

Dyslexia – Successful Inclusion in the Secondary School

Edited by Lindsay Peer and Gavin Reid

Published in association with the British Dyslexia Association

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Foreword by
The Rt Hon David Blunkett MP



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Publisher's Note

The publisher has gone to great lengths to ensure the quality of this reprint but points out that some imperfections in the original may be apparent

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Foreword



This book is very timely and I endorse its publication. I am committed to inclusive schools as part of the journey towards a fully inclusive society. Pupils with dyslexia are among those who very often feel excluded from the education system or from society as a whole, owing to lack of confidence and self-belief that their dyslexia can engender. I want to tackle this problem for the benefit of these pupils, remembering always to consider the individual needs of each child – one size doesn't fit all.

The broad thrust of our approach has rightly been on the early identification and assessment of dyslexia and we have put in place a number of measures including baseline assessment to help primary schools do this. Nevertheless, the fact remains that too many of our pupils are disadvantaged when they reach secondary school due to their dyslexia and poor literacy skills generally. This means they are unable to exercise their right to access a curriculum which is as broad and balanced as it should be.

It is therefore crucial to focus on the early years of secondary education and ensure that we build on the success of the National Literacy and Numeracy Strategies to continue to raise standards for all children including those with dyslexia. Last September we introduced pilot projects in 17 Local Education Authorities involving over 200 schools. These projects were designed to transform standards at Key Stage 3 by focusing on English and mathematics with an extension of the literacy and numeracy strategies. We are implementing this nationally in 2001 and all pupils will be able to benefit.

Teachers and others should ensure that pupils with dyslexia have the same opportunities as their peers. I hope this book will help to give them this by offering practical advice on how pupils with dyslexia can be enabled to succeed across the curriculum.



The Rt Hon David Blunkett MP
Secretary of State for Education and Employment

The Editors

Lindsay Peer is Education Director of the British Dyslexia Association, and is a widely recognised authority in the field of dyslexia and mainstream education. She regularly appears at national and international events, and has published a considerable body of material, both theoretical and practical. Her field of experience covers teacher training, research and the teaching of both mainstream students and those with Specific Learning Difficulties/Dyslexia from preschool through to adult education. She is Vice Chair of the British Dyslexia Association's Accreditation Board, and works closely with Higher Education Institutions. She also has considerable experience of educational needs assessment and counselling. She is particularly interested in the teaching of English as an Additional Language, and specific skills relating to the educational development of bilingual students with learning problems. She is co-editor of *Multilingualism, Literacy and Dyslexia: A Challenge for Educators* (David Fulton Publishers, 2000).

Her work involves close liaison with various government departments both in the UK and abroad, including the Department for Education and Employment, the Teacher Training Agency and the Qualifications and Curriculum Authority. Among the committees of which she is a member is the National Literacy and Numeracy Strategy Group. She has lectured internationally in the USA, Israel, India, Sweden, Belgium, Finland, Iceland and Norway.

Dr Gavin Reid is a senior lecturer in the Faculty of Education at the University of Edinburgh. He is an experienced secondary school teacher, educational psychologist, university lecturer and researcher. He has made over 150 conference and seminar presentations on dyslexia throughout the UK, Norway, Denmark, Germany, the United States, New Zealand, Hong Kong, Poland, Hungary, Bratislava and the Czech Republic.

He has written and edited key course textbooks for teacher training in the field of dyslexia and literacy – *Dyslexia: A Practitioner's Handbook* (Wiley, 1997) and *Dimensions of Dyslexia* (vols 1 and 2) (Moray House 1996) and is co-author of *Dyslexia in Adults: Education and Employment* (Wiley, 2000). He is the co-author of *Learning Styles: A Guide for Teachers and Parents* and *Dyslexia: A Resource Guide for Parents and Teachers* (Red Rose Publications 1999 and 1997) and also co-editor of *Multilingualism, Literacy and Dyslexia: A Challenge for Educators* (David Fulton Publishers, 2000) and co-author of a group test 'Listening and Literacy Index' published by Hodder and Stoughton (2001).

He is a consultant to a number of national and international initiatives in dyslexia and is a member of the British Dyslexia Association Accreditation Board.

Comment from the Editors

This book is intended for a wide readership. It was born from the recognition that there is a dire need for support for those working with adolescent dyslexic learners in a mainstream educational framework. We are constantly being asked to provide information that will benefit all those involved with the process. This we hope we have achieved. We hope the book will be useful for subject teachers, psychologists, support assistants, school management, researchers and indeed all involved in the meeting of student and staff needs within the policy and practice of inclusion.

We appreciate the efforts of all those who submitted chapters for this book. One common element among all the contributors is that each one is exceptionally busy with many and varied demands on their time. We appreciate that they were able to give up some of that time to prepare a chapter for this book.

We have organised the book in a manner which we feel will be useful to its potential readership. We commence with two chapters as an introduction to the area of dyslexia within the context of inclusion in secondary schools. After these introductory chapters there follows a section on inclusion, highlighting many issues relating to principles and practices; we feel this section will engender considerable interest and debate.

Section 3 is called The Subject of Success. Here teachers provide firsthand accounts and perspectives on how dyslexic students' needs can best be met in their own subject areas. This section is deliberately practical and we hope it will be welcomed by all subject teachers.

Inclusion is essentially a whole-school issue and therefore Section 4 consists of chapters all relating to cross-curricular aspects including provision, self-esteem, EAL, examination arrangements and staff development.

The last section of the book relates to professional and personal perspectives including the views of an educational psychologist and a careers adviser.

The final chapter of the book is essentially dedicated to all parents. In this chapter a parent's perspective and experiences are outlined and we feel this represents what the book is all about – ensuring effective communication, facilitating equality for all and providing a voice for students, teachers, management and parents. This may ensure that all dyslexic people fulfil their rightful potential in education and adulthood.

Lindsay Peer and Gavin Reid
March 2001

Notes on the Contributors

Fernando Almeida Diniz teaches in the Faculty of Education at the University of Edinburgh. He has a background in educational psychology and has been a teacher, researcher and lecturer in England and Scotland. Fernando has held academic positions of Reader and Head of Department and has an international reputation for his work in social justice and inclusion, with a particular focus on disability and race. He is currently leading a national project on the 'Social inclusion of black/minority ethnic disabled children and their families'.

Chris Ashton works for Lancashire LEA as a Specialist Educational Psychologist (SpLD). He previously worked for Sheffield LEA and was a tutor on Sheffield University's Postgraduate Diploma in Severe Reading Difficulties and Dyslexia.

Isobel Calder is Lecturer in the Department of Educational Support and Guidance at the University of Strathclyde. Her research interests include dyslexia in Higher Education and also 'non-teacher' support to children with learning difficulties.

Steve Chinn is Founder and Principal of Mark College, a secondary (Beacon status) school for dyslexic boys. He lectures worldwide on maths and dyslexia and is author of several books, worksheets and a diagnostic test.

Doreen Coventry is a member of the Mathematics Department at George Watson's College, Edinburgh.

Victoria Crivelli is a Senior Specialist Teacher for the ICT and Resources Learning and Behaviour Support Service Worcestershire. She is also Vice Chair Elect of the BDA Computer Committee.

Margaret Crombie is currently manager of the special educational needs support team of teachers in East Renfrewshire. She has researched into the effects of dyslexia on the learning of modern languages in school.

Richard Dargie was formerly Principal Teacher of Social Subjects at Portlethen Academy in Kincardineshire and is currently Lecturer in History Education at the University of Edinburgh. He is a prolific writer of history resources for primary and secondary schoolchildren in Scotland with over 60 textbooks, radio and television programmes, web sites and teaching packs to his credit.

David Dodds has been a Principal teacher at Support for Learning, Boroughmuir High School since 1987. He was also a part-time tutor in the University of Edinburgh Modular Masters programme from 1996–9.

Diana Ditchfield studied piano and theory with singing at the Royal Irish Academy of Music and Music Education with English Education at the University of Warwick. In addition, she

has an MA (Ed) from the Open University and a PG Certificate in SpLD from the University of Edinburgh. She has taught instrumental and class music in schools in England and Ireland.

Adele Fairman is a specialist teacher employed by the local authority and has run a Special Unit for Dyslexic students as part of a mainstream school. She now works in a number of secondary schools advising on Inclusion.

Angela Fawcett is a psychologist at the University of Sheffield. Her research with Rod Nicolson has led to screening and intervention from cradle to grave.

Robin Gray has spent 40 years in education as teacher and director, as well as a performer. He is currently Director of Art and Drama at Edington and Shapwick School, Somerset.

Gerald Hales is an independent Chartered Psychologist and Therapist. Widely experienced in assessment and diagnosis of dyslexia and similar difficulties with children and adults, he is particularly concerned about psychological effects on self-esteem and confidence. He has extensive research and teaching experience from Reception to PhD.

Pam Holmes has been a Specialist Teacher since 1992. She worked for seven years within Warwickshire LEA's Support Service and has been Learning Support Coordinator/SENCO for Rugby School since November 1999.

Christine Howlett has two dyslexic sons. She has been a teacher of dyslexic/learners for 24 years and is developing and teaching on a new programme for them at Wolverhampton Grammar School.

Vicky Hunter has been a learning support teacher for 17 years. For the last eight years she has been Principal Teacher in the Learning Support Department at James Gillespie's High School.

Mike Johnson is a Senior Lecturer in Special Educational Needs at the Institute of Education, Manchester Metropolitan University.

Jane Kirk is Dyslexia Advisor at the University of Edinburgh. In addition, she is a part-time lecturer in Moray House, Faculty of Education, University of Edinburgh and was formerly principal teacher of learning support in a secondary school.

John Landon is Senior Lecturer in the Department of Equity Studies and Special Education in the Faculty of Education, The University of Edinburgh.

Colin Lannen is the principal of the Red Rose School for dyslexic children, in St Annes on Sea, Lancashire.

John Lewis is a senior teacher and SENCO at Ercall Wood Technology College. He developed the provision for dyslexic pupils at this school. Children with this specific learning difficulty still form the majority of 75 pupils with statements of SEN at the school.

David Lumsdon is an Educational Psychologist in Northumberland. He has a specialist interest in Dyslexia and coordinates the County's courses on Specific Learning Difficulties.

Neil MacKay is a freelance consultant and trainer working primarily on dyslexia-related issues and is the originator of the phrase 'dyslexia friendly schools'. He is currently working with Flintshire LEA to spearhead their Dyslexia Friendly Schools Initiative.

Hilary McColl, a former teacher with a particular interest in modern languages and special educational needs, now works as consultant, trainer and writer on these and related topics.

Carol Orton is a parent of two dyslexic sons. She has supported parents, helplines and worked as a school governor and local magistrate. She joined the BDA in 1994 and was appointed BDA Policy and Local Services Director in 2001. She is editor of *Dyslexia Contact* and was responsible for publishing the resource pack, *Achieving dyslexia friendly schools*.

Nick Peacey is coordinator of SENJIT, Institute of Education, University of London, formerly Principal Manager for Equal Opportunities and Access for The Qualifications and Curriculum Authority. He is a member of the Curriculum IT support for the SEN steering group (managed by BECTA and DfEE) and is also a member of the National Advisory Group on Personal, Social and Health Education.

Maggie Pringle is a member of the Mathematics Department at George Watson's College, Edinburgh.

Sandie Reed gained extensive teaching experience in both secondary and special schools in London after graduating with degrees in sociology and psychology. She is currently a Learning Support Teacher in one of Scotland's largest primary schools, in Edinburgh. She is an executive member of the NASUWT and serves on its Education Committee.

Madeleine Reid has been a careers adviser for 20 years. Her role is in special needs but primarily she works with dyslexic pupils from mainstream and independent special schools. She also deals with students in training and post education.

Hilary Rifkind is a member of the Mathematics Department at George Watson's College, Edinburgh.

Janet Tod is a Reader in Education at Canterbury Christ Church University College. She is a chartered educational and clinical psychologist and has managed two DfEE-funded research projects, one concerning Individual Education Plans, the other Dyslexia. She is actively involved in research, publication, initial teacher training and INSET.

Elizabeth Turner is the Teacher in Charge of Flintshire's County Dyslexia Provision/Resource based at Hawarden High School. She is also the County Training Provider on Dyslexia and has co-authored *Dyslexia: A Parents' and Teachers' Guide*.

Janice Wearmouth has many years experience of working in the area of special educational needs in schools. She is currently employed as a lecturer in special and inclusive education at The Open University.

Charles Weedon is Head of the Dyslexia Centre and Learning Support at George Watson's College, Edinburgh.

Fionnuala Williams worked for a number of years at Ercall Wood Technology College supporting children with SEN across the curriculum. She currently works as a Learning Support Tutor with a special interest in dyslexia at Telford College of Arts and Technology and also teaches at the dyslexia workshops run at the college.

Ann Van Wrenn is an SpLD teacher at Red Rose Independent Day School, Lytham St Annes, Lancashire. She has 31 years teaching experience, ten of those as a Deputy Head Teacher and six as Special Educational Needs Coordinator. She is also a mother of three sons, one of whom is dyslexic.

SECTION 1: Introduction

CHAPTER 1

Dyslexia and its Manifestations in the Secondary School

Lindsay Peer

This chapter aims to:

- describe dyslexia and look at the affects across the curriculum
- discuss recommended policy changes within a framework of Inclusion
- make recommendations for levels of training for providers.

Introduction

The teaching profession is a hard working and caring one, but teachers have to work continually under constraints of time and resources . . . However we all know that success motivates. A student with unacknowledged learning difficulties will not be successful, so he is unlikely to be motivated to learn. The sooner his difficulties are pinpointed and addressed, the sooner he will be successful and motivated to progress. Instead of diminished self-esteem, with its associated behavioural difficulties, his self-esteem will grow with his achievements. Therefore time spent initially solving those difficulties will lead to less disruptive behaviour, fewer long-term problems for the student and a significant saving in time for the teacher.

And time is at a premium for the secondary school teacher.

(Peer 2000a)

My opinion relating to the position of teachers has not changed since writing the first edition of *Winning with Dyslexia* some years ago. Having spent many years in secondary schools as a mainstream English and Drama teacher and Head of Department before going into the area of special needs, I am fully aware of the pressures under which mainstream teachers find themselves. The stress of having yet more responsibilities and paperwork placed upon them with every new educational initiative can be frustrating to say the least. Currently we are in a phase of 'Inclusion', which means that today more demands than ever are being placed upon teachers. They find themselves in the position of having to possess expertise in a range of areas that previously were not within their remit – and for which in many cases they have no training.

Schools find themselves under the microscope of the media as well as the usual channels of inspection. It is not unusual to hear parents discussing 'failing schools'; asking whether their

children are reaching the 'expected targets'; discussing 'league tables'. This is a new world – one in which parents demand to know far more about systems and outcomes than ever before. Many parents are empowered and become involved with the running of the schools.

The special needs debate is ongoing. The Human Rights Act and the Disability Commission are highly significant in a world where equal opportunities are valued. 'Inclusion' of those with special needs in any system as a principle, can only work when issues have been recognised, systems put in place and each learner is provided for according to need. Giving the same to all is not appropriate when we look at the broad range of special needs. We need to ensure that what is done differently for an individual means that each is provided with an effective way forward – allowing them to be on a level playing field with peers.

Contentious issues are being raised.

- Possibly due to funding limitations, Statements of Educational Need are being removed: this was seen as a protection for many children with special needs. In principle I would be happy to support this change of direction, provided that resources are put in place and teachers are trained so that SEN children still have their needs met. Parents are very concerned that their children might be placed in a seemingly inclusive situation but without the relevant support. As such, it might be said that *in such circumstances, inclusion by definition would mean exclusion*. Parents are not willing to accept the excuse that there is insufficient funding to support their children, unfortunately this is still happening in some places.
- There is debate as to whether or not specific children should be placed in mainstream or special schools.
- There is discussion as to whether or not groups of adolescents should be disappplied from specific studies.
- National Literacy and Numeracy Strategies are being introduced into secondary schools. This then begs the question as to who will be responsible for the success of the SEN children across the curriculum?

The issues with which any education system needs to deal are endless.

It is perfectly clear to everyone involved with the education system that there are currently massive changes in the air at every level. However the mainstream teacher working within this current of change has to override the pressures and continue the daily toil, working hard to ensure success for all members of their class every day of the week. This includes those who are dyslexic and those others who experience a range of literacy and/or numeracy difficulties.

What we have not mentioned are the young people themselves – the people for whom these changes have been designed to support. Who are dyslexic learners? How do we recognise them? What are the implications for teaching them?

What is dyslexia?

There are several descriptions of dyslexia, one of the specific learning difficulties. I find the following useful:

Dyslexia is best described as a combination of abilities and difficulties which affect the learning process in one or more of reading, spelling, writing and sometimes numeracy. Accompanying weaknesses may be identified in areas of speed of processing, short-term memory, sequencing, auditory and/or visual perception, spoken language and motor skills.

Some children have outstanding creative skills, others have strong oral skills, yet others have no outstanding talents; they all have strengths.

Dyslexia occurs despite normal intellectual ability and conventional teaching; it is independent of socio-economic or language background.

(Peer 2000b)

So what does this mean in practice? It has been estimated that approximately four per cent of any given population are severely affected by dyslexia, with a further six per cent moderately so. We are therefore referring to a population in school of about 300,000 at any one time, this raises issues of consideration of equal opportunities for educators in every institution.

Internationally there is much research and practice that is being carried out in the field of dyslexia and information on any aspect is easily found. From genetics to teaching, from self-esteem to auditory and visual processing, there is information for those who require it. We know from years of experience that dyslexic learners can go on to do extremely well in their chosen careers provided they are understood and appropriately supported. Inclusion in the right circumstances will be of great benefit to them. However very often they are not identified; this as a consequence leads to mishandling and poor outcomes. The hard-working brightest may be told that they 'should try harder'; the average might be led to believe that they are learners with moderate learning abilities. There is still too much 'misdiagnosis' in the system due to a genuine lack of knowledge of the aspects which can identify dyslexia.

The two most obvious groups of dyslexic learners are:

- those with visual and creative ability – but are less proficient orally;
- those who are orally proficient but are less competent with visual, spatial and hand skills.

There are those who have a mixture of the two, but their abilities do not shine as clearly. What is significant is that (a) they are all competent in some areas if given the opportunity to show their ability, but (b) that they all have problems with the processing of language leading to specific weaknesses in aspects of literacy and/or numeracy that will affect the learning process.

We know that some dyslexic students have weaknesses in aspects of the reading process, but all have problems when writing. If the learner exhibits a cluster of the difficulties listed below, it would be worth investigating further. As you can see from the lists, the weaknesses will affect learning across the curriculum. Do bear in mind however, that we are dealing with learners who despite their difficulties may indeed be extremely able and are as frustrated by their struggles as are their teachers! (See Handy Hints Poster for Secondary School Teachers (BDA 2001).) *General* areas that are affected include:

- processing at speed;
- misunderstanding complicated questions although knowing the answer;
- finding the holding of a list of instructions in memory difficult, although can perform all tasks;
- occasionally, name finding.

The types of problems experienced in *reading* might be:

- hesitant and laboured reading, especially out loud;
- omitting or adding extra words;
- reading at a reasonable rate, but with a low level of comprehension;
- failure to recognise familiar words;
- missing a line or reading the same line twice;

- losing the place or using a finger or marker to keep the place;
- difficulty in pinpointing the main idea in a passage;
- finding difficulty in the use of dictionaries, directories, encyclopaedias.

The types of problems in *written work* might be:

- poor standard of written work compared to oral ability;
- poor handwriting with badly formed letters;
- good handwriting but production of work extremely slow;
- badly set out work with spellings crossed out several times;
- words spelled differently in one piece of work;
- has difficulty with punctuation and grammar;
- confusion of upper and lower case letters;
- writing a great deal but 'loses the thread';
- writing very little but to the point;
- difficulty taking notes in lessons;
- organisation of work and personal timetable difficult;

The types of problems found in *mathematics* have actually very little to do with mathematics! They are to do with the same problems that appear in other subjects across the curriculum:

- difficulty remembering tables and formulae;
- finding sequencing difficult;
- confusing signs such as + and \times ;
- thinking at a high level in mathematics, but needing a calculator to remember basic facts;
- misreading questions that include words;
- confusing directions – left and right;
- finding mental arithmetic at speed very difficult.

As a result of the sheer frustration, perceived misunderstanding on the part of teaching staff and sometimes parents, and often exhaustion from the concentration expended in order to perform adequately in each class, there are sometimes behavioural problems too. It is clearly *imperative* to find ways of working efficiently with these children in order for all to benefit.

There is a further problem too; that is of dyslexic learners who have a bi- or multilingual background.

Teachers and psychologists have tended to misdiagnose or ignore dyslexia experienced by multilingual students because of the multiplicity of factors that seem to be causes for failure. Reasons cited include home background, different or impoverished language skills, inefficient memory competencies, unusual learning profile, emotional stress, imbalanced speech development, restricted vocabulary in one or all languages, leading to reading, spelling and writing weaknesses; sometimes numeracy is affected. However, educators are often aware that these students are very different from others who experience difficulty, as they are often bright and able orally or visually. The difference between their abilities and the low level of written work is very obvious. There are similar concerns regarding pupils who have specific difficulties while attempting to acquire a modern foreign language.

(Peer and Reid 2000)

There are schools that have many of these children in them and of that group a proportion will be dyslexic. Dyslexia is not limited to those who speak only one language! I was recently talking

to the head of a large comprehensive that had over 70 languages spoken in her school. They had never considered dyslexia as an issue for anyone in this group. It is highly significant that there are very few of these multilingual learners nationally who have been identified. It may be because educators and psychologists have little experience with this sub-group of learners or it may be because it has never been considered. In our recent book, *Multilingualism, Literacy and Dyslexia: A Challenge for Educators* (Peer and Reid 2000), we have dealt with these very issues which so keenly manifest themselves in the secondary school sector where success in public examinations is so critical.

One of the main problems in a large secondary school is just that...the size. There is an unrealistic expectation that the SENCO and the English teacher are the ones responsible for supporting all dyslexic children and others with literacy difficulties! The truth is that even if qualified, there are simply too many students, their teachers and their parents with whom to deal and nowhere near sufficient resources to answer that demand. It is therefore absolutely vital that *all* teachers should see themselves responsible for supporting and helping develop the dyslexic children in their classes and within their subject frameworks. They need to understand the weaknesses as well as recognise the strengths to see where the problems are likely to lie in their particular part of the curriculum and how best to deal with them. They should then begin to consider ways of adapting that which they are doing, to give access to the dyslexic learner – in an inclusive way. Whether it is the geography teacher who works on sense of direction or the PE teacher who helps develop hand skills and balance. Whether it is the maths teacher reinforcing techniques to replace rote learning of facts or the history teacher finding ways to work with sequencing of time lines and so on. All the skills and strategies automatically will transfer from one class to another, allowing for greater access to the curriculum. As with a recognition of the value of Learning Styles and Study Skills, the *good news* is that we know that what is good for the dyslexic learner is good for all learners – encouraging everyone to achieve at a level higher than would normally be expected. The only note of caution is that while other learners can cope without this support, the dyslexic ones cannot.

Hyperactive or hyper-reactive: EBD or not?

Frustration leads very often to antisocial or even deviant behaviour. There is no doubt that the strain placed on a child to 'do better' when they are trying to the best of their ability is unreasonable. The problem is that often the child's problems are attributed to emotional issues, sometimes with a background of problems at home, rather than anything to do with a struggle with the education process. We need to look for the root causes of the stress; after all, even the best counselling will not help the child whose underlying difficulties have not been identified and addressed. There is much reported evidence that many children displaying significant behavioural problems related to frustration seem to improve dramatically when the situation that is inappropriate is replaced by something more suitable. On an everyday basis we see that there are children who may be extremely difficult in some classes, yet not in others. We do not consider them to be hyperactive, but we do ask ourselves what is happening. Is it the subject matter, the mode of teaching or possibly a personality clash with the teacher that is causing the trouble? They are simply 'reacting' to the situation in which they find themselves.

It is thought that approximately 25–30 per cent of dyslexic children are also hyperactive. Genuine hyperactivity may well start before the child enters school; everyone is aware of it! Sleepless nights and unacceptable behaviour are often part of the report that parents give. For

this there are a variety of treatments, which are often a combination of both educational and medical interventions. However there are also children who seem to develop similar behavioural patterns to those who are genuinely hyperactive, but the symptoms only start when things begin to go wrong in school.

Interventions in these circumstances need to be totally different. I have seen that many children displaying these behaviours calm down dramatically when taken out of the system in which they find themselves. When placed in a 'dyslexia friendly' environment, with staff who are knowledgeable and understanding, the hyperactivity seems to disappear. That is because it was never there in the first place! As teachers and parents in secondary schools, we need to ask questions which search for information way back before the child reached the age of 11 years and entered our schools. We will often be amazed at the answers. Worryingly, there are a growing number of reports of children being sent away to schools for children who are suffering from emotional and behavioural difficulties (EBD). It is critical that we identify the aetiology of the problem before we misdiagnose and wrongly place them. The return to mainstreaming in these cases at a later date is extremely difficult if not impossible. We have a great responsibility to ensure that within the framework of inclusion, these children are truly included.

Motor skills weaknesses and dyslexia: a touch of bullying

There are groups of dyslexic children who also experience weaknesses in areas of fine and/or gross motor skills. Experience from working in this field for many years has highlighted the fact that if dyslexic children are going to be bullied, there is a strong tendency for it to be those who have weaknesses in the area of motor skill control. In the past we might have described these children as being 'clumsy'. These children are the ones who fall over things, are not wanted in the sports teams, who will turn right when the instruction was left and so on. There is a great need to keep an eye out for these children as they are more vulnerable than many others. The PE teacher is an ideal person to be working with young people like this, encouraging control over muscles of their bodies and some training in body language and self-esteem. All staff need to be made aware of the areas in which the child particularly needs to be made to feel confident. There are many exercises that should be done with children in the PE class that will reinforce what is happening in other classes. For example, no one can hold a pen effectively and make the fine motor movement so necessary for the writing process if they do not have control over the gross motor skills. A useful book is *Take Time* (Nash-Wortham and Hunt 1990), which is full of exercises that can be carried out at home and at school to improve control of the body.

Stress, giftedness and dyslexia

We also need to recognise that stress can have a significant impact on all dyslexic learners. As Susan Hampshire (1995) states in her Foreword to *Dyslexia and Stress* by Miles and Varma.

One of the worst aspects of being dyslexic is the vicious circle caused by stress. As soon as I make a mistake I panic, and because I panic I make more mistakes.

Gifted dyslexic people have their share of anxiety and tensions too:

I believe that the vast majority of gifted dyslexic children are still unidentified in schools today and those few who have been identified are in the main not receiving appropriate

provision. There is a great need to highlight the existence of this group and make provision for them at local and national level. The worst thing for them is to place them in classes with underachievers as this is bound to cause severe stress in an already difficult situation.

(Peer 2000c)

One interview that remains in my mind took place with a PhD university lecturer in mathematics... who takes his calculator to the supermarket as he cannot work out his bill in his head! His short-term memory is particularly weak, but his IQ is particularly high. His description of the way he was treated at school and the impact that has had on his life defy belief. So traumatised was he that he wishes never to have children so that they will not have to undergo the same stressful times that he did.

There is a real issue about the non-recognition of varying groups of dyslexic learner, causing much difficulty for all concerned. Thus becoming a 'dyslexia friendly teacher' will benefit all. The ability to identify, then ask for a diagnostic assessment that will give guidance and direction for appropriate support may well be the answer in many cases. A classroom geared up to the needs of children with mild-moderate dyslexia will also alleviate many of the stresses and support other children with a range of difficulties concurrently. The situation will truly become *win-win* for teachers, pupils and parents alike.

How to become 'dyslexia friendly'

In the Foreword to the Dyslexia Friendly Schools Resource Pack (BDA 1999), David Blunkett, Secretary of State for Education and Employment, stated:

As I know from first hand experience, dyslexia is not something a child grows out of and when it goes unrecognised, it can be the source of much misery, frustration and underachievement.

It is equally important that we recognise that the effects of dyslexia can be alleviated by using appropriate teaching strategies and committed learning. Teachers need to know how to identify children who have special educational needs and how to provide for such children effectively once they have been identified.

Of the Dyslexia Friendly Schools Resource Pack, he goes on to say:

I hope it is spread as widely as possible and catches the imagination of all those in a position to help dyslexic pupils.

It certainly has! The challenge for local education authorities is to provide the leadership and to focus the resources necessary to ensure the development of dyslexia friendly schools. The model of good practice that I am giving is that of Swansea LEA. Having made the decision to alter direction in an attempt to raise standards and reduce the number of Statements of Special Educational Need, they went through a process of change as outlined in the Dyslexia Friendly Schools Resource Pack. They met with parents, head teachers and psychologists. They are currently in the process of training one specialist dyslexia teacher to be placed in every school so that expertise can be spread in-house. There has been a dramatic improvement. Schools have looked for ways for their managers, heads of department, teachers and classroom assistants to become dyslexia friendly. They now have very few complaints and standards are rising.

So effective was this seen that other education authorities are in contact with Swansea and with the British Dyslexia Association looking to change their systems too.

Where schools have implemented the dyslexia friendly schools charter on a planned basis it has quickly become clear that there are wider benefits, including improvements in literacy across the curriculum, better teaching of literacy for all pupils, greater awareness of individual learning needs and the use of more varied teaching strategies.

(Warwick LEA, in Resource Pack (BDA 1999))

Being an effective school and being dyslexia friendly are two sides of the same coin. Effective schools enjoy strong leadership, value staff development and pay close attention to the quality of instruction and learning. These are schools in which all children are important regardless of ability or difficulty. Dyslexia in schools like this needs to be seen to have status within the school. This can be achieved by ensuring that the governors and senior managers are firmly committed to supporting dyslexic children across the curriculum. The most effective way would be through the School Development Plan, the document used by OFSTED to evaluate the management of any school. The next step would be to translate policies in to practice by:

- offering comprehensive training;
- formulating a common approach;
- setting targets based on National Curriculum descriptors;
- putting in place monitoring and evaluation systems.

Head teachers need to take the responsibility of ensuring that the ethos of the school is dyslexia friendly. This might relate to attitudes and actions held by teachers, support staff and even the dinner ladies. All staff need to be aware that although children might have weaknesses with specific parts of curriculum access, they are likely to be at least of average ability if not a great deal higher. Parents need to be brought into the changing set up, their concerns heard and their cooperation sought where possible.

Whole-school approaches to issues such as marking should be put in place – where children can receive a high mark for content and knowledge rather than always being marked down due to poor presentation skills, spelling, punctuation and grammar. The child should be getting help in these areas of weakness and should be motivated to keep trying by having his thoughts, ideas and knowledge valued. If we cannot do this, one might ask that we discuss the philosophical question as to what is education? As Neil Mackay, a SENCO, says in the DFS Resource Pack:

In a dyslexia friendly school, weak basic skills are not a barrier to achievement.

This pack is full of ideas on to how to put into good practice strategies that will be of value to young people across the curriculum. I would commend them to you as models of good practice. They have all been tried and tested by the authors and have been shown to provide excellent results.

We are now left with a consideration of the issues of teacher training on a national basis. I strongly believe that dyslexia should be mentioned in the course of Initial Teacher Training through work on the National Literacy and Numeracy Strategies. Dyslexia should be placed on both Mainstream and Special Education curricula. I cannot accept the excuse from some institutions that there is no time to deal with SEN or with dyslexia specifically; there are always ways of finding a small space to at least raise some awareness of the condition. For every year that a teacher is untrained in recognising and adapting to suit the learning styles of the

dyslexic children in their classroom, so it is another year of those children's lives that are wasted – or worse.

Within schools there is the necessity for a range of training needs to be carried out with relevant staff. Whereas it would be ideal to have a dyslexia-trained specialist in every school, so too do we need mainstream teachers and knowledgeable learning support assistants in the classroom to help the child on a regular basis. In addition it would be highly useful for head teachers and governors to attend awareness-raising sessions on the needs of the dyslexic child and the benefits to the school of dyslexia provision. As Reid (1997) says of teacher training:

it is important that classroom teachers receive some training in dyslexia offering both theoretical insights and practical experience.

Pumfrey (1997) acknowledges that 'establishing a resource allocation decision-making model that is "explicit, open, fair and thoroughly defensible", requires considerable professional knowledge'. Whatever the theoretical debates, what matters is that children in secondary schools are at a critical place in their lives. It is large, confusing – yet it is vital that they get on well if they to have any sort of future. We have seen in Swansea that the training model can work and that dyslexia friendly schooling can work.

When given the right support across the curriculum, dyslexic learners do well. I believe that it costs very little indeed to make a school 'dyslexia friendly' and to provide extra support for those who have a significantly greater need than would be expected. The cost to society and to teachers' nerves(!) is not worth the price of not doing it. It is in everyone's interest to make it work.

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CHAPTER 2

Biological, Cognitive and Educational Dimensions of Dyslexia: Current Scientific Thinking

Gavin Reid

This chapter

- provides an overview of current research in dyslexia
- relates this to educational factors.

Introduction

In recent years the area of dyslexia has undergone significant change accompanied by considerable scientific and educational research. Research has focused on a number of different dimensions including biological, cognitive and educational. This chapter will therefore describe these developments and assess the impact they may have on teachers, schools and the dyslexic student.

Definitions

When undertaking staff development in secondary schools the question one is most often asked is simply 'What is dyslexia?'. While there are a number of definitions that are used, many of these are not entirely helpful to the class teacher. The class teacher is essentially asking for a working plan – not necessarily a definition. That is, the cluster of difficulties, range of severity, examples of the difficulty, teaching suggestions and sources of further help in relation to dyslexia.

One of the difficulties regarding definitions is that dyslexic children are first and foremost individuals and while they may share some common difficulties there are individual differences. The British Dyslexia Association suggests a broad description which clearly displays the range of difficulties which can be experienced by dyslexic people. This is described in the previous chapter and to reiterate the following definition is useful because it is both comprehensive and broad in scope. The definition indicated in the previous chapter describes dyslexia as 'a combination of abilities and difficulties which affect the learning process in one or more of reading, spelling and writing. Accompanying weaknesses may be identified in areas

of speed of processing, short-term memory, sequencing, auditory and/or visual perception, spoken language and motor skills. It is particularly related to mastering and using written language, which may include alphabetic, numeric and musical notation.'

It is also useful to consider the definition used by the Adult Dyslexia Organisation which suggests that

Dyslexia may be caused by a combination of phonological, visual and auditory processing deficits. Word retrieval and speed of processing difficulties may also be present. A number of possible underlying biological causes of these cognitive deficits have been identified and it is probable that in any one individual there may be several causes. Whilst the dyslexic individual may experience difficulties in the acquisition of reading, writing and spelling they can be taught strategies and alternative learning methods to overcome most of these and other difficulties. Every dyslexic person is different and should be treated as an individual. Many show talents actively sought by employers and the same factors that cause literacy difficulties may also be responsible for highlighting positive attributes – such as problem solving which can tap resources which lead to more originality and creativity'.

(Schloss 1999).

These definitions essentially support the view that dyslexia relates to a broad range of difficulties associated with literacy and learning, that individual differences will be present and that some students with dyslexia can have positive attributes and that any difficulties are only part of the overall picture.

A recent working party report on Dyslexia, Literacy and Psychological Assessment (BPS 1999) opted for a working definition of dyslexia because they felt that a working definition did not require any causal explanation. The working definition they opted for was as follows:

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. It provides the basis for a staged process of assessment through teaching.

(BPS 1999: 18)

While this provides the teacher with a starting point it does require further explanation. In fact the report goes on to suggest a number of hypotheses which can be associated with dyslexia which include: Phonological Deficit Hypothesis; Temporal Processing Hypothesis; Skill Automatisation Hypothesis; Working Memory Hypothesis; Visual Processing Hypothesis; Syndrome Hypothesis; Intelligence and Cognitive Profiles Hypothesis; Subtype Hypothesis; Learning Opportunities Hypothesis and Emotional Factors Hypothesis. These hypotheses each refer to different or overlapping theoretical approaches expounded by academic researchers to explain dyslexia from a causal perspective. The authors of the report suggest that the phonological deficit hypothesis provides the main focus because of the 'broad empirical support that it commands' (p. 44) and because of the impact of phonology on the other hypotheses, particularly temporal order hypothesis, skill automatisation and the syndrome hypothesis. This view is supported by Snowling (2000) who suggests that although dyslexia can manifest itself in many ways there may be a single cause – a phonological deficit. She asserts this is the 'proximal cause of dyslexia' (p. 138).

It is important therefore that teachers obtain a practical working plan. Yet due to the nature of dyslexia and its associated difficulties and the range of research studies and views it is also advisable that teachers obtain some theoretical background to allow them to understand the nature of the difficulties and how these may influence actual classroom approaches.

Biological dimensions

Genetic factors

There have been considerable efforts to identify the genetic basis for dyslexia. Gilger, Pennington and DeFries (1991) estimate that the risk of a son being dyslexic if he has a dyslexic father is about 40 per cent. Much of this work has been focused on the heritability of reading sub-skills and particularly the phonological component. Castles *et al.* (1999) found a strong heritability element among 'phonological dyslexics' and Olson *et al.* (1994) found also a strong heritability component both for phonological decoding and orthographic skills.

Gene markers for dyslexia have been found in chromosome 15 (Smith *et al.* 1983) and more recently in chromosome 6 (Fisher *et al.* 1999). Stein and Monaco (1998) suggest they may have found a possible site of dyslexic genes in chromosome 6 and significantly they may be in the same region as the genes implicated in autoimmune diseases that have been reported to show a high level of association with dyslexia (Snowling 2000). In a longitudinal study Gallagher, Frith and Snowling (2000) found at age six more than half of the at risk group scored below average compared to a control group on literacy tasks. Clearly therefore genetic factors are associated with dyslexia and this of course can lead to early identification or at least some very early warning signs of a child being at risk of being dyslexic.

The dyslexic brain

New technology such as positron emission tomography (PET) and magnetic resonance imaging (MRI) are increasingly being used to observe the active processes within the brain as well as the structure. As a result studies have shown that in phonological and short-term memory tasks the dyslexic sample displayed less activation across the left hemisphere than the control group. Brunswick *et al.* (1999) reported that the PET scans of young dyslexic adults while reading aloud and performing word and non-word recognition tasks showed less activation than controls in the left posterior temporal cortex. These findings suggest that there may be processing differences indicating some deficits in left hemisphere processing among children and adults with dyslexia.

Hemispheric symmetry

According to earlier influential research (Geschwind and Galaburda 1985) these differences are due to structural differences between the hemispheres and this probably develops in the prenatal period. This view has received considerable support and a study by Leppanen *et al.* (1999) reported that at birth children at genetic risk of dyslexia show different patterns of brain activity compared to a control group.

This can have implications for teaching and learning to read. Bakker (1990, 1998) proposes a 'balance model' of reading which has been replicated in different countries (Robertson 1997). Bakker identifies different types of readers – 'perceptual' and 'linguistic' each with a different hemispheric preference and each having implications for teaching. The perceptual has a right hemisphere processing style and may have good comprehension but poor reading accuracy. On the other hand the 'linguistic' reader utilises the left hemisphere and reads accurately but in some cases may be over-reliant on the left hemisphere and may not show the comprehension level of the 'perceptual' reader.

Wood (2000) suggests that reading is concerned with translating stimuli across all modalities and that fluency is the key factor in reading acquisition. He cites the role of the visual cortex in reading which he asserts is multi-modal as it will accept input from both auditory and visual modalities. The brain he argues is high in visual-spatial skills and this also aids the understanding of information with high phonetic complexity. Since reading is essentially mapping across modalities according to Wood, then alternative languages such as music and visual graphics are helpful. In short Wood suggests that our brains are better equipped for reading and more adaptable than we have given them credit for.

Visual factors

There is also evidence of visual factors relating to dyslexia. Eden *et al.* (1996) show how dyslexic children can have abnormalities associated with the magno-cellular sub-system of the visual cortex. Stein (1994) has highlighted convergence difficulties and binocular instability and Wilkins (1995) has shown how some dyslexic children and adults may benefit from coloured overlays due to difficulties in some visual processes.

Cognitive and processing dimensions

While the teacher may be limited in dealing with the deficits discussed above in relation to biological factors associated with dyslexia much can be done to improve the processing skills of dyslexic students and particularly their phonological skills.

Phonological processing

Hagtvet (1997), in a Norwegian study, showed that a phonological deficit at age six was the strongest predictor of reading difficulties. Other studies have shown speech rate to be a strong predictor of dyslexic difficulties and this is reflected in the development of the Phonological Abilities Test (Muter *et al.* 1997).

Wolf (1996) highlights the 'double deficit' hypothesis indicating that dyslexic individuals can have difficulties with both phonological processing and naming speed. It is interesting that speed of processing and semantic fluency are included in some of the popular tests for dyslexic children. Badian (1997) in a further study shows evidence for a triple deficit hypothesis implying that orthographic factors involving visual skills should also be considered.

Metacognition

The role of metacognition in learning is of great importance as this relates to the learner's awareness of thinking and learning. Tunmer and Chapman (1996) have shown how dyslexic children have poor metacognitive awareness and this leads them to adopt inappropriate learning behaviours in reading and spelling.

Automaticity

Similarly difficulties in automaticity (Fawcett and Nicolson 1992) implies that dyslexic children may not readily consolidate new learning and therefore find it difficult to change

inappropriate learning habits. Fawcett and Nicolson (1994) in fact propose the twin hypothesis that dyslexic children incur both Dyslexic Automatisation Deficit and Conscious Compensation Hypothesis. This means not only do they have difficulty in acquiring automaticity but in many cases they are able to mask this deficit by working harder. Deficits, however, will still be noted in situations where compensation is not possible.

Motor factors

Motor integration programmes have also been developed from research programmes (Dobie 1998).

Nicolson and Fawcett (1999) have shown how cerebellar impairment may be implicated with dyslexia viewed from a broader framework and may be involved in acquiring language dexterity as well as movement and balance. Factors such as postural stability, bead threading and naming speed are therefore represented in the Dyslexia Screening Test (Fawcett and Nicolson 1996). There have been many studies reporting on fine motor and gross motor difficulties experienced by dyslexic children (Augur 1985, Denckla 1985, Rudel 1985, Flory 2000, McCormick 2000). Some of these relate to dyspraxia but it is likely that some of the approaches advocated for dyspraxic children can benefit dyslexic children who may have some motor difficulties. Similarly with dysgraphia, Stracher (2000) suggests that writing problems manifest themselves in three stages which include motor factors relating to legibility, spelling difficulties and organising writing and syntactic structures. This pattern can also be seen in some dyslexic children.

Educational factors

Phonological awareness and multisensory programmes

In educational settings there has been considerable activity in the study of phonological awareness in relation to dyslexia. This is reflected in the development of assessment and teaching materials such as the Phonological Abilities Test (Muter *et al.* 1997), the Phonological Assessment Battery (Fredrickson *et al.* 1997) and many phonological teaching approaches such as Sound Linkage (Hatcher 1994), the Phonological Awareness Training Programme (Wilson 1993) and the Multisensory Teaching System for Reading (Johnson *et al.* 1999). This particular area of research is highlighted because of its direct impact on teaching and classroom practices. The authors (Johnson *et al.* 1999) conducted a research study into the use of the programme and found, as well as the above, it also encourages independent learning and improves self-esteem.

Wise *et al.* (1999) conducted a large-scale study using different forms of 'remediation' and found that the actual type of phonological awareness training was less important than the need to embed that training within a well structured and balanced approach to reading. Adams (1990) argues that combining phonological and 'whole language' approaches to reading should not be seen as incompatible. Indeed it is now well accepted that poor readers rely on context more than good readers (Nation and Snowling 1998). Language experience is therefore as vital to the dyslexic child as is a structured phonological awareness programme. This is particularly important in the secondary education sector where it may be inappropriate to provide a phonological-based programme for a dyslexic student. Here the priority may be on language experience, print exposure and comprehension activities.

It is also important to note the current interest and research in the area of multilingualism and dyslexia (Peer and Reid 2000, Cline and Shamsi 2000) which indicates the need to obtain accurate measures of screening, identification and curriculum materials to ensure that the needs of multilingual dyslexic children are met within mainstream provision (see also Chapter 4 'Inclusion – The Issues').

Right hemisphere processing

West (1997) has utilised Galaburda's research to show that dyslexic people who are right hemisphere processors can actually be at an advantage in some situations. This emphasises the positive side of dyslexia. Additionally West suggests that the transmission of knowledge and understanding is increasingly becoming visual and that those with well developed visual skills can be at an advantage in acquiring the visual language of knowledge.

Policy

It is encouraging that research is impacting on practice. Education authorities' policies on dyslexia, staff development, classroom-based assessment, computer programs and curriculum materials focusing on differentiation all facilitate access to the full curriculum for dyslexic children. Early identification and early intervention are seen as priority areas and recent research and materials help to support this (Reid 1998).

Concluding comment

Research in dyslexia can be viewed from different perspectives. It is important to recognise particularly the cognitive aspects of dyslexia because with timely and adequate intervention these can be dealt with effectively. Therefore the process of learning is of considerable importance. Despite the biological factors described in this chapter much can be done to advance the literacy and learning skills of dyslexic students through awareness of training programmes, identifying the range of difficulties and acknowledging the strengths often shown by dyslexic students. Awareness of learning styles (Given and Reid 1999) and of metacognitive strategies which can enhance the learning process throughout the full curriculum is of great importance. Together these factors provide a sound basis for staff development and assessment, teaching and classroom practices which can enhance the opportunities for success for all dyslexic children in the secondary school. In summary, it is essential that despite the advances in scientific thinking and research we do not lose sight of the individuals, their needs and their strengths. Brooks (2000: 19) summed this up very succinctly when he suggested 'Adolescents may begin to perceive the world as a place where their strengths rather than their weaknesses are spotlighted. If this shift in perception occurs, then when they are expected to assume the tasks of adulthood, they will do so with increased comfort, confidence and success.'

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