



Royal College
of Nursing

Dyslexia, dyspraxia and dyscalculia: a guide for managers and practitioners



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“First of all... if you can learn a simple trick... You’ll get along a lot better with all kinds of folks. You never really understand a person until you consider things from his point of view... until you climb into his skin and walk around in it.”

To kill a mockingbird, Harper Lee (1960)

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Dyslexia, dyspraxia and dyscalculia:

a guide for nursing managers and practitioners

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Foreword

Over the years as an RCN representative, I have represented an increasing number of nurses with dyslexia, dyspraxia and dyscalculia.

My experience is that there is a willingness by managers and organisations to support nursing staff with these specific learning differences to maintain their practice. Unfortunately, there is always the problem of what appears to be a lack of information and guidance to support this.

Nursing staff with specific learning differences have a huge contribution to make to health care and they deserve the opportunity to do so. Many experience some form of discrimination, purely through lack of knowledge and understanding within an organisation.

My past experience within this field has given me a passion for what we refer to as the 3Ds: dyslexia, dyspraxia and dyscalculia. As Deputy President of the Royal College of Nursing, it has been a delight and privilege to lead on this piece of work: at last, we have comprehensive guidance. For me, this guidance for managers and practitioners ticks all the boxes, answers the questions on a wide range of 3D issues and offers the solutions.

This guidance will support nursing staff with specific learning differences, their colleagues and their managers to realise their full potential and continue to make a valuable contribution to health care.

Bobbie Chadwick

Deputy President of the
Royal College of Nursing

Background to the guide

For many years the Royal College of Nursing has recognised the impact of dyslexia, dyspraxia and dyscalculia on its members, and has sought ways of supporting individuals with these conditions to help them to reach their potential in whatever role or setting they work.

In 2006 the RCN Practice Education Forum commissioned a review of the literature on dyslexia in relation to practice (Dale and Aiken, 2007) which highlighted a wealth of issues and helped raise awareness, certainly in relation to dyslexia the most common of the three conditions. Whilst the literature review recognised the challenges it was not able to offer any real solutions and there continued to be a need for a practical guide for managers, employers and the nursing staff themselves, to identify strategies which can help.

This led to a resolution being accepted by Congress 2009 which called on RCN Council to “influence employers to recognise and provide for the needs of nursing staff with dyslexia and similar conditions”. This guide and the accompanying toolkit aim to do just that.

1.1 Who it is for?

This guide has been designed to provide background information for managers, human resources staff and RCN members. It sets the scene for the toolkit, and identifies key areas which require action in relation to the introduction of the toolkit and in the future.

As the target audience for the guide and toolkit are different, and both groups will

require background information, it is inevitable that material will be duplicated in both documents. The toolkit – which it is hoped will be easily available in practice settings – gives a broad overview of the issues, but its primary objective is to provide practical strategies that individuals can use to help themselves or colleagues. This guide builds on the information contained within the toolkit and where possible draws on the evidence base, particularly surrounding dyslexia – the most prevalent and researched of the three conditions.

1.2 How to use it

To facilitate easy access to relevant information the guide is divided into sections which are designed to dip in and out of, as required. Additional sources of information and support groups are also provided, along with suggestions for further reading.

1.3 Language

One important area to consider, right at the beginning, is the use of language which remains a highly emotive and sensitive area.

The guide begins with a section on ‘neuro-diversity’ which is a relatively new term, encompassing a range of neurological and developmental conditions (Pollak, 2009; Hendrickx, 2010). Since its introduction in the United States in the 1990s this has become the preferred term by many of those living with these conditions as it reflects the notion of a brain which is just wired slightly differently. It moves away from negative terms such as ‘impairment’, ‘difficulty’ or ‘disability’ and reminds us that we are all slightly different.

Historically we have been used to a ‘medical model’ of disability which has categorised

things as ‘disorders’, ‘deficits’ or ‘difficulties’ that the individual needs to overcome. More recently there has been a move towards the ‘social model’ which suggests that if there is a problem it is created by a society which fails to adapt to the needs of the individual (Riddick, 2001). This is a useful model when considering dyslexia, dyspraxia and dyscalculia, all of which fall under the neuro-diverse umbrella and the essence of this guide is to explore how we can support colleagues. Wherever possible the guide embraces the philosophy of the social model. However there are situations where this may not be compatible with professional standards and these issues will be explored further in section 6.3.

Other terminology which features within this guide includes ‘specific learning differences’ (SpLD) a more traditional term for dyslexia, dyspraxia and dyscalculia. Although neuro-diversity will be used initially, this in fact covers a much wider range of conditions than will be considered in the guide, so the abbreviation SpLD will be used as the guide progresses. The term ‘condition’ is also contentious as it could be seen to imply a medical basis. However it is difficult to identify an alternative preferable term, so it will be used and I apologise now to anyone offended by it.

Finally, as nurses we are used to seeing the person first and are often upset by terms such as ‘dyslexic adult’, preferring to say adult with dyslexia. However, it is interesting that specialist groups such as the British Dyslexia Association (BDA) prefer to use the term dyslexic adult/child and therefore this is the format that will be used.

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Introduction to neuro-diversity

For many adults with a specific learning difference (SpLD) the challenges of living with, and overcoming difficulties in their lives as a result of their dyslexia, dyspraxia or dyscalculia are made worse by other people's attitudes. Sometimes these attitudes exist as a result of prejudice but more frequently as a result of ignorance. This next section is designed to give a broad general overview of SpLDs to raise awareness. A more detailed description of each condition can be found in subsequent sections.

2.1 What do we mean by neuro-diversity/specific learning differences?

The term 'neuro-diversity' is a relatively recent import from the United States where it was selected by individuals with Autistic Spectrum Disorder to try and convey to others that they were not disabled or abnormal, merely that their brain is wired differently (Pollak, 2009; Hendrickx, 2010). Taking it to the full extent some people are now also using the term 'neuro-typical' to describe those whose brains are seen to be wired in a conventional manner. Whether this distinction is really necessary, and whether the term neuro-diverse will be widely adopted remains to be seen; the terminology is merely being introduced here in case we move in this direction. It must also be acknowledged that the range of conditions which fit under the neuro-diverse heading are much broader than the three conditions which form the focus of this guide. For clarity the term more commonly used within the UK at present – specific learning differences (SpLDs) – will be used

throughout this guide. This is an umbrella term used to describe a range of conditions including dyslexia, dyspraxia and dyscalculia. Whilst these three conditions all have distinct areas of difficulty associated with them (which will be explored in Sections 3, 4 and 5 of this guide) their neuro-cognitive profiles often overlap. This sometimes results in an educational psychologist choosing not to attach a specific 'label' such as dyslexia or dyspraxia in their assessment report, but will instead 'diagnose' the individual as having a specific learning difference.

In terms of identifying which condition affects an individual it could be argued that the label itself is less important than the need to recognise the specific areas of difficulty that they are faced with. Therefore, whether the individual is diagnosed with 'dyslexia', 'dyspraxia', 'dyscalculia' or a 'specific learning difference' is immaterial. All are classed as a disability under disability legislation and individuals with any of these conditions will require understanding and support to help them to reach their potential.

Of the three conditions dyslexia is arguably the most common and also the one on which the most research has been conducted and literature published, and a significant amount of this relates to dyslexia in children or to students within higher educational settings. It is only relatively recently that an interest has started to be shown in the effects of any of these conditions on adults in their work environment and there is clearly a need for more work on this area.

2.2 Positive aspects

Whilst there is inevitably considerable attention paid to areas that a person with dyslexia, dyspraxia or dyscalculia might find difficult, it is important to recognise that

there are specific strengths associated with each of these conditions. Nursing often attracts individuals with these conditions because of their caring and compassionate nature. We also know that in the case of dyslexia, individuals are likely to be creative and good at problem solving. Finally, perhaps because of the daily challenges they face, there is a lot of evidence which highlights how hard working and determined to succeed they are.

