sequences, and landmarks rather than directions
- think holistically 'all at once' rather than step-by-step
- learn to read and write by being interested in the subject
- learn from practical experience, rather than being told.

How was this achieved?

Programmes featured in the review were found to be more successful if, in addition to practical support, they emphasised activities that allowed dyslexic learners to recognise not only their weaknesses, but also their strengths and areas of competence. This helped to raise dyslexic learners' confidence and self-esteem.

There was also evidence that students with dyslexia benefited from talking about what helps them to learn. Teachers helped these students by creating and maintaining a learning environment where making mistakes is seen as part of the learning process.

How was the research designed to be trustworthy?

The review authors used a number of methods to identify relevant studies, including:

- searching bibliographic databases and the Internet
- scrutinising Government reports, policy documents and conference proceedings
- sourcing unpublished reports using the Education-line database
- hand searching journals not available electronically
- consulting colleagues and experts in the field.

Altogether the reviewers drew data from 102 relevant sources, which they analysed and synthesised to provide examples of best teaching and learning practices for dyslexic learners.

What are the implications?

The review showed the importance of teachers:

- building up students' phonological skills, by for example, using methods designed to help children identify phonemes and their order in words
- supporting dyslexic students through a range of teaching and learning
- approaches, such as multi-sensory learning in reading, mind mapping, essay planning techniques and frameworks
- creating a dyslexia friendly learning environment along with a culture that ensures all students are capable of effective learning.

What do the case studies illustrate?

The case studies show, for example, how:

- a remedial phonological programme was used successfully with older children with a variety of special needs who were experiencing literacy difficulties
- a school's dyslexia friendly approach helped empower dyslexic students to achieve their potential
- being dyslexic affected students' confidence and self-esteem, both of which affect success in learning
  the literacy practices of a group of seven dyslexic children were successfully promoted, such that they became a community of writers.

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Study

What did the review find out about dyslexia?

The causes of dyslexia have been debated by experts for many years and remain unclear. Similarly, a consensus on the precise nature of dyslexia has still to be reached, although there is much more agreement than there was. Past research has been more concerned with the investigation of signs and symptoms than with explanations and causes.

The review summarised here departed from a traditional main focus on investigating the signs and symptoms of dyslexia. Instead, it focused on dyslexic behaviours in the context of the generic and cognitive anomalies that underpin them and the environmental forces at work on them, and pointed to an increasing if not finally resolved, consensus about the nature of the condition. This literature review synthesised educational, psychological and biological evidence about the nature, causes and diagnosis of dyslexia, and described approaches and strategies for supporting dyslexic pupils, that featured in the research.

What are the characteristic behaviours of dyslexic learners?

The review summarised the characteristic behaviours shown by dyslexic learners that were found in a wide range of studies. These were usually cast in the form of 'difficulties' - how dyslexia affects information processing (receiving, holding, retrieving and structuring information) leading dyslexics to have:

- difficulties in effectively using short and long-term memory in sequencing numbers, letters and mathematical procedures, etc and with remembering information, such as messages and phone numbers
- difficulty in processing information at speed
- organisational difficulties, including problems with maps or finding the way to a new place
- phonological difficulties, such as word recognition when reading or speaking out loud
- visual difficulties in relation to reading words, caused by blurring or moving letters
- co-ordination difficulties, e.g. with controlling a pen - leading to untidy handwriting, that makes it difficult to get ideas down on paper
- difficulties in utilising meta-cognitive strategies, such as explaining how they arrived at an answer.

What did the study find out about links between phonology and dyslexia?

Dyslexia often appears in the form of problems with phonological skills (i.e. those that relate to speech sounds in a language, in this case English) and particularly with recognising how to use the conventional sound structure of words. Dyslexic learners may also be very slow to remember how to say words.

Research has shown that dyslexic learners' difficulties can be linked to the child's first language. The simpler and more consistent the mapping of the alphabetic letters/symbols to sounds in a language, the lower the risk of children having phonological problems. Languages with complex orthographies such as English, showed a greater occurrence of this type of dyslexia. (Orthography is a method of representing the sounds of a language by written or printed symbols.)

The research showed that word recognition problems are not linked to the Intelligence Quotient (IQ) of the individual. It is a deficit in phonological processing abilities when compared with the IQ of the individual concerned that acts as a pointer to dyslexia in the most current and widely held understanding. Some studies showed evidence that children who are delayed in their phonological development are at heightened risk of dyslexia than non-dyslexic readers.

Early identification

The earlier a child with dyslexia was identified and given appropriate intervention, the more successful were the results - vital clues such as family history, delay in speech and difficulty with spelling helped in identifying children at risk. Teachers and parents usually played a crucial role in the initial diagnosis.

What did teachers and schools do to support the learning of dyslexic children?

No single approach helped the problems all dyslexic learners faced, but teaching approaches that seemed to have positive effects included the use of tactile and multisensory methods, using different ways to present information, and offering learners the opportunity to practise and revise in meaningful contexts.

There was also evidence that students with dyslexia benefited from talking about what helps them to learn. Teachers helped these students by creating and maintaining a learning environment where making mistakes was seen as part of the learning process.

Programmes featured in the review were found to be more successful if, in addition to practical support, they emphasised activities that allowed dyslexic learners to recognise not only their weaknesses, but also their strengths and areas of competence. The research emphasised the importance of building on the strengths and successful learning experiences of students with dyslexia rather than emphasising the negative features of dyslexia.

The review suggested that whilst dyslexic learners had problems with reading and writing they might be highly gifted in other areas, including:

- being creative
- having the ability to think laterally and make novel connections
- being able to see the 'big picture'
- having good visual and spatial skills, such as in engineering and design
- having good problem-solving, verbal and social skills.

Whatever the specific strategies teachers decided to adopt, the research suggested that other factors that can help dyslexic students learn well include approaches that allow them to:

- make personal, meaningful connections to secure things in their long term memory
- remember patterns rather than sequences, and landmarks rather than directions
- think holistically 'all at once' rather than step-by-step
- learn to read and write by being interested in the subject
- learn from practical experience, rather than being told.

The study found evidence of a number of effective teaching and learning processes, which are covered in the following sections, including:

- the use of phonologically related techniques
- the creation of a 'dyslexia friendly' environment in schools - techniques designed to support and enhance learning of dyslexic pupils can enhance the learning of all pupils. Dyslexia friendliness was also found to be a good way of raising school-wide awareness of the learning difficulty
- the use of customised software (e.g. one multimedia program used interesting graphics and featured a game-like task for teaching spelling).

How helpful were phonologically related techniques for supporting dyslexic learners?

The research covered by the review showed a growth in the number of experts who viewed reading as consisting of two independent processes that involved phonological processing skills:

- decoding, which requires the use of lower order language skills to convert letters into sound sequences
- linguistic comprehension skills.

There was good theoretical and empirical research rationale for interventions aimed at promoting phonological processing skills. It was asserted that '[the] widespread consensus in the field is that phonological processes play a key role in learning to read'. In this view, the 'central problem of dyslexia', was learning to read, which, the review found, could be tackled by using the right teaching methods and tools for decoding and language comprehension. Three of these approaches are described below. The common element in the approaches was improving the phonological processing skills of the learners.

Multisensory method

Multisensory approaches involved auditory, visual and kinaesthetic elements in a mutually supportive way. An example from the DfES publication A framework for understanding dyslexia (See Further reading) describes some of the features of this approach: a dyslexic learner would be taught to see a letter, say its name and sound and write it in the air. A teacher trained in this method introduced the elements of the language systematically. Learners began by writing sounds in isolation then they blended the sounds into syllables and words and then consonants, vowels, digraphs (two signs or characters combined to express a single articulated sound such as ea in head, or th in bath), blends (a group of consonants that appear together in a word without

any vowels between them such as fl or dr) and diphthongs (a union of two vowel sounds pronounced in one syllable such as ou in out, oi in noise). As they learned new material they continued to revise material already covered.

Auditory discrimination in depth (ADD)

The ADD programme was designed to directly raise learners' phonemic awareness and their ability to manipulate sounds in words. It supports learners' decoding skills by helping them recognise articulatory cues for sounds in words. The cues include sensory information from eyes, ears, and mouth that help learners to identify, classify, and label phonemes. For example, the sounds /p/ and /b/ are called "lip-poppers" because of the articulatory processes involved. Students are helped to recognise the number, identity and order of phonemes in words. Once they have mastered this process, letter symbols associated with the phonemes are introduced. The learner is taught to 'track' sounds within speech using, for example, coloured wooden blocks to represent the sounds. The teacher might ask, 'If that says /ib/, show me /ab/.' Word identification and spelling moves from simple to complex, to multi-syllable words. Learners distinguish both nonsense patterns (to minimise memorisation) and real words. Teachers use reading in context based on material at the same level as what the student is able to 'track'.

Embedded phonics (EP)

The EP approach shares features of the ADD programme, but there is a greater emphasis on teaching phonetics directly. Learners are explicitly taught phonemic decoding strategies, such as letter-sound knowledge and blending. It places an emphasis on spelling and writing activities and word identification strategies while the learners read stories and other text.

A more detailed treatment of phonics teaching and learning is presented in the RfT summary Teaching phonics effectively, based on the Rose review of early reading.

However, there are three interlinked, complicating factors that the review we are summarising here identified as influencing the impact of this approach:

- the severity of the child's phonological difficulty
- other language skills (eg, semantic skills including vocabulary, comprehension and sentence construction)
- the type of teaching the child experiences.

Despite the effectiveness of using phonological approaches, 'remediation programmes aimed at training phonological skills were not always entirely successful'. In seeking to explain this, some researchers took the view that phonics or letter recognition alone was not sufficient for word identification and reading. Knowing the position of a letter relative to the other letters in a word is necessary for correct word identification: for example, distinguishing 'trap' from 'tarp' or 'part' requires correctly locating the spatial arrangement of the letters in the word.

Case study 1 is an example of an effective remedial phonological programme based on a structured, developmental, sequential teaching approach.

How did teachers create a 'dyslexia friendly' learning environment?

One study in particular strongly supported the creation of a 'dyslexia friendly' environment in schools. Although 'changing a school for the benefit of the 10+% of pupils who are dyslexic may be a difficult package to sell' because of the changes it demands, results from a case study school showed that all the pupils benefited. Dyslexia friendliness was also found to be a key instrument in raising school-wide awareness of this learning difficulty. Research quoted in the review supported the view that where the learning environment was 'dyslexia friendly' there was a positive impact on these learners' self-esteem, compared to dyslexic students in ordinary classrooms.

What is a dyslexia friendly school like? How can an ordinary school be transformed into one that is dyslexia friendly? The case study showed that a dyslexia friendly environment was characterised by a number of factors, including:

- staff trained in 'dyslexia friendly' techniques
- specialist provision - dyslexic learners taught by a very experienced and highly qualified dyslexia specialist, with extra time created for the specialist tuition
- strong leadership from the school management e.g. outlining the procedures involved in the process to ensure clear understanding of the targets
- whole school approach to special needs in general, including an awareness session presented to all school staff (including teaching and office staff, classroom assistants etc), involving experts
- a culture of high expectation for all
- rigorous monitoring and evaluation
- school staff and parents working in collaboration, e.g. to form a steering committee for planning ways to enrich the learning environment.

Research identified in the review found that where a dyslexia friendly policy had been adopted by one school, teachers used a variety of strategies ranging from the most simple (e.g. displaying key words, giving photocopied notes) to a specific teaching technique (e.g. multisensory teaching), which were useful for supporting children with dyslexia. This study also suggested using a constructive system for marking or grading, where separate marks were given for content and presentation and students were given a choice of whether or not they wanted to read out loud in class.

Other research in the review highlighted the positive impact on some dyslexic learners when teachers and students worked together to identify the learners' preferred learning styles and based some of the teaching on them. However, the research also cautioned that learners may find a range of learning approaches useful and care was needed to avoid labeling students as being particular types of learners.

Case study 2 shows the key components that underpinned a school's dyslexia friendly approach and empowered dyslexic students to achieve their potential.

How did ICT help and did it have any drawbacks?

The review suggested that customised software for dyslexic learners (e.g., a multimedia program that used interesting graphics and features a game-like task used for teaching spelling) can benefit dyslexic learners, for example, with text reading and writing.

Computers have a number of features which are helpful to those who have literacy problems including those with dyslexia, such as:

- consistent and clear text on the screen
- choice of screen background colours
- spelling aids
- grammar function
- a predictive-typing facility.

One specific program reported in the review, developed by a team consisting of a software engineer, a teacher with a specialism in dyslexia, a psychologist and a programmer, was SeeWord. This was a word processing environment that allowed dyslexic learners to select the settings they considered most appropriate for reading the text. It was valuable, for example, for those who needed to wear tinted glasses when reading to control for distortions in text such as apparent 'text moving' on the page. The review found evidence suggesting that dyslexic learners benefited when reading from the screen using this special software, although this was not a uniform finding.

How did schools tackle low self-esteem?

One of the consequences of dyslexia noted by the review was how children with dyslexia suffered low self-esteem as a result of the difficulties they faced, which then became part of a vicious spiral: making progress more difficult, and leading to even lower self-esteem. This had the potential of culminating in low motivation and in some cases behavioural problems.

Case study 3 explored how being dyslexic affected students' confidence and self-esteem, both of which affect success in learning. Teachers may find it helpful to be aware of these factors as potential indicators of dyslexia.

There was evidence on the other hand of how success could build virtuous circles; that pupils' 'expectations of success' had an empowering effect. Some of the classroom-based strategies researchers suggested to support dyslexic learners, and prepare them for more challenging tasks, included:

- activities that were highly challenging, but which incurred low stress levels
- immediate use of feedback to acknowledge learners' success or progress in doing classroom tasks
- providing a combination of activities and learning strategies
- supporting dyslexic learners as they worked within their comfort zones, especially during the initial stages of the task to enable them to start successfully.

The review authors believed that programmes would be more successful if, in addition to practical support, teachers emphasised activities and tasks that enabled dyslexic learners to recognise not only their weaknesses, but their strengths and areas of competence too.

Our earlier RfT, Promoting students' persistence in meeting challenges, based on the work of Carol Dweck focuses on student motivation and achievement. It explores how these factors relate to beliefs that students hold about themselves and themselves as learners.

The review identified a number of out-of-school programmes/courses organised for dyslexic learners, which empowered the children because they were carried out in an informal environment and the tasks were enjoyable and educational. The pupils realised that despite being dyslexic, they could still be creative and productive individuals. Being with other children in similar circumstances to their own, helped the children to create a shared sense of belonging and mutual support. The focused nature of these organised activities was a key factor in bringing about changes in attitude and behaviour. The review described the Flying Start Programme which offered out-of-school programmes for dyslexic learners. Workshops included film-making, photography, story-telling and a range of artistic and craft activities.

Case study 4 shows how the literary practices of a group of seven dyslexic children were successfully promoted, such that they became a community of writers.

How was the review conducted?

The review authors used a number of methods to identify relevant studies, including:

- searching bibliographic databases using keywords, CD RfTs and the internet
- scrutinising government reports, policy documents and conference proceedings
- sourcing unpublished reports using the Education-line database
- hand searching journals not available electronically
- consulting colleagues and experts in the field.

Altogether the reviewers drew data from 102 relevant sources which they analysed and synthesised to provide examples of best teaching and learning practices for dyslexic learners and the implications for Scottish education. The review included case studies of 'best practice' from the UK and other countries.

Although there are some common strands in all approaches to tackling dyslexia, there are also some examples of other highly contextual specific strategies that are also linked to success. It is not the case that the review provides evidence that these and no other strategies work. For example, there is experimentation with the use of movement that is linked with success as described in case study 5.

What are the implications of the study?

Teachers may like to consider the following in making use of the findings of the study.

- Research described in the study identified good practice that built up students' phonological skills, including using methods designed to help children identify phonemes and their order in words. Have you found any of the approaches you have used to be successful in helping children identify phonemes? Could you add activities that help children be confident about the order of the letters and sounds in the words?
- Research in the review referred to the importance of early diagnosis and working with parents. Do you and/or your learning support colleagues have ready access to expert advice in relation to recognising the detailed causes of children's early reading difficulties?
- Research into a dyslexia friendly school showed that the teachers in the school adopted the philosophy that all students were capable of effective learning. This led them to keep dyslexic learners in mainstream classrooms as much as possible. To do this they explored a range of teaching and learning approaches, such as multi-sensory learning in reading, mind mapping, essay planning techniques and the use of frameworks. Are you and your colleagues familiar with some of these approaches? Are you aware of opportunities for professional development in this area? Could your school SENCO or a local authority expert support your learning and practice in teaching children with learning difficulties, including dyslexia?

School leaders may like to consider the following implications:

- The findings from the study suggest that by creating a dyslexia friendly learning environment schools can improve the learning outcomes for all students including those with dyslexia. The role of the school leader was identified as being particularly important for integrating the inputs from all members of the school community. Do you have a mechanism through which you can keep all staff informed about the policy and practice for dyslexic learners?
- Findings from the work on dyslexic-friendly schools suggested that teachers need professional development training in recognising and accommodating children's individual learning strengths and weaknesses and emotional styles in order to successfully implement the inclusion agenda. Are you aware of such training opportunities in your LA? Are there other schools where teachers are further down the road in teaching dyslexic learners than you are and who might provide helpful advice and support for your staff? Does your local HEI offer courses on dyslexia?

Filling in the gaps

Gaps that are uncovered in a piece of research have a useful role in making sure that future research builds cumulatively on what is known. But research also needs to inform practice, so practitioners' interpretation of the gaps and follow-up questions are crucial. We think three kinds of studies would usefully supplement the findings of the review:

- Studies that not only describe and discuss the symptoms of dyslexia but also evaluate over a period of time the effectiveness of different teaching and learning strategies.
- More research on the impact of ICT-based approaches.
- Case studies of approaches by teachers that have been successful in enhancing the learning of dyslexic learners.
- The impact of dyslexia on learners of English as an additional language and how dyslexic learners respond to learning foreign languages.

What is your experience?

Do you have any evidence regarding strategies for teaching and learning of students with dyslexia in your school? Do you have action research or enquiry based development programmes that are designed to explore

the learning of dyslexic students that could provide case study material? We would be interested to hear about examples of effective approaches, which we could perhaps feature in our case study section.
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Case studies

We have chosen five case studies that reflect key issues facing dyslexic learners and their teachers and offer teachers suggestions about how to tackle them.

A programme of phonemic awareness training

We chose this case study because it is an example of an effective remedial phonological programme that was used successfully with older children with a variety of special needs who were experiencing literacy difficulties, including dyslexia, dyspraxia, and children with autistic spectrum disorders.

It provided the children with a structured, developmental, sequential teaching programme that supported the acquisition of literacy by enabling children to identify individual phonemes and segment words into them without the need for interim strategies, such as rhyming to reinforce the sounds associated with particular phonemes.

Briefly, the programme started by stimulating cognitive processes, such as working memory, phoneme cluster segmentation and phoneme identification, segmentation and sequencing, then went on to enable easy letter to sound linkage, word breakdown and building and sound blending. Later the spelling of a bank of high frequency irregular words was taught in conjunction with handwriting, writing to dictation, the conventions of English grammar and punctuation, and proofreading.

How was the programme structured?
The programme involved a series of stages. The first part of the programme involved the stage called 'listening and choosing', using 'sound-pictures'. Each sound picture represented, on a small card, a real-world sound that corresponded to a consonant phoneme of English, such as /p/ in pit. Learners used these sound-pictures to identify the phonemes as they were spoken: at first singly, then in whole words having progressively more sounds. The learner chose, sequenced and then 'read' the sound-pictures as words.

At the next ('transition') stage, the representational sound-pictures were replaced by graphemes. (Written representation of a sound; that is, a written phoneme, that consists of one or more letters. Examples of graphemes are: t, ed, ea). Learners began to write down words they had just segmented. At the next session, they read the same words back. Transition ran very quickly for most learners and merged into the following ('listen and write') stage.

At the 'listen and write' stage, learners wrote phonically regular words of increasing length from dictation and read them back again. When they had mastered this stage they were introduced to 160 high frequency, irregular words. These words were introduced in groups of five within sentences, each of which was composed of otherwise regular words. These were used for 'Look, Cover, Write, Check', for reading and then, once the irregular spellings were well established, for writing from dictation. The sentences used for dictation were a powerful part of the programme. They enabled the teacher to teach the spelling of 'key' words, give grammatical tips and guidelines, about sentence construction, further develop listening and remembering, and model all the things to look for when proofreading.

In the last part of the programme ('listen, sort and spell') high frequency irregular words e.g. 'many', were studied to make the relationships between the sounds and spelling of English words explicit. The children discussed the spellings compared with the sounds of the words and with their own, perhaps inaccurate, attempts at spelling them with the teacher and the rest of the group. They were encouraged to notice the number, variety and probability of the spellings of each sound.

As words were sorted, irregular, unusual and unexpected spellings were revealed and learners became interested in them. In this way, they discovered the oddities of the language for themselves and then paid close attention to each spelling choice to help fix spellings in their permanent memory.

At every step, the needs of the learner dictated the speed of progress through the programme. This helped to minimise failure. Pupils moved to the next stage only when it was obvious they were fluently implementing the current one.

How did it differ from other phonological programmes?
There were four key differences.

1. The programme taught sounds in words directly without using letters and without the need for intermediate exercises. This was an advantage because letters are arbitrary symbols and therefore not easy for dyslexic pupils to learn.

2. Letters were attached to the short vowels and all the consonant sounds at once, in one or two teaching sessions, early in the programme and could be used by the learner from then on. This contrasted with traditional schemes where a child has to learn all 26 letters over an extended period before they can use them in their emerging writing.

3. The programme taught the mental processes needed for reading and writing unfamiliar words, whereas traditional phonics imparts a body of knowledge about letters and letter clusters.

4. Unlike traditional phonics programmes, the programme showed how sentences were constructed and punctuated.

Who benefited from following the programme?
The following types of people with special needs were found to benefit from using it:

- dyslexic individuals of all ages
- children with phonological disorders
- dyspraxic children
- children with Down's Syndrome
- children with autistic spectrum disorders
- children with listening and attentional disorders
- people with word storage and retrieval difficulties
- children with cleft palate.

What did teachers think of the programme?
Teachers made the following comments:

'The programme 'flows' well. It is finely tuned so that every phase consolidates previous phases thoroughly while new skills are introduced sympathetically'.

'The programme allows in-depth teaching and leaves ample room for discussion by the children which really enhances their understanding'.

'It's raised my expectations of what the children are capable of'.

Reference
Popat, P., Roche, P. & Jenkins, G. (2001) POPAT. A Programme of Phonemic Awareness Training. British Dyslexia Association. Available at: www.bdainternationalconference.org/2001/presentations/fri_s5_d_12.htm

Achieving a dyslexia friendly school

We chose this case study because it shows the key components that underpinned a school's dyslexia friendly approach and empowered dyslexic students to achieve their potential. The study took place in a mixed 11-18 comprehensive in North Wales.

For the previous nine years the school had hosted an LA funded Dyslexia Resource Centre, a project that provided support for severely dyslexic students who were placed in the school through their statements of special educational needs. The Resource also helped the many dyslexic students in the mainstream part of the school who benefited from the dyslexia friendly culture that was developed over the years. But the Resource wasn't the only element involved. The school identified four areas that were key to creating a dyslexia friendly learning environment:

- leadership
- whole school approaches
- monitoring/evaluation
- high expectations.

The school believed that without strong leadership, whole school approaches to special needs in general, a culture of high expectation for all and rigorous monitoring and evaluation that no amount of extra resources would meet the needs of dyslexic students. The key seemed to lie in school effectiveness because being an effective school and becoming dyslexia friendly seemed to be two sides of the same coin - that it was impossible to be one without the other. The school was proud that its dyslexic students left with 5+ passes at GCSE, including higher grade passes.

What did the 'Dyslexia Resource' consist of?

The specialist provision was called a 'Resource' in order to acknowledge that, for the majority of their timetable, dyslexic students were taught within the mainstream of the school, accessing whatever special needs support was available to all. The students received five hours per week of specialist input provided by the specialists in the Resource Centre. At the same time all contact staff were aware of the needs of dyslexic students in general and the Dyslexia Resource Centre students in particular. Staff were trained in 'dyslexia friendly' techniques and were supported in their efforts to meet the needs of dyslexic students.

Extra time for specialist tuition was created through reducing the number of subjects in the curriculum for these students. This was done by disapplying the students from French and Welsh. This disapplication (which was easy to achieve given the support of the LA and the governing body), enabled students to access the Resource for five hours each week, where they are taught in groups of three by a very experienced and highly qualified dyslexia specialist.

How did strong leadership help?

The school leadership established:

- a target of 100% exam entry in all GCSE subjects for all students
- heads of faculty/department to be responsible for securing progress across the ability range and expected to take their share of SEN groups
- 'Special Needs' groups to receive positive discrimination in terms of specialist rooms and experienced teachers
- all staff responsible for basic literacy/numeracy skills
- 'Students with SEN' to be an agenda item at every faculty/department meeting
- a 'Faculty SENCO' in each area.

Creating the role of Faculty SENCO was a major element in implementing whole school policy on behalf of students with learning difficulties. Although an unpaid role, Faculty SENCOs accepted the post in the

knowledge that it offered considerable management experience and opportunities to develop and grow. The role included:

- liaising with colleagues re: students with SEN
- reporting to the faculty at meetings
- coordinating provision for SEN students
- liaising with school SENCO - providing two way communication
- attending a half termly coordinating meeting of all Faculty SENCOs.

Issues and students causing concern were discussed at a half-termly coordinating meeting and shared with all Faculty SENCOs so that action to support a failing student could be taken. This meeting proved to be very popular. This was assumed to be because all the issues raised related directly to the needs of the students and swift and concrete action always resulted. Establishing the principle of collective responsibility for progress of all students was made possible through the School Development Plan. The school felt it important that its SENCO was a member of the Senior Management Team.

How were whole school approaches achieved?
All teachers were responsible for basic skills and all teachers accepted this responsibility. To help staff fulfill their role, the school provided an on-going programme of training for all staff which focused on awareness and cross-curricular teaching techniques. Through a rolling INSET programme, much of which was delivered in-house during whole school training days, all staff received training in the following areas:

- dyslexia awareness
- mind mapping
- essay planning techniques and the use of frameworks
- handwriting
- study reading techniques
- how to support spelling - with particular reference to 'jargon words'
- numeracy
- oracy.

These areas were also revisited periodically. The school's commitment to 'dyslexia friendly' INSET enabled the gradual development of common approaches to common problems. As a result, all teachers were able to help many students without always having to give individual help. Dyslexic learners in particular were supported to minimise their weaknesses and capitalise on their strengths. The techniques were applied to all students with consequent benefits in terms of whole school teaching and learning opportunities.

The SENCO circulated 'pen portraits' of all students with special needs, making it clear, for example, which students were not to be asked to read out loud and which students should not be expected to copy from the board. While the school SENCO collated and circulated the Register and pen pictures, Faculty Heads were responsible for ensuring that the information was read and used to inform and direct teaching. This was another important aspect of corporate responsibility for students with special educational needs.

The investment of time in study skills seemed to help teachers work through the syllabus more effectively and, as the students became familiar with the techniques, they worked faster, for longer and at higher levels of cognition. In other words, the approach supported all students, especially dyslexic students to work more effectively.

How did the school monitor and evaluate student progress, and how did it help?
The school developed a whole school monitoring and reporting system over an extended period of consultation and working parties. It was based on National Curriculum descriptors and delivered through IT

and the school intranet system. The model used was one developed for the creation of Individual Educational Plans (IEPs) for dyslexic students; targets were set using National Curriculum descriptors and a process of monitoring ensured that intervention took place when needs were not being met.

The appropriateness of this model for all students was soon recognised and so it was extended to all students. This meant that dyslexic students were included in the normal, everyday process of monitoring and evaluation, and were subject to the same high expectation. Target setting by subject teachers was key to the effective monitoring of progress, with the progress of dyslexic students coming under particular scrutiny. The process worked as follows:

- set targets based on National Curriculum descriptors
- monitor via normal, subject based recording procedures
- modify materials/approaches as necessary in response to evaluation of progress review, modifying targets if/as appropriate
- review once again
- seek advice from SENCO if/as necessary.

This process emphasised the responsibility of each subject teacher to secure ability appropriate progress through the use of techniques and methodology established via INSET. When the problem was viewed as more than a subject teacher could be expected to deal with whilst still meeting the needs of the rest of the class, the SENCO became involved and created a support package.

How did the school achieve high expectations for all?
The setting, monitoring and evaluation of targets implied a determination on the part of the school and teachers that all students were expected to succeed and that positive action would follow if they did not. This was exemplified by the expectation, on the part of the head teacher, that all students would be entered for a majority of national examinations.

This expectation put a particular pressure on subject teachers to ensure that all students completed coursework requirements in order to be eligible for the exams. One of the consequences of this was that most dyslexic students were encouraged and supported to complete course work during lesson time, a move which contributed to a marked improvement in the quality of work and the meeting of coursework deadlines.

The importance of starting from where the child is
All teachers were encouraged to look "through" spelling and organisational errors in order to assess the underlying quality of the work. Consequently, it was not unusual for a dyslexic student with weak basic skills to be operating in a high set/group for certain subjects. Various support systems were in use, including buddy/peer tutoring and Sixth Form support to enable dyslexic students who had the intellectual ability to "think" at high level within a subject to operate at this ability appropriate level.

Reference
McKay, N. (2001) Achieving the Dyslexia Friendly School - The Hawarden Approach. British Dyslexia Association. Available at: www.bdainternationalconference.org/2001/presentations/wed_s3_c_2.htm

Dyslexia and self-esteem

We chose this case study because it explored how being dyslexic affected students' confidence and self-esteem, both of which affect success in learning, and revealed some strategies for covering this.

The researchers gathered the perspectives of 22 dyslexic students (20 boys and two girls), aged between 14 and 15 years. They explored the students' self-concept (view of themselves as learners) using a standard tool comprising 80 brief sentences, presented as statements about the way some students felt about themselves. The students were invited to indicate whether or not each statement applied to them. Scores were clustered so

that they showed different facets of self-concept, such as 'behaviour', 'intellectual and social status,' 'physical appearance,' 'anxiety,' 'popularity' and 'happiness and satisfaction'.

The researchers also carried out semi-structured interviews focusing on areas such as, 'insights into dyslexia', 'strategies employed', 'subject choices', and 'peer perceptions'.

How confident did the students feel?
Overall, the questionnaire revealed that the students were self-confident, but the high scores may also have reflected a need to appear supremely self-confident. Almost all students emerged with the dimension 'intellectual and social status' as the lowest or second lowest possible self concept score, but only a few fell into the category regarded as a serious indicator of low self concept.

The questionnaire also revealed that a high percentage of students regarded themselves as important members of their family, yet few regarded themselves as an important member of the class. Almost all students thought that they had good ideas, claimed their friends thought they had good ideas and stated they could give a good report in front of the class, but three quarters indicated that they did not often volunteer in school. Half indicated that they were slow in finishing their work and half admitted they were nervous when the teacher called on them. The researchers felt that such figures could suggest that some students had developed coping strategies in class which involved not allowing themselves to be put in a situation where they might appear to fail.

Most of the students did not know which of their peer group experienced similar problems and few knew of any celebrities who were dyslexic. When, at the end of the interview, students were made familiar with the names of some famous dyslexics, all displayed surprise and stated that knowing about them made them feel more confident.

Did the students feel that they were popular?
More than half of the students emerged with 'popularity' as their highest or second highest score on the questionnaire. Some individual scores were particularly high, suggesting responses in this area may have been exaggerated. Some students had high scores in the 'anxiety' cluster. Scores for 'behaviour', 'happiness and satisfaction' and 'physical appearance and attributes' were more evenly distributed.

However, interview questions on how they felt they were perceived by their classmates revealed areas of tension. Only a few pupils believed that their difficulties were appreciated and understood by classmates. One student said that his class did not say anything, but that he felt they did not think he was as good as everyone else. Another said his class thought he was 'someone stupid,' and another said some of his class made a fool of him.

Did the students have a good understanding of dyslexia?
It appeared that whilst some students had a good appreciation of dyslexia and some of the main difficulties associated with dyslexia, many students were confused. One student assumed that the difficulty applied to all subjects, whilst another considered the implications to be an inability to do things for himself.

Of the students who mentioned that dyslexia was connected to the brain, two thought that there was something 'wrong' with the brain. Most pupils considered that being dyslexic implied difficulties in areas traditionally associated with dyslexia, those of reading, writing and spelling. No mention was made of other aspects associated with dyslexia such as poor concept of time, organisational difficulties and sequencing problems. Many of the students clearly did not understand why they were dyslexic as these comments show:

'It's because I didn't really pay attention in primary school.'

'I know why I got it - because my Mum and Dad kept breaking up and I kept moving high schools.'

Did the students feel that being dyslexic affected all areas of the curriculum?

When questioned about areas of the curriculum where they experienced most success, more than half said that they performed in sports or PE activities better than or as well as their friends. One third mentioned an aptitude for imaginative writing, practical subjects and art. Other students mentioned such areas as giving a talk, answering questions, playing an instrument, drama, doing investigations, electronics, graphics and 'fixing things' as areas where they felt they performed well.

When questioned about their subject choices, one quarter answered that they had not avoided any subjects when making their choices. Reasons for not selecting certain subjects included the fact that too much writing was involved (PE and Home Economics), the subjects were in the same column of choices, or all the places had been taken:

'I didn't take any social subjects because I thought there might be too much writing in them.'

'I'd like to have taken a language if there hadn't been so much writing involved.'

'I avoided PE. I would have liked to do that because I'm quite good at sports but there's writing involved.'

'Home Economics. They say I had to write a big essay.'

'I'd like to have done biology but it's all tests.'

'I wanted drama, but all the places were filled. I fancied acting but didn't get a chance to prove myself.'

Whilst avoiding subjects with a high written requirement seemed to demonstrate good tactics, the researchers found it interesting that some of the subjects avoided were the very subjects in which the students felt they could perform well. Few students it seemed had worked out any strategies for learning. No students mentioned the use of study skills or the awareness of their learning styles or metacognitive factors.

What are the implications of this study's findings?
The researchers concluded that their study's findings revealed a number of implications for the full inclusion of dyslexic students. The main implication was that students would benefit from being 'counselled,' following confirmation of dyslexia. Informal counselling or 'demystifying' would offer each student an explanation for the difficulties experienced and assure the student that the school appreciated these difficulties and will make efforts to facilitate access to the curriculum. Each student's particular pattern of difficulties could be stated but, more importantly, the particular pattern of strengths and abilities could be highlighted.

The researchers also felt that dyslexic students' self-concept and subsequently, success in learning could be enhanced through:

- facilitating good study skills
- opportunities to find out about famous and otherwise successful dyslexics emphasising the positive aspects of being dyslexic.

At the same time, they felt the use of peer support groups could offer a positive avenue for support as well as the opportunity to meet together to discuss strategies and study skills. Finally, at times of subject choices schools could help to facilitate the selection of subjects where the students display areas of strength.

Reference
Deponio, P. (2001) Dyslexia and self-awareness: Issues for secondary schools. British Dyslexia Association. Available at: www.bdainternationalconference.org/2001/presentations/fri_s3_b_3.htm

Enabling dyslexic children to become part of a literary community

We chose this case study because it shows how the literary practices of a group of seven dyslexic children were successfully promoted, such that they became a community of writers. The children were all from small, rural primary schools where theirs was usually the only Statement of Special Educational Needs for Specific Learning Difficulties (Dyslexia). The study was carried out by the children's support teacher. She normally supported them in 1:1 withdrawal sessions, lasting from one to one and a half hours, twice a week and occasionally in small groups or in class.

How did the support teacher set out to help the children form a literary community?
The support teacher had noticed that the children did not join in with the informal literacy practices of their peers, such as writing notes to each other, making lists of their favourite pop stars or football players, exchanging comics or magazines, sending e-mails or text messages. She was also aware that the children had low self-esteem and they seemed to have constructed identities in which resignation to lower levels of in-class achievement than their peers was all that was appropriate.

To address this, the support teacher began by encouraging the children to write stories or to write about their interests. These pieces of writing were eventually illustrated and 'published' as books. The process involved encouraging them to write freely enough for them to make mistakes which the teacher used to diagnose their difficulties and to design specific and multisensory interventions. They wrote or typed fair copies which she dictated, providing opportunities for going over it again, an important strategy, particularly for dyslexic learners, as well as assessment of progress. Reading back their own work provided them with age-appropriate material as well as demonstrating the link between reading and writing.

The books were completed by the end of the Autumn Term. At the beginning of the Spring Term the children all read each other's books thus making them into something of a lending library. The teacher began to talk about each one to the others as they read each other's books and suggested that they should write to each other with their reactions to the stories.

How did the children's communication with each other about their books develop?
After the children had each designed and photocopied their own notepaper and envelopes, the children began to write to each other. At first the correspondence was formal and stiff, but encouraging, for example:

'I read your book and I thought it was brilliant. I especially like the cover and the way you told the story. Here is a star for you'.

In February, the children began to talk about forming themselves into a club and worked out a name - 'SPRADS' formed from the initial letters of their names or surnames. The teacher asked them to write to a new boy to make him feel less isolated. One of the children wrote:

'Dear Steve,

'Welcome! to the SPRADS club. In the SPRADS club we do all sorts of fun things like the word game, Rupert cards, writing stories and reading good books.

I have written three books and two cartoons. I would like to read your book about your rats, Mrs Carter thinks it is going to be brill.

'Yours sincerely Sam

PS I'm just off to play Rupert cards!'

How did the children's literacy skills develop?
In April, the teacher suggested that they could all write articles or puzzles to be published as a group magazine. In order to do this they drafted and redrafted their writing, as described previously, and used word

processing skills. One of the children took their contributions home to edit on her computer. The resulting magazine was copiously studded with icons and clip art. The resulting magazine contained:

- instructions for making a paper folded fortune teller
- a personal news article in journalese
- a computer generated maze
- an advertisement for a book
- information about a favourite lesson activity
- a dot-to-dot
- riddles.

In July, another magazine was produced in the same way as the first. But its contents appeared to suggest changes in attitude and perception of self among the contributors. It contained:

- a book review
- a crossword puzzle
- a recipe
- instructions on how to look after pet rats
- an account of a class holiday
- information about a favourite lesson activity
- a poem.

Was the teacher successful in helping the children to form a literary community?
The teacher recognised that it was not really possible for a teacher to replicate the informal and literary practices which are peer-mediated amongst children, however equally she treated her pupils. Nevertheless, these dyslexic children, who had previously not communicated in writing with other children, had become keen to write for their peers. In order to do this they suggested their own subject matter, used vernacular as well as dominant literacy and became less afraid of making mistakes because they knew their work could be edited and corrected in a second draft. They understood that writing was not only an in-class exercise at which they invariably failed, but a tool for communication. Moreover, in engaging in these activities, they became less liable to fail in class. Most importantly, these children who had previously found literacy practices difficult and humiliating had started to find writing fun.

Reference
Carter, A. (2001) Enabling dyslexic children to become part of a literate community. British Dyslexia Association. Available at: www.bdainternationalconference.org/2001/presentations/thu_s3_a_3.htm

The effects of an exercise programme on pupils with learning difficulties

We chose this case study because it shows a very different approach to tackling dyslexia. The school adopted an exercise for learning approach which was based on movements designed to stimulate the maturation of the central nervous system of children with learning difficulties, including dyslexia. The approach was based on the research of Sally Goddard Blythe and Peter Blythe from the Institute of Neuro-Physiological Psychology (INPP).

Project staff at the school were trained by Sally Goddard Blythe of INPP to implement the screening process and exercise programme. The school decided to focus upon the Year 3 children because there is an intense period of brain development in children at this age.

What ideas are the exercise for learning approach based on?
The approach takes as its starting point the idea that at birth a baby is brain stem dominated and that this

"reptilian" part of the brain is responsible for primitive reflexes that are necessary for early survival. If retained, however, these same reflexes may impede later functioning and learning. The teacher-researchers were aware of children who were underachieving and sought to investigate how these children could best be supported. The school had already developed a programme called 'fit for learning' which used physical exercise alongside learning. The INPP training raised awareness that retaining primitive reflexes could affect a number of physical and mental characteristics including:

- balance
- auditory and visual processing
- co-ordination
- posture
- fine motor skills
- hand-eye co-ordination.

The effects of children's impaired development in these areas on learning can result in: specific learning difficulties, including dyslexia, behavioural problems and coordination difficulties.

Identifying the children for the programme
The methods used to screen the Year 3 group included:

- INPP Test Battery
- Schrager One Leg Stand
- parent questionnaire.

The INPP test battery process involved an assessment of balance and co-ordination by means of tests including the tandem and fog walk and tests for the presence of retained reflexes. (Tandem walking is the ability to walk with one foot placed directly in front of the other; the fog test examines posture and coordination while walking). The testing also included visual tracking and sound discrimination. Children were scored on each item from 0 - 4. The Schrager One Leg Stand was also used for screening purposes. Selection of participating children was based on the total score on the test battery, high scores on the tandem walk and/or the fog walk, six or more positives on the parent questionnaire and inability to balance on one leg for 30 seconds or more.

The screening process identified nine out of 60 children for the programme at the school and nine out of 54 children in a control school. The control group were to take part in the programme the following year.

Involving parents
The teachers involved invited parents to attend a meeting where the effects of retaining primitive reflexes and the potential benefits of the exercise programme were explained to them. Parents were informed that the children selected would perform the exercises in school every morning for 15 minutes, before assembly. Parents were given a copy of the exercises so that they could support the children in doing them at home.

The exercise programme
The children undertook six blocks of four exercises from October to July. The exercises were based upon infant movement patterns which form the basis of later voluntary movement that would usually follow the normal developmental sequence. These range from simple head lifts to crawling and use of all parts of the body.

How were the effects of the exercise programme measured?
The teacher-researchers used a control group from a school in the same area, with a similar catchment and academic profile (based on SATS results) in order to assess the impact of the programme on the children. The NFER Individual Reading Analysis Test was used to measure reading accuracy and comprehension at the

start and end of the project for both the control group and the group who took part in the programme.

What effect did the programme have on learning?
The main findings included:

- an average increase in reading accuracy and comprehension for children on the daily exercise programme of 14 months for both over a 9 month period compared with 8 months progress in reading accuracy and 4 months in reading comprehension for the control group during the same period
- the programme appeared to support the children personally and socially, and teachers observed improvements in children's concentration, self-esteem and self-confidence.

There were other benefits as well as the improvement in reading accuracy and comprehension. The children enjoyed the programme and said how much it had helped them personally and socially. The following are examples of comments from children:

'My work has got faster. I find throwing and catching easier.'

'My balance is getting better. I can also write and colour more neatly.'

'The exercises have helped me in maths. I am now a super genius. I am also faster at doing things at home.'

'I have more control in the classroom. I can focus on my work.'

Teachers observed improvements in concentration and self-esteem:

'The children's behaviour and work has noticeably improved over the year.'

'It is much easier to manage the class. The lively children are more focused and capable of completing work within lessons.'

The class teachers found the children to be better at concentrating and staying on task. Consequently time for teaching and learning increased and the teachers spent less time on dealing with inappropriate behaviour; the group as a whole worked more effectively.

If schools wish to replicate the project they will need to ensure that staff are trained by a qualified therapist from INPP using the appropriate training manual which is copyright.

Reference
Celia O'Donovan, Knowle CE Primary School, governor; Pat Preedy, Knowle CE Primary School, former headteacher; Ruth Wolinski, Knowle CE Primary School, Year 3 teacher.

NTRP summary Investigating the impact of using exercise and movement on learning in Foundation Stage and KS1 and 2 (2004)
www.standards.dfes.gov.uk/ntrp/conference2006/summaries
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Further reading

Related research

5th BDA International Conference

A variety of articles and presentations from the 5th British Dyslexia Association (BDA) International Conference

Difficulties with literacy

What works for children with literacy difficulties?

Difficulties with mathematics

What helps with students' difficulties in mathematics?

Speech and language difficulties

Raising the achievements of children and young people with specific speech and language difficulties and other special educational needs through school to work and college.

The effects of a movement programme on pupils with learning difficulties

Research summary.

Resources

Dyslexia Action

Provides information on teaching children with dyslexia and how to go about teaching children assessed for dyslexia.

Dyslexia Online magazine for parents

Containing a range of articles on a variety of related issues.

Primary Movement

Provides information on Assymetrical Tonic Neck Reflex (ATNR) and the Primary Movement programme.

Special educational needs organizations

Synthetic phonics

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Appraisal

Robustness

This literature review comprises a brief overview of educational, psychological and biological evidence about the nature, causes and diagnosis of dyslexia, followed by approaches and strategies for supporting dyslexic pupils.

The reviewers searched bibliographic databases and the Internet for relevant journal articles, Government

reports, policy documents and conference proceedings. They also explored resources from unpublished 'grey' literature through the Education-line database and requested further materials, such as conference papers from experts in the field. The researchers organised the data using an electronic database according to most cited, most relevant and most recent and extracted information relating to the specified question. They also identified a number of 'best practice' case studies. They selected studies (which were not only from the UK, but also the US and other European countries) they considered had used a rigorous methodology to enhance the trustworthiness of the results. The reviewers also attached high importance to studies which demonstrated very effective outcomes.

Once they had obtained/retrieved all relevant material, the researchers read it fully and reflectively, taking account of emerging patterns, approaches and the rationale for the arguments used. Finally, the reviewers synthesised the various findings from the different studies together to produce a coherent report.

The researchers noted how there is a rich body of research on dyslexia - a product of over 100 years of research. In the past, the majority of published research on dyslexia concentrated on causation and focused on the neuroscientific aspects of the learning disorder. Their review took into account the behavioural, emotional and social aspects of conditions affecting dyslexic learners and emphasised the most widely used teaching approaches, particularly approaches for which there were a number of studies. It also explored the impact of modern advances in computers and technology to see what role ICT played in assisting learners with dyslexia. The reviewers commented on the lack of research that had been carried out on children with dyslexia for whom English is an Additional Language (EAL), and also on how dyslexics respond to learning foreign languages.

Relevance

Dyslexia is a major cause of literacy problems. Most teachers will have some dyslexic learners in their classes. Addressing this issue therefore forms part of the current drive to raise standards of literacy in the UK. In addition, the Disability Discrimination Act requires all teachers to adjust to dyslexic learners' needs.

This literature review was undertaken by researchers at Glasgow University in 2007, in order to inform the HM Inspectorate of Education's evaluation of the educational provision for children with dyslexia in Scotland. In England, Sir Jim Rose was asked by the Secretary of State for Children, Schools and Families (Ed Balls) in May 2008 to make recommendations about how dyslexic children learn best. His report, due to be published in spring 2009, will be based on both research evidence and personal accounts from teachers, parents and pupils.

Applicability

This review should enable teachers to support dyslexic pupils more effectively. Briefly, the review found that:

- the development of dyslexics' phonological processing skills plays a significant role in helping them to learn to read
- the earlier a child with dyslexia is identified and given appropriate intervention, the more successful the results will be as dyslexic children tend to suffer from low self-esteem
- programmes are more successful if, alongside practical support, they enable dyslexic learners to recognise not only their weaknesses, but also their strengths.

The review also found evidence of a number of effective teaching and learning processes, including:

- the use of phonologically related techniques
- the creation of a 'dyslexia friendly' environment in schools, and
- the use of customised software.

Writing

The report is very readable and usefully signposted into sections with subheadings. Key terms are helpfully

defined in an appendix.

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