2.3 Unique nature

One important factor to remember in relation to each of the SpLDs is that every individual will present with their own unique profile. Each of the conditions is multi-faceted, with individuals being placed somewhere on a separate continuum for each aspect. Reid (2003) emphasises the importance of this in relation to dyslexia and reminds us that whilst they may share some common problems, dyslexic adults “do not represent an identical discrete entity.” Over the years this has resulted in regular challenges to its very existence by those who fail to recognise its complexity, or feel that it is frequently offered as an ‘excuse’ for laziness or low achievement. To these cynics I would suggest that they look at the wealth of research (summarised in Section 3.1) which has clearly identified differences in both brain structure and processing, by world-renowned neuro-physiologists. Yes, it is complex; yes, people with SpLD are all different, but that does not mean that we can ignore it. Instead we need to be aware of its diversity and recognise that what works with one individual might not work with the next.

of very successful and innovative personal coping strategies which have been highlighted in several research studies on dyslexia (Lefly and Pennington, 1991; Miles, 1993). These may be techniques that the individual has developed or sometimes an avoidance of areas that are particularly challenging. Avoidance may, on occasions, be an appropriate strategy. For example, choosing to avoid difficult spellings such as ‘diarrhoea’ by substituting ‘loose stools’ instead may work, at least in the short term. However it is important for the individual to acknowledge areas that are being avoided and endeavour to find other ways of conquering the difficulty. This is particularly so in the case of a student nurse who will need to function independently once they qualify. Mentors must therefore ensure that students are being assessed on all required competencies and that they are not avoiding areas they find difficult.

2.4 Coping strategies

These individual variations are further compounded in adults by the development

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Overview of dyslexia

3.1 What is dyslexia?

Dyslexia has been defined in many ways as our knowledge and understanding of the condition develops. The following definition by Peer, written on behalf of the British Dyslexia Association, has been chosen as it is concise, easy to understand and clearly identifies the major issues. She 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.”

Peer, (2002)

One important feature of this definition is that it highlights the potential of individual variations by including phrases such as “affect the learning process” and “weaknesses may be identified”. It is important to recognise that dyslexia, like other SpLDs, is not a clear cut condition problem. As such it poses particular challenges in its recognition and requires a tailor-made intervention and teaching programme matched to the individual’s personal profile.

Over the past 25 years research has begun to identify the biological, cognitive and behavioural causes of dyslexia, and the Causal Modelling Framework proposed by Morton and Frith (1995) attempts to pull the key underpinning theories of dyslexia together.

Under an umbrella of biological influences on dyslexia, the framework puts forward multiple theories, all of which have been highlighted through a variety of research studies. It begins by suggesting a genetic pre-disposition to dyslexia (Gilger et al, 1991; Castles et al, 1999). Various neurological defects are then identified, including reduced left hemispheric activity in the brain during certain activities (Brunswick et al, 1999); visual disturbances associated with the magnocellular pathway (Stein, 2001); structural abnormalities between the two hemispheres of the brain (Geschwind and Galaburda, 1985) and finally cerebellar immaturity (Nicolson and Fawcett, 1999).

Morton and Frith (1995) also discuss cognitive influences as a result of problems with phonological processing (Wolf and Obregon, 1992), poor metacognitive awareness (Tunmer and Chapman, 1996); working memory (Miles, 1993; Beringer, 2004) and automaticity (Nicolson and Fawcett, 1990). Finally, they focus on behavioural factors including poor phonological awareness as demonstrated by numerous authors (Pennington et al, 1990; Hanley, 1997; Rack, 1997; Snowling et al, 1997). Spanning all aspects of the framework are environmental factors, which include the impact of learning environment, educational policy, cognitive and learning styles.

Of the three conditions covered in this guide, dyslexia is probably the one that most people are familiar with. In a small survey of RCN members attending an Education Forum study day in January 2010, 32 per cent said they felt very well informed of the issues surrounding dyslexia, as opposed to six per cent regarding dyspraxia and 10 per cent for dyscalculia. This may be, at least in part, due to the review of the literature commissioned by the RCN on dyslexia in nursing practice (Dale and Aiken, 2007). This provides a comprehensive and valuable overview and is highly

recommended reading. However, despite this apparent level of awareness, Salter (2010), has suggested that whilst most people have heard of dyslexia very few can accurately describe the skill areas that it affects. The following section aims to highlight those most commonly experienced.

3.2 Potential challenges associated with dyslexia

Research has shown that adults with dyslexia have often developed a wide range of coping strategies which may mask the true extent of their difficulties (Lefly and Pennington, 1991; Miles, 1993). What is widely accepted however, is that the dyslexia will have affected the speed at which they are able to process information, which has implications for how material is presented, learnt and recalled (Reid and Kirk, 2001). McLoughlin et al (1994) and Jefferies and Everatt (2004) both highlight this when they discuss general working memory difficulties, which include a reduced ability to keep track of what is said in a conversation or follow what is presented in a meeting or lecture. Working memory is responsible for the short term storage of incoming auditory, visual and motor input; and the subsequent transfer and encoding of that information within the long term memory (Chasty and Friel, 1991). Linking new concepts with prior knowledge, whilst exposed to further incoming data, is essential for all nurses and is highly dependent on a good working memory.

What may compound this further, particularly for student nurses, is the nature of the material to be learnt and the specialised 'language' which they have to conquer to succeed. Despite variations in causal theory related to dyslexia, there is consensus that individuals with dyslexia experience problems with phonological processing. From the beginning of their

training students are exposed to medical terminology. Not only is this outside of their normal vocabulary but many of the words are very similar, but with very different meanings. Coltheart et al (1993) found that dyslexic students had problems with grapheme-phoneme correspondences, in other words the ability to sound out non-words. Whilst medical terminology is 'real' its polysyllabic nature makes it particularly difficult for the dyslexic student to read, understand and encode in long term memory. Whilst students can cope with this new language if they are able to read and re-read it at their own pace, situations such as handover reports or lectures are often presenting the information at a faster pace than the student would like. One of the challenges for practitioners and lecturers is to find a way to overcome this and enhance learning.

The other underpinning area of difficulty relates to problems with a concept known as 'automaticity' as described by Nicolson and Fawcett (1990). As the name implies this is about how we learn and ultimately internalise processes until we can do them sub-consciously. Driving a car is a classic example of this. When we first try to learn to drive the task seems overwhelming with all the things that have to happen simultaneously to be a safe competent driver. If you ask an experienced driver how often they consciously think about all of those individual factors, it is not very often – as they have become automatic. We know that individuals with dyslexia will take longer to reach the point of automaticity but that once they get there they are as safe and competent as anyone else.

In summary, while it is important to remember that every individual with dyslexia will have their own personal profile of strengths and areas of difficulty, the following lists highlight the main areas in which they are likely to experience problems, although it must be recognised

that no one individual is likely to experience all of these.

Memory difficulties:

- may take longer to 'fix' information into their long-term memory
- may require information to be presented more than once
- dyslexic people often find it more difficult to discard irrelevant or redundant information which could lead to 'memory overload' and confusion
- may have problems remembering colleagues or patients names, drug names and medical conditions
- may find it difficult to remember phone messages or other information to pass on to colleagues
- may find it difficult to learn routines and procedures
- may find it difficult to transfer learning into a new setting.

Organisational difficulties:

- may appear to have a short attention span and be easily distracted
- may have difficulty following instructions
- may have difficulty in ordering their ideas
- may have problems sequencing the order of tasks correctly
- may have problems with filing and looking up information alphabetically or sequentially
- may find it difficult to react quickly in busy environments
- may find it difficult to multitask as this requires a good memory, time management skills as well as the ability to work sequentially and be organised.

Time management – individuals with dyslexia may find it difficult to:

- plan ahead or plan their work schedule
- estimate how much time is needed for a specific task
- complete tasks on time
- students may find it difficult to balance coursework and placement commitments.

Reading – individuals with dyslexia may:

- feel embarrassed about reading aloud
- misread unfamiliar words
- read very slowly and find scanning or skimming difficult
- find text is distorted, particularly black print on white
- find it difficult to read with noise distractions
- have difficulty understanding medical and pharmacological language particularly those words which look or sound similar
- have difficulties with abbreviations
- have difficulty reading information from whiteboards
- have difficulty reading information on charts
- need to re-read things several times to get the meaning.

Writing and spelling – some individuals may have difficulty with:

- legibility
- writing in an appropriate language
- writing concisely
- writing accurately their work may contain frequent spelling and grammatical errors
- writing under time pressure, some individuals may write very slowly and need to re-draft their work

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Overview of dyspraxia

- spelling technical terms such as drugs and medical terms, especially those which look or sound similar
- identifying numbers and letters and/or getting them in the correct order
- filling in forms, especially when required to do so at speed.

Language – some individuals may:

- feel embarrassed about language
- struggle to find the right word to say
- mispronounce unfamiliar words
- find it difficult to express themselves orally and talk in a disjointed way
- find it difficult to give clear instructions and/or information and have a tendency to ‘go off on a tangent’
- sometimes experience a ‘mental block’ and be unable to express ideas clearly, particularly under stress
- take everything ‘literally’ or at face value (beware of words with double meanings).

Motor skills:

- may have right and left co-ordination difficulties
- some students may take much longer to learn to follow a sequence (for example, wound dressing).

Sources: Reid and Kirk (2001); Reid (2003); Dale and Aiken (2007); Skinner (2008), along with extensive personal experience of working with nurses with dyslexia.

4.1 What is dyspraxia?

Dyspraxia is a developmental co-ordination disorder (DCD) which results when parts of the brain fail to mature properly as they develop – resulting in atypical brain development (Kaplan et al, 1998). Reasons for this are complex and still the subject of research, however theories exist surrounding factors affecting foetal development during pregnancy, prolonged labour and the effects of prematurity (birth before 38 weeks) or postmaturity (birth after 42 weeks) (Portwood, 2000).

As the brain develops complex connections between nerve cells (neural networks) are created. This process lasts from between 30 weeks gestation to approximately two years of age and is influenced by factors such as maternal diet. It is thought that a low intake of long chain polyunsaturated fatty acids (LCPs) may result in delayed foetal myelination and brain maturation. In addition the level of another essential nutrient – docosahexanoic acid (DHA), a chemical found in high levels in breast milk – is felt to play a part in the developing brain (Portwood, 2000). Intellectual ability is thought to be largely determined by the number of these neural networks, rather than the number of neurones themselves.

During the process of brain development an excess of neural networks are created and by the age of three approximately a third of the connections will have been ‘pruned’ by the body. At the same time appropriate (efficient) pathways are reinforced. Where this does not happen there is an opportunity for messages to go along the extended

(inefficient) pathway resulting in a delay in processing information (Portwood, 2000). This leads to the typical pattern of difficulties associated with dyspraxia, which is thought to affect up to 10 per cent of the population, with four per cent being severely affected (Colley, 2005). There is also some evidence in children that boys are more likely to be dyspraxic, at a ratio of four boys to every girl (Portwood, 2000) although this is less evident in adults.

The Dyspraxia Foundation describes dyspraxia as an:

“...impairment or immaturity in the organisation of movement. Associated with this there may be problems of language, perception and thought.”

Dyspraxia Foundation, (2010)

There is evidence that dyspraxia frequently overlaps with other developmental conditions including attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD) and Asperger’s syndrome. Whilst some adults with dyspraxia will only display signs of dyspraxia they are felt to be in the minority and the co-existence of one or more of these other conditions is much more likely (Colley, 2005).

As some of the symptoms of dyspraxia are also frequently associated with certain medical conditions it is important that the correct diagnosis is obtained. A ‘diagnosis’ is often reached where difficulties with motor co-ordination are significant and cannot be attributed to a specific neurological condition such as muscular dystrophy or multiple sclerosis.

4.2 Potential challenges associated with dyspraxia

The motor coordination difficulties associated with dyspraxia affect both gross

and fine motor movements. These may lead to problems with balance, causing the person to appear clumsy (gross), or result in poor manual dexterity causing them to frequently drop things or struggle to manipulate instruments (fine). Finally, due to the brain frequently using extended and less efficient neural pathways, individuals with dyspraxia may experience difficulties with organisation. In adults, it is often these weak organisational skills, either related to the formulation of ideas or general planning, that create the most significant difficulties. The following lists highlight the main areas in which individuals might experience problems, although it must be recognised that no one individual is likely to experience all of these. Indeed, those with mild dyspraxia are only likely to exhibit a few of these symptoms.

Attentional problems, poor concentration:

- may veer off at tangents during a conversation
- may find it difficult to answer direct questions
- concentration is poor and many adults display
- the symptoms of attention deficit disorder
- tend to be over sensitive to noise.

Language:

- speech can be loud and fast
- they may have problems organising the sequence of their speech, in other words ramble and not prioritise key information where necessary
- there can be problems with intonation
- may have problems pronouncing certain words
- they may misinterpret what they hear
- can have problems picking up on non-verbal signs and in judging tone or pitch of voice.

Obsessional characteristics:

- presence of obsessional behaviours possibly as a result of developing routines to give their lives structure; these may be identified as an obsessional compulsive disorder (OCD).

Coordination difficulties:

- problems in differentiating left from right
- problems using certain pieces of equipment
- poor hand eye co-ordination
- poor handwriting due to problems with fine motor movement
- inadequate grasp causing problems with dropping things.

Emotional problems:

- low self esteem
- emotionally fragile (may become very distressed at minor things)
- highly excitable, may find it difficult to control emotions
- may suffer from clinical depression.

Problems with organisation and memory:

- poor concept of time, often late for appointments
- information processing problems
- poor sequencing
- problems recording information
- poor memory
- difficulty following instructions particularly when more than one at a time
- may be slow to finish a task due to tendency to daydream.

Gross motor coordination problems:

- poor balance, posture and fatigue make it difficult to stand for long periods

- can be clumsy, spilling things or tripping over.

Perception:

- poor visual perception
- over sensitivity to light.

Sources: Portwood (1999), Portwood (2000) and Colley (2005).

5

Overview of dyscalculia

5.1 What is dyscalculia?

Dyscalculia is probably the most controversial of the three conditions covered in this guide. There is widespread debate surrounding its true nature, which makes it difficult to both diagnose and to estimate its incidence. The most widely quoted definition of dyscalculia was put forward by the Department for Education and Skills in 2001, in which it is stated that it is:

“...a condition that affects the ability to acquire arithmetical skills. Dyscalculic learners may have difficulty understanding simple number concepts, lack an intuitive grasp of numbers, and have problems learning number facts and procedures. Even if they produce a correct answer or use a correct method, they may do so mechanically and without confidence.”

DfES, (2001)

Based on this very broad definition some authors estimate the incidence to be between four per cent and six per cent of the population (Bird, 2007). However, it is interesting that Geary (1993), an American Psychologist, attributes the difficulties that people with dyscalculia have with maths as due to a poor long-term semantic memory (memory for facts) and poor working memory (a temporary storage facility for information that is currently being processed), both of which are commonly associated with dyslexia. This leads to the inevitable question of whether someone really has dyscalculia or if it is in fact dyslexia which is causing their difficulties?

It must also be acknowledged that there are a significant number of people who have

‘self diagnosed’ their dyscalculia because they are bad at maths. In some cases this is due to poor teaching, anxiety or a lack of interest in the subject. While experiencing very real problems, Butterworth and Yeo (2004) and Hannell (2005) suggest that these individuals will improve quickly when they receive appropriate instruction, whereas those with true dyscalculia will require much more intensive support.

This would suggest that the number of people who have ‘true dyscalculia’ may be much smaller than originally thought. If we view dyscalculia as being much more than being bad at maths and linked to a much more fundamental problem, namely a total inability to conceptualise numbers – if you ask a person with dyscalculia which number is bigger, 10 or 100, they would have no idea – and the number of people affected drops significantly.

As an employer or university would normally require a formal diagnosis of dyscalculia before they were obliged to consider reasonable adjustments, the challenge of obtaining that diagnosis needs to be considered. Unlike dyslexia and dyspraxia, for which a variety of screening tools and standardised assessments are available to assist the diagnostic process, the situation is less advanced in relation to dyscalculia. Tools such as the Dyscalculia screener developed by Butterworth (2003) were designed to be used with children up to the age of 14 and only give reliable results in this age group. Consequently, a more adult focussed tool DysCalculiUM is currently being developed and tested by Loughborough University (Beacham and Trott, 2005). This focuses more on the understanding of concepts and interrelationships associated with the more advanced mathematics required for higher education. However, those involved in its development have already highlighted that as a result it may not

provide reliable or valid results for students studying science based courses.

5.2 Potential challenges associated with dyscalculia

The previous section highlighted the complexities of diagnosing dyscalculia, and how it is often seen synonymously with weak maths skills. However for the purpose of this guide, dyscalculia is viewed as a much more serious conceptual difficulty, where the individual has significant problems even with very simple number related tasks. Due to the significant impact this is likely to have on a nurse's ability to carry out safe drug calculations it is essential that a correct diagnosis is made by a suitable expert and that individuals are not labelled dyscalculic (either by themselves or others) when they are merely weak at maths.

General numerical problems:

- problems reading numbers
- problems writing numbers down (may even copy incorrectly)
- problems sequencing numbers (such as small to large)
- loses track when counting
- conceptual difficulties with size (in other words, which is bigger? 10 or 100?)
- no appreciation of the concept of decimal places
- conceptual problems with units of measurement (mcg, mg, g)
- difficulty learning times tables
- difficulties remembering and dialling phone numbers
- difficulties in interpreting results
- difficulties reading graphs/charts and so forth
- difficulties understanding written numbers (in word rather than numerical format)

- find it difficult to estimate or give approximate answers (this is often taught as the first stage in performing a calculation)
- unable to recognise that an answer is unreasonable (something that often acts as a safety net when performing drug calculations)
- paraphasic substitutions (where one number is substituted for another either when writing or using a calculator – the person may verbally say the correct number but push a totally different button).

Calculation related problems:

- problems aligning numbers in sums
- problems understanding what is meant by word based mathematical questions in a test or exam
- needs to use fingers to work out simple sums
- much slower to work out answers
- problems performing calculations
- problems remembering and applying formulae
- difficulties remembering what symbols such as '+', '-', or 'x' mean.

Time related problems:

- may have problems remembering appointment times
- may have difficulties in interpreting a 24 hour clock.

Day-to-day living:

- may have problems identifying clothes size
- may get confused between left and right
- problems handling money
- may have problems recognising faces as they are seen as a form of symbol recognition.

Sources: Poustie (2000); Hannell (2005); Bird (2007); and Hendrickx (2010).

6

Employer and employee responsibilities

Over the last decade there has been a growing level of awareness of the difficulties experienced by people with a SpLD, and frequent calls for employers to improve the support they offer. This led to a motion being debated in the House of Lords in 2005 calling for help for people with dyslexia throughout their education and working lives (Hansard, 2005). At RCN Congress 2009 a resolution was passed calling on the RCN Council to “influence employers to recognise and provide for the needs of nursing staff with dyslexia and similar conditions.” While there are numerous examples of good practice (see Appendix 1) the reality is often very different despite the existence of key policy drivers including the Disability Discrimination Act.

However it is not just employers that need to be aware of their responsibilities and act in a supportive manner. Individuals themselves need to be aware that they have professional responsibilities in accordance with their code of conduct (NMC, 2008). The following sections aim to summarise the key issues.

6.1 Legal responsibilities

In 1995 the UK Government passed the Disability Discrimination Act in an attempt to ensure that those with an accepted disability were not discriminated against in any way. Under the terms of the Act a person has a disability “if he has a physical or mental impairment which has a substantial and long-term adverse effect on his ability to carry out normal day-to-day activities.”

(HMSO, 1995) Specific learning differences (SpLD) such as dyslexia, dyspraxia and dyscalculia are all classified as a ‘disability’ under this definition. It is therefore unlawful to discriminate against anyone with one of these conditions on the basis of their disability. This covers a range of areas including employment, education and access to goods and services.

More recently the Act was updated to take things a step further and required organisations to have a ‘positive duty’ to “promote equality of opportunity and positive attitudes; eliminate unlawful discrimination and encourage disabled people’s participation” (HMSO, 2005). It is therefore imperative that everyone working with staff who have dyslexia, dyspraxia or dyscalculia, whether as an employer, manager, colleague or mentor/preceptor are fully aware of their legal responsibilities.

All of the existing legislation related to equality and diversity has now been brought together under the Equality Act (HMSO, 2009) which aims to clarify key terminology and make the responsibilities of both individuals and organisations much easier to understand. This is classed as a ‘Consolidatory Act’ which became law in April 2010 and will come into effect from October 2010. It will replace the previous legislation including the Disability Discrimination Act which will be repealed¹.

Reasonable adjustments

Under the terms of disability legislation individuals are entitled to receive “reasonable adjustments” to help them overcome their difficulties. The key word here is ‘reasonable’ and the challenge is how to decide what constitutes a reasonable level of adjustment. There is no legal definition of reasonable in this context, and it is up to the individual to

¹ Except in Northern Ireland where the Disability Discrimination Act remains on statute.

decide whether they consider something to be reasonable or not. However, it is important to point out that individuals must be prepared to potentially defend any decisions that they have made if required to do so. It is therefore essential that a decision to judge a requested adjustment as 'unreasonable' is only taken after very careful thought, and if necessary professional and/or legal advice. There are well documented cases of individuals who have received significant amounts of compensation where adjustments have been either refused or subsequently ignored.

Whilst all requests must be considered, the law does not expect us to make unreasonable levels of adjustment and this needs to be taken into account when assessing 'fitness to practice' (see Section 6.3). The RCN toolkit suggests 'reasonable' strategies that could be used to support an employee. However, even these can become 'unreasonable' if required to excess. For example a nurse with dyslexia may need to be shown how to do something several times before it 'clicks' and this acceptable, but if they have been shown 10 times in a morning and still cannot remember, it has become more of a problem. Intensive support is not sustainable and therefore may be considered as unreasonable, unless it is for a very specific task, on a short term basis.

Requests for adjustments may come from a variety of sources. In the case of dyslexia and dyspraxia the individual will have a specialist report from an educational psychologist or other approved person, which details the areas of 'need' and the adjustments required. However these reports very rarely make recommendations related to the workplace as the person compiling the report is unlikely to have the relevant experience to do so. Furthermore, the assessment has often taken place when the individual was at university, and the

main focus therefore may be related more to the academic aspects of the course they undertook than their clinical role. Recommendations may also come from an occupational health department or from suitably qualified professionals including doctors and occupational therapists.

For dyscalculia the situation is more complex as at present there is no officially recognised screening tool that is appropriate for adults. It is therefore unlikely that specific recommendations will have been made. Individuals with dyscalculia will require highly specialised support, and it is likely that this will need to be provided outside of the workplace. It must therefore be considered whether it is reasonable, within the individual's role, to allow them not to perform calculations until they receive this support. Note: this only relates to people with 'true' dyscalculia and not more general problems with calculations including those associated with dyslexia (see Section 5.1 and 5.2 on dyscalculia).

Finally, a request for a specific adjustment may come directly from the individual concerned as they will have the greatest insight into their particular areas of need. These requests should be considered in the same way as recommendations from more formal sources. The key factor in determining eligibility for an adjustment is the formally diagnosed presence of a disability, not the source of the request.

Having seen that disability legislation requires organisations to promote equality of opportunity and demonstrate positive attitudes towards disability, it is the responsibility of everyone within that organisation to help this to happen. However, those in a management, supervisory or mentorship/preceptorship role will need to ensure that colleagues and those for whom they are responsible are allowed any reasonable adjustments which have been agreed.

Employers also have a responsibility to help staff where areas of difficulty have been identified. The NMC expects staff to have regular performance appraisals (at least annually) during which aspects of poor performance are dealt with. In its publication *Reporting lack of competence: a guide for employers and managers* (NMC, 2004a) the NMC states it would not normally become involved in a case under 'fitness to practice' unless the employer had already taken "considerable measures" to tackle the situation in the workplace first. Employers are therefore expected to identify training needs, set clear objectives, and provide the employee with sufficient opportunity to improve their areas of weakness.

Some individuals with dyslexia, dyspraxia or dyscalculia will find certain clinical environments more challenging than others. For example ITU or an emergency department (ED) with their high level of noise and distractions, may not suit some individuals, whilst others may find lone working in a community setting difficult. Where possible members of staff who have found their working environment exacerbates their difficulties should be helped to find employment in a more suitable environment.

Finally, although there is often concern expressed regarding safety issues it should be noted that nurses with dyslexia, dyspraxia and dyscalculia are usually very aware of their strengths and potential challenges. As a result they are extremely careful about checking things they are less confident about in order to avoid making mistakes, particularly those that involve patient safety (Morris and Turnbull, 2006). While an employer has a legal responsibility this is balanced with the member of staff's own professional responsibilities (see also Section 6.3).

6.2 Moral responsibilities

In addition to their legal responsibilities it could be argued that employers also have a moral responsibility in relation to the level of support they offer. This could include creating a real culture of inclusivity where individuals are supported to progress in their careers. Morris (2007) highlighted that although career progression was still achievable for those with a SpLD, compared to their peers it was perceived to take longer. For a significant proportion of the nurses questioned (44.8 per cent) this was attributed to a lack of confidence to undertake 'career enhancing academic study'. This demonstrates a need for higher education providers to help make those contemplating further study more aware of the support that is now widely available within universities.

There are those who feel that employers could do more to raise awareness by offering staff development sessions on the topic of dyslexia, dyspraxia and dyscalculia, although the challenge of persuading staff to attend will always be an issue. Morgan (2001), although referring to staff development within a university, suggests that staff may avoid staff development sessions which they feel cater for the needs of a minority group. These sessions, she continues, are often poorly attended, and often only attract those already sensitive to the issues – preaching to the converted.

Similar views are held by Klein, who recognised motivation as a difficult issue. She identified a range of common excuses offered by academic staff, which included:

"It's not my job...."

"I have too many more important things to do...."

"I don't have the time to do all this extra work for one student."

“She shouldn’t be on this course if she can’t do the work.”

Klein (2001)

In clinical practice, where the opportunity to release staff to attend a formal session is even more difficult, innovative ways to meet this professional development need are urgently required.

6.3 Professional responsibilities

Whilst disability legislation requires us to not discriminate against an individual with a disability, it does recognise that certain professions need to set and maintain professional or competence standards. Section 54 (6) of the Equality Act (HMSO, 2009 p 36) defines a competence standard as “an academic, medical or other standard applied for the purpose of determining whether or not a person has a particular level of competence or ability”.

The Nursing and Midwifery Council (NMC) in its *Standards of proficiency for pre registration nursing education* (2004) states that the required level to enter the register is the ability to:

“...manage oneself, one’s practice, and that of others, in accordance with *The NMC code of professional conduct: standards for conduct, performance and ethics*, recognising one’s own abilities and limitations”.

NMC (2004b)

This clearly puts a professional onus on the individual to acknowledge any areas where they would not feel competent to practice, and to take a personal responsibility to not put themselves in these situations.

It must also be stressed that all student nurses, including those who have declared a

disability, will still be expected to demonstrate that they are “fit for practice”. This means that they must meet all of the learning competencies and skills that other students are required to do. However, the fundamental difference is that ‘reasonable adjustments’ should be in place before competence is assessed. It is also important to remember that the application of competence standards is not a defence against direct discrimination. Stereotypical assumptions should not be made, particularly in the case of ‘what if’ type situations. For example, that a nurse ‘might not’ be able to perform in certain emergency situations, unless there is clear evidence to support this.

Once on the register nurses have an ongoing professional responsibility, through the code of conduct (NMC, 2008) to work within the limits of their abilities. Failure to do so can result in an allegation that the nurse is unfit to practice through a ‘lack of competence’. This new category was introduced through the Nursing and Midwifery Order of 2001 and came into effect in August 2004. It was designed to deal with “intractable cases of lack of competence after all other avenues have been exhausted” and defines lack of competence as:

“...a lack of knowledge, skill or judgment of such a nature that the registrant is unfit to practice safely and effectively in any field in which the registrant claims to be qualified, or seeks to practice.”

NMC (2004a)

This assumes that an employee will only seek employment in areas in which they feel able to practice safely. For the vast majority of nurses this will not cause any particular problems, but there may be occasions where an individual has identified specific areas of difficulty that may be made more

challenging by the environment. This might be as a result of background noise, frequent distractions or lone working. While it is hoped that the employee will be able to develop strategies to overcome the difficulties (as outlined in the RCN toolkit) there may be cases when the individual may need to request moving to a more suitable environment or role.

6.4 Disclosure

The choice of whether or not to disclose a specific learning difference is a personal one and is something that needs to be considered carefully. Employers need to promote a culture of inclusivity, where individuals feel able to discuss their specific needs without fear of discrimination or negative attitudes. Sadly there are numerous reports of negative opinions highlighted in the literature, some based on small scale research studies whilst others are anecdotal but no less powerful. Blankfield (2001) described negative attitudes by employers, whilst McLaughlin et al (2004) suggested that co-workers were not always understanding. A more recent study of 18 student nurses by Morris and Turnbull (2007) showed that six of the students had chosen to conceal their diagnosis and that although the remaining 12 had disclosed, it was with some reticence. Of the 18, most (n=16) saw disclosure as potentially threatening and stressful. Their decision of whether or not to disclose was based very much on the personal and professional qualities of their mentor. Where mentors were perceived as empathetic and receptive, levels of disclosure were higher, conversely where they were viewed as patronising and lacking in insight, students were less likely to confide in them.

Legally employees (or students) have no obligation to disclose a disability to their employer. The Data Protection Act (1998)

overrides disability legislation, thereby allowing an employee to choose to keep it private, although it should be noted that health and safety legislation takes precedence over both. There could therefore be situations where an employee must declare a disability (such as a Latex type 1 allergy) although it is unclear as to whether this could ever be used in relation to a learning difference.

Whilst they therefore have a right not to disclose, the individual needs to be aware that unless they do, and in certain cases provide evidence, they will not be able to receive the 'reasonable adjustments' that they require and are therefore putting themselves at a disadvantage.

7

Identification of a SpLD

In order to receive reasonable adjustments it is normally expected that an individual will have been formally diagnosed with one or more of the conditions. Staff are often heard to declare that they are “a little bit dyslexic” or have “dyslexic tendencies”, which when questioned, often reveals that they have never been formally diagnosed. In some cases the ‘label’ they have given themselves was suggested during their school years, although no formal assessment had taken place. Reasons behind this are complex and multi-factorial, and in future years it is hoped that changes to the law will lead to a higher rate of recognition and diagnosis at school. In the meantime it is likely that adults will continue to need a formal assessment/diagnosis in the workplace and the implications of this need to be considered.

7.1 Delays in identification

In terms of the scale of ‘late recognition’ it is important to examine the situation in universities, where many student nurses are picked up. This could be in part due to a strong level of commitment to diagnose and support students with specific learning differences within higher education (HE), or because as the task gets more complex the student starts to struggle. Earlier sections of this guide highlighted the coping strategies which adults develop. However, it is well known that these strategies will usually only take an individual to a certain level. For some this is GCSE, or A level, whilst for others it is further along in their academic career. It is not unknown for an individual to be diagnosed with dyslexia in

the final stages of a PhD, although clearly they will have developed extremely advanced ways of coping.

A study by the National Working Party on Dyslexia in Higher Education included data from 195 institutions and exposed the “true” extent of the problem when it discovered that 43 per cent of the total university dyslexic population were only identified as dyslexic after their admission to university (Singleton, 1999). Even this could be potentially considered as an under-estimate, as it only takes into account those identified as dyslexic. There may be many more, who not only “slipped through the net” during their school years, but have done so again.

The implications of this are potentially catastrophic to the individual concerned and were highlighted by Stanovich (1986) when he described a concept known as the ‘Matthew effect’, based upon a biblical reference to the poor becoming poorer. He related this to the difficulties that dyslexic individuals experience with reading and suggests that these are likely to result in them reading less. The inevitable consequence of this is that their ability to increase their vocabulary is limited, and with it their reading skills. This effect was also recognised by Farmer et al (2002) who found that the difficulties that higher education students were experiencing reduced their confidence to attempt tasks well within their capability, and often led to under performance. They highlight a distorted picture of disability that this creates, with the true deficit, and the additional secondary effects.

However, recognition of the difficulties that an adult with a SpLD is experiencing is not always straight forward, and this often delays the identification of their condition. Not only will they have developed coping strategies which mask their difficulties, but the problems which they present with are

often different to those experienced by children with the same condition.

Finally, a significant factor in non-diagnosis is the lack of funding for the detailed and costly assessment by those approved to carry it out. For dyslexia, the most common of the three conditions, currently only an educational psychologist or a specialist teacher who holds a ‘practicing certificate’ are able to formally assess and diagnose the condition. Although the cost varies around the country the average is likely to be between £300 and £500. Whilst most universities are willing to fund this assessment, at least in part for their students, the situation is often very different within the workplace. It is therefore important to identify potential sources of funding and these will be explored in Section 7.3.

7.2 Testing for specific learning differences

The earlier definitions and subsequent overview of theoretical perspectives on dyslexia, dyspraxia and dyscalculia have already begun to highlight how complex they each are. This is further compounded by the wide individual variations that exist, both in degree of personal difficulty (Miles, 1993; Hanley, 1997), and in levels of compensatory strategies developed, particularly by adults (Lefly and Pennington, 1991; Reid and Kirk, 2001). As a result, identification of a specific learning difference is a highly complex activity and no single test will provide us with all the information that we require.

7.2.1 Identification of dyslexia

Historically, assessment for dyslexia tended to be based on a comparison between general conceptual ability (IQ) and the individual’s assessed level of achievement in literacy skills, particularly in reading. This

was generally known as the ‘discrepancy theory’ and its use became widespread for the assessment of dyslexia in children over several decades (Beaton et al, 1997). However despite its initial popularity, there has been a great deal of criticism of the discrepancy definition of dyslexia by authors such as Siegel (1989) and Stanovich (1991) who suggest that the acquisition of literacy fosters the very cognitive skills that are assessed on aptitude measures. More recently Miles and Miles (1999) added their support to the body of criticism and it is now considered that an over reliance on the discrepancy definition is at the very least unreliable.

There was therefore a need to devise a robust method, which was both comprehensive and which was felt to provide an accurate assessment. This currently comprises a full diagnostic assessment by an educational psychologist, lasting several hours, and is consequently seen as both a costly and time-consuming process. Within higher education a two tier system has evolved where a shorter ‘screening’, lasting between one and 1.5 hours, is conducted first. The scores from a battery of tests, along with an analysis of the individual’s development and school history (to eliminate general learning deficits from poor schooling) are then aggregated to give an overall ‘at risk’ index and determine if a full assessment is warranted, (Nicolson and Fawcett, 1997). If the results of the screening indicate a likelihood that dyslexia is present the individual would be referred on for an indepth professional assessment which has three main purposes; it will provide ‘insight’ into the individual’s strengths and weaknesses, support the development of a plan to provide appropriate and targeted support, and finally help ‘secure funding’ by supporting an application for the Disabled Student Allowance (DSA) or Access to Work funding (Grant, 2002). Despite the obvious advantages of the two tier system there are

those who are concerned that the results from the preliminary screening test might be accepted as a diagnosis (Grant, 2002) and this must be resisted.

For those not within a higher education setting, the opportunity for a screening is unlikely to exist, and individuals will only be offered the full assessment. This is because the time involved to complete the full assessment is not significantly longer, and requires the same educational and developmental history. It is therefore not really time or cost effective to split the process. There is also a very real risk that either insufficient information would be gathered to reach a firm diagnosis or that there would be pressure to rely on the screening and not proceed to a full assessment giving the potential for inaccurate results.

Similarly, the widespread availability of self assessment checklists has resulted in individuals “self diagnosing” which may also result in inaccurate results (both false positives and false negatives) and fails to explore the wider issues associated with assessment, namely the support required. The following table, based on one devised by Reed (2003), expands on the three benefits identified by Grant and provides eight key aims of the assessment (**see Table 1**). The terminology in the table has been slightly modified to reflect individuals in the workplace, as the original version refers to learners/students however the same principles clearly apply. Even the last statement which refers to an educational curriculum could be adapted to reflect aspects of the nurses’ role which interest and motivate them.

Table 1: Aims of assessment

- Identification of the individual’s strengths and weaknesses.
- Indication of the individuals current level of performance in attainments.
- An explanation for lack of progress.
- Identification of aspects of the individual’s performance in reading, writing and spelling, which may typify a ‘pattern of errors’.
- Identification of specific areas of competence.
- Identification of individual’s learning style.
- Understanding of the individual’s learning strategies.
- An indication of specific aspects of the curriculum and curriculum activities that may interest and motivate the individual.

7.2.2 Identification of dyspraxia

Due to its potential overlap with certain neurological conditions, the diagnosis of dyspraxia may be organised by a general practitioner (GP), once they have eliminated other possible causes. The GP, if willing, could refer the individual to an appropriate specialist, such as those included on the following list devised by Colley (2005) who can then assess the individual for dyspraxia and make a formal diagnosis:

- psychologists – educational, occupational, neuro or clinical
- psychiatrists
- neurologists (although this is mainly in the case of acquired dyspraxia)
- paediatricians who specialise in developmental disorders (although their main work is with children, paediatricians will see adults when asked to assess for a developmental disorder such as dyspraxia).

- in addition specific areas of difficulty might be assessed by physiotherapists, occupational therapists, speech therapists or behavioural optometrists.

It is likely that information would be gathered in relation to different aspects of the condition by several of the specialists on this list. A psychologist would use a range of tools (psychometric and other) to start to build a picture of cognitive ability focussing in particular on aspects likely to be affected. The other specialists would then add in feedback related to aspects such as movement, balance, manual dexterity and so on.

7.2.3 Identification of dyscalculia

Of the three conditions dyscalculia is the most difficult to diagnose formally, which probably accounts for the large numbers of people who self diagnose. Unlike dyslexia and dyspraxia where there are a variety of screening tools and standardised assessments to assist the diagnostic process, the situation is less advanced in relation to dyscalculia. While a screening tool exists for children, it is known to only give reliable results up to the age of 14. Loughborough University is currently testing a more adult focussed tool DysCalculiUM for use within higher education, although early indications are that it might not provide reliable results for those on science based courses due to the areas it seeks to assess (Beacham and Trott, 2005).

7.3 Obtaining funding for an assessment

A diagnostic assessment for dyslexia is likely to cost between £300 and £500 and obtaining the necessary funding can be a complex process. Whilst an employer has a legal obligation to support employees who are known to have a disability, they do not necessarily have to fund a diagnostic

assessment. This often creates a dilemma for the individual, who may have to consider paying for the assessment themselves to subsequently obtain the desired help. However, it must be remembered that the difficulties discussed in Sections 3, 4 and 5 are not unique to these conditions and whilst some assessments confirm a suspected SpLD others do not.

Although they do not have a legal obligation to fund the assessment, some employers may be willing to do so, in order to help an employee to identify a reason for difficulties they are having in the workplace. It is therefore worth approaching relevant departments to see if they can offer any advice and/or funding. Occupational health and human resources departments often become involved and if unable to help might be able to point the employee/manager in the right direction.

As an assessment of dyspraxia is usually organised through a GP, the individual should approach their GP and enquire about a referral. This will hopefully be funded through their primary care trust. Private assessments can be carried out and the cost would be similar to that for a dyslexia assessment.

7.4 Psychological impact of being identified as having a SpLD

For many adults with a specific learning difference one of the greatest challenges is coping with a late diagnosis which has often been triggered by academic failure during their training or further studies. Whilst the diagnosis often brings relief, as it explains why things might have been difficult, there is often also anger and frustration that it had not been recognised and help provided much sooner (Cowen, 2005).

In addition, the fact that these conditions

are classed as disabilities brings its own challenges and requires a great deal of sensitivity. The 'disability' label is a highly emotive one and it is easy to see how this might make people feel. Nevertheless there are times when the 'label' can be a positive thing – it is a necessity in order to access certain types of support, such as provision of some types of equipment or other forms of reasonable adjustment. We need to recognise that neuro-diversity exists and that individuals with the conditions that come under its umbrella are just the same as everyone else.

Finally, individuals may experience stress if they fear discrimination and therefore struggle to conceal their problems. They may also lack self confidence and feel isolated. Having the opportunity to talk to others in the same situation may be beneficial, not only for the emotional support, but also the opportunity to share helpful tips and strategies. The development of 'self help' groups within an organisation is an area which needs to be explored (see Appendix 1 for an example of a trust which is doing this).

8

Supporting staff with a SpLD

History and research have shown us that people with specific learning differences can achieve great things, as is clearly demonstrated when we look at famous people such as Albert Einstein, Richard Branson, Winston Churchill, Tom Cruise and Michael Heseltine (to name but a few). What we also know is that they have had to work significantly harder to achieve what they have. There is therefore a need for those working with them, whether as a manager, lecturer, or colleague to help them and where possible reduce the obstacles which impede their progress. We can only do this if we are both aware of the issues and responsive to them.

The following sections draw on the literature surrounding the support of individuals with dyslexia, as this is the most researched of the three conditions. Consequently for many areas the only information we have as to what will help relates specifically to dyslexia. Even then the majority of the strategies were developed for use in an educational context (whether school or university) and may need to be adapted slightly. However it is likely that they will also have benefits in the work environment, and whilst not yet formally evaluated for the other conditions are certainly worth consideration.

8.1 Philosophy of support

Adults are used to functioning as independent, autonomous individuals in many aspects of their daily life. The philosophy behind support for those with a SpLD is therefore to continue to promote this independence by helping the individual

to develop appropriate strategies to succeed. This is done through developing their metacognitive awareness, providing scaffolded learning (which can later be withdrawn) and encouraging a multisensory approach to learning.

8.2 Metacognitive awareness

Back in 1984 Benner identified that nurses often learn new things by acquiring a set of 'rules which are subsequently discarded as practice becomes more expert and intuitive (Benner, 1984). However, for dyslexic learners we know that providing them with a set of rules to follow is nearly always ineffective due to their inability to spontaneously generalise learning and transfer it to other contexts. This is thought to stem from the problems that they have with automaticity, identified by Nicolson and Fawcett (1990) and described earlier in section 3.2.

As a result they will often have difficulties in consolidating new learning and changing inappropriate habits. This led to Tunmer and Chapman (1996) advocating the need to help dyslexic individuals to understand how they learn, a concept known as 'metacognition'. Interestingly the term 'meta' stems from Roman times when it was the name given to the conical column set at each end of the circus to mark the turning point in a race. Fisher (1998) suggests that this notion of a turning point is fundamental to helping the individual change. Without this change, Reid and Kirk (2001) submit they will "perpetuate the same inappropriate learning patterns throughout their life."

The challenge therefore is to identify how we can help individuals to recognise what they are doing (both well and areas needing improvement), see the need for change and help them to achieve this. This process was first described by Freire (1972) as "praxis"

and has since been developed into the “art of reflection”. (Schön, 1983, 1987; Bould et al, 1989). This concept is familiar to nurses who are regularly asked to use a reflective cycle to explore their clinical practice in academic assignments and in the clinical area. Whilst the focus is slightly different the principles are the same when asked to reflect on their own learning. To support them in this several authors have put forward frameworks which would provide a good starting point. One example is that proposed by Reid and Kirk (2001) who suggest that individuals should consider “self-direction”, “self-monitoring” and “self-assessment”, using the following questions to guide them.

Self-direction:

- what is my goal?
- what do I want to accomplish?
- what do I need?
- what is my deadline?

Self-monitoring:

- how am I doing?
- do I need other resources?
- what else can I do?

Self-assessment:

- did I accomplish my goal?
- was I efficient?
- what worked?
- what did not work?
- why did it not work?

Reid and Kirk (2001)

8.3 Scaffolded learning

Underpinning the whole approach to supporting an individual with a SpLD, and in particular dyslexia, is the concept of ‘scaffolded’ teaching. This was originally proposed by Vygotsky (1978), a Russian teacher, turned psychologist. Although much of his work centres around his experiences with children, it offers some salient ideas for supporting adults, albeit using slightly different strategies. Vygotsky strongly advocates the need for social interaction as a means to cognitive development. He proposes that a gap often exists between the “here and now” and potential future achievements, and suggests how the ‘teacher’ can help close this gap by providing a scaffold. This, as the name suggests entails providing a support that can be removed when the structure, or individual, is secure on its/their own. It is about leading the learner and helping them to develop understanding.

Vygotsky (1978) also alerts us to the need to consider the individual’s ‘Zone of Proximal Development’ when helping others to develop their knowledge and skills. This is the level, which at any particular point in time they have the potential to reach, and could be used to provide a series of stepping stones towards an ultimate goal.

8.4 Multisensory learning

The final principle of support was described by McLoughlin (2001) when he advocated the “Three M” approach to helping adults with dyslexia learn; the three M’s being manageable, multisensory and memory. He uses the model with students to help them plan their own learning and even to manage their lives, but it would also seem to offer a useful framework for the work environment. McLoughlin describes the strategy further as follows:

- make it manageable – reduce the load on working memory; avoid dual processing wherever possible
- make it multisensory – increase the power of encoding by using a variety of stimuli
- make use of memory aids – to facilitate recall.

McLoughlin (2001)

Of these three strategies the first and third are fairly self explanatory. The need to break complex tasks down into smaller more manageable steps has long been advocated when helping patients/clients to achieve their goals, so is a concept we are all familiar with. Similarly the use of memory aids needs little explanation, although more concrete examples are given in the toolkit.

The second strategy put forward by McLoughlin (2001) – make learning multisensory – does require a little more explanation however. This has long been established as the most suitable approach for teaching dyslexic learners (Pumfrey and Reason, 1991; Turner, 2002; Peer and Reid, 2003). Learning has three principle elements – input of information, cognition and output (Reid, 2003). It is thought that by using all the senses to input information, the channels and pathways to neurological processing and retrieval are most effective (Turner, 2002). This is because, as individuals we all have a preferred learning style and cognitive style through which we learn best. Unfortunately we are not always sufficiently self-aware to be able to identify and utilise our preferred style, so a multisensory approach is crucial. It is clearly evident that with careful planning even a busy clinical environment can incorporate techniques that enhance the learning process for auditory, visual and kinaesthetic learners.

8.4.1 Auditory learners

In nursing the issue of application to

practice is crucial, and is an area predominantly developed through auditory learning. The ability to analyse clinical examples through reflection and subsequent discussion is a valuable tool in enhancing understanding for individuals with a SpLD. It can help build on what the individual has previously read or seen in practice and through verbal explanations complex material can be clarified. The impact of auditory learning is therefore enormous in helping individuals to link new knowledge with previous understanding, something they find particularly challenging.

Auditory learners may also like to use equipment they have been provided with, such as a digital voice recorder, to record a range of materials. This not only caters for their preferred style of receiving information but allows them to re-listen to the material as many times as they wish, for example when walking the dog or doing the ironing. This “over-learning” has been found to be beneficial in promoting automaticity in dyslexic learners (Nicolson and Fawcett, 1990).

8.4.2 Visual learners

The next group of individuals to be considered are those who prefer the visual route to input information, whether it is through words or pictures. In many cases a flow chart will help them to understand the steps in a complex procedure, and get them in the correct order! However it must be remembered that some people with dyslexia (and dyspraxia) will suffer from visual disturbances and it is important to remember some key rules when preparing written information. These are to:

- write in a logical sequence
- avoid small print (use point size 12 or above)
- use a dyslexia friendly font (such as arial, verdana, tahoma or lucinda sans)

- use bullet points in preference to sentences where possible
- use simple words/avoid overuse of jargon or uncommon words
- do not justify the right hand margin – this makes the spaces between words uneven and harder to read if you are dyslexic
- space the information so it is not cramped; use short paragraphs to break up dense text
- where possible print documents on off white/cream paper.

8.4.3 Kinaesthetic learners

The final group to be considered are those who learn best through movement. The idea behind this being that a link exists between sensory and motor responses which can be stimulated through movement. Dennison and Dennison (1989) have developed this thinking into a series of exercises known as “brain gym” which are designed to integrate the two hemispheres of the brain. Whilst there has been some success using this within the primary school sector, it is not likely to be a technique adopted elsewhere. However, if the idea of physical movement is broadened to the notion of “learning by doing”, then it immediately becomes more relevant.

8.5 Equipment

In our increasingly technological world a great of equipment is currently available to assist individuals with a specific learning difference. However, for many the challenge is being fully aware of what is out there or maybe in gaining access to it. For most individuals their first exposure to the available technology is as a student whether pre or post registration. Most universities currently provide access to ‘assistive technology’ on-campus for students with a recognised disability; and most students

would like to be able to use the same technology home or at work.

There are also issues which need to be considered regarding the use of certain equipment in a clinical area or in a patient’s own home. In these situations permission will need to be obtained in advance. For example the use of a digital voice recorder to record your own voice/ideas tends not to be a problem but colleagues might wish not to be recorded and this should be respected. The situation is even more complex, and controversial when an individual might wish to record a conversation with a patient/client, such as an admission interview. If there is a local policy this should be followed, although trusts contacted in relation to this have all admitted that it is not an area they have considered and none have yet created any guidance for staff in relation to this.

Hardware available:

- computers – whether desktop, laptop, notebook or netbook
- digital voice recorders – can be used to record audio files which can then be uploaded into a computer. (see also voice recognition software)
- electronic dictionaries – standard or medical version
- mobile phone – particularly new style smartphones
- personal digital assistant (PDA)
- digital cameras – when used with appropriate software (see below) they can be used to take pictures of text, select an area and have it read back to you.
- digital pens – used to highlight areas of text. Depending on the software used, individual words can then be explained or even synthesised into speech to aid pronunciation. Areas of scanned text can also be uploaded into a computer.

- electronic note making devices such as Digiscribble or a tablet PC – these work with a digital pen and can be used to transfer a hand drawn mind-map into the computer.

Software available:

- note taking programmes such as Audio Notetaker (lansyst) – help students to organise recordings from a digital voice recorder and add annotation.
- reading programmes such as Texthelp Read and Write Gold, ClaroRead Plus or Kurzweil 3000 – read scanned or typed text out loud
- voice recognition software such as Dragon NaturallySpeaking – allows the person to dictate notes into a computer. Some programmes also transcribe from a digital voice recorder, however as the software needs to be trained to recognise the individuals voice it does not always cope well with a variety of voices such as from lectures and meetings
- claroview – coloured overlay feature for computer screens
- mind mapping software such as Inspiration, Mind Genius, Claro Mindfull, Spark Learner and Mind Manager – can be used to create mind-maps in a range of styles.

It should also be noted that commonly used software packages such as Microsoft Windows or Apple Mac offer the facility to change background colours and the appearance of the screen. Even straightforward procedures such as changing font size and style can make a dramatic difference.

Other equipment:

- coloured overlays – semi transparent tinted sheets used to reduced visual disturbances by placing them over a page of text

- tinted glasses – same principle as coloured overlays but in spectacle form

8.6 Disabled Student Allowance/Access to Work funding

Having identified a need for specialist equipment, the next stage is normally to seek funding to enable the individual to obtain access to what they require. This tends to come through two main funding streams depending on whether the individual is a student nurse or employee.

Disabled Student Allowance (DSA)

For the majority of students funding is obtained through the Disabled Student Allowance (DSA) and is secured whilst they are undertaking formal education. Students who are enrolled on a course which represents 50 per cent or more of a full-time degree programme are normally eligible for the DSA. This would currently include those registered on a Diploma in HE programmes as they would exit with 240 credits which equates to two thirds of a degree.

Qualified staff who wish to undertake a post graduate degree are also likely to be eligible. However those wishing to ‘top up’ from a diploma to a degree will not as they require 120 credits, which only represents a third of a degree. More information regarding the Disabled Student Allowance is available from www.direct.gov.uk

Access to work

For those who cannot access funds through the DSA there are two other main options – to rely on the free version of certain types of software that are available (see section 10) or to apply for funding through the access to work fund.

9

Recommendations for the future

Access to work is available to help overcome work related problems which arise as a result of a disability. It can be used to help fund equipment and other support that an employer would not normally be expected to provide. For those starting a new job (within the first six weeks) the fund will provide 100 per cent of the additional costs incurred. After this it will offer a grant of up to 80 per cent of additional costs over the first £300. It is therefore in both the employer and employees best interest to apply as soon as possible. This needs to be considered when deciding whether to declare a disability to a prospective employer, something that individuals are often reticent to do.

Examples of support that the funding might provide include assistive software for a computer, and maybe even the computer itself if this is not standard issue. A support worker might also be employed to help the individual. One of the stories included in Appendix 2 describes how secretarial help was provided for 10 hours per week to type up 'notes' dictated on a voice recorder.

It should be noted that the equipment and software provided through Access to Work does not belong to the individual and may only be available for use in the working environment and not at home. Furthermore it would usually need to be returned when the employee moves job. Further information can be obtained from www.jobcentreplus.gov.uk/employers

This guide has attempted to raise awareness of the impact of dyslexia, dyspraxia and dyscalculia on an individual, particularly in relation to the workplace. Whilst these three conditions no doubt present challenges for those affected it must be remembered that in themselves they are not a barrier to achievement, merely an obstacle which needs to be overcome. In order to help our colleagues to succeed there is a need for the following recommendations to be considered.

1. Employers need to recognise the contribution that those with dyslexia, dyspraxia and dyscalculia can make, whilst acknowledging the areas which might pose a particular challenge.
2. Employers need to listen to their staff when they identify areas of difficulty and base support on the member of staff's unique needs and not stereotypical ideas of what dyslexia, dyspraxia and dyscalculia are.
3. The RCN toolkit should be freely available and staff encouraged to use the strategies suggested within it, whether for themselves or to support others.
4. Staff involved in recruitment and selection have diversity awareness training.
5. Employers should consider providing staff development sessions to inform all staff of their responsibilities towards colleagues/students with disabilities. In addition to content related to dyslexia, the condition they will encounter most often should be included, along with a brief overview of dyspraxia and dyscalculia.

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6. Clear processes are developed to identify staff who are struggling in their current role as a result of a specific learning difference. Where issues are identified, the employer should attempt to obtain specialist advice as to how to best support their employee.
7. Staff are given advice to help them to select appropriate career options.
8. Effective partnerships are established with HEI's to ensure that student nurses are appropriately supported both during campus based learning and whilst on placement.
9. All mentors, but particularly sign off mentors, receive appropriate training and support to help them to make appropriate judgements relating to fitness to practice where students have a disability. This needs to inform mentors about the requirement to ensure that reasonable adjustments are implemented but stress that if the student is still not reaching the required standard that it is then appropriate to fail the student.
10. Newly qualified staff with formally identified dyslexia or dyspraxia are supported for an agreed period of time by a named preceptor to help them make the transition into their new role.

Further information and sources of support

Organisations

Dyslexia

The British Dyslexia Association

98 London Road, Reading RG1 5AU

www.bda-dyslexia.org.uk

Dyslexia Action

Park House, Wick Road, Egham, Surrey TW20 0HH

www.dyslexia-inst.org.uk

The Helen Arkell Dyslexia Centre

Frensham, Farnham, Surrey GU10 3BW

www.arkellcentre.org.uk

Independent Dyslexia Consultants

www.dyslexic-idc.org

PATOSS Professional Association of Teachers of Students with Specific Learning Differences

www.patoss-dyslexia.org

ADSHE Association of Dyslexia Specialists in Higher Education

www.adshe.org.uk

The Dyslexia Teaching Centre

23 Kensington Square, London W8 5HN

www.dyslexiateachingcentre.co.uk**The Dyslexia Unit**University of Wales Bangor, Bangor,
Gwynedd LL57 2DGwww.dyslexia.bangor.ac.uk**Dyspraxia****The Dyspraxia Foundation**

8 West Alley, Hitchen SG5 1EG

www.dyspraxiafoundation.org.uk**Dyscalculia****The Dyscalculia Centre**www.dyscalculia.me.uk**General**www.equalities.gov.uk*Equality Act 2010 What do I need to know?
Disability quick start guide***iansyst Limited (assistive technology)**www.iansyst.co.uk**Skill: National bureau for students with disabilities**www.skill.org.uk**Equality and Human Rights Commission**www.equalityhumanrights.com**Employers Forum on Disability**www.efd.org.uk**Access to work: information for employers leaflet**www.jobcentreplus.gov.uk**NHS Employers**www.nhsemployers.org**Royal College of Nursing: diversity and equality**www.rcn.org/support/diversity**The British Psychological Society (to obtain a list of chartered psychologists who can undertake a formal assessment for a SpLD)**www.bps.org.uk**Association of Educational Psychologists (to obtain a list of educational psychologists who can undertake a formal assessment for a SpLD)**www.aep.org.uk**Other useful resources****Loughborough University: Dyscalculia and Dyslexia Interest Group (DDIG)**

Collaborative group originally set up by staff from Loughborough University, Coventry University and De Montfort University providing advice and support in relation to mathematical problems associated with dyscalculia or dyslexia.

www.ddig.lboro.ac.uk**University of Nottingham School of Nursing, Midwifery and Physiotherapy**

Have a resource known as RLO's – Reusable Learning Objects – related to a range of topics. These provide a multi sensory approach to learning which often benefits those with specific learning differences.

There are also two RLO's on the topic of dyslexia itself.

www.nottingham.ac.uk

University of Southampton Dyslexia Services

You can download the booklet 'Supporting students with dyslexia in practice placements' (on which this toolkit was modelled) from the website. There is also a useful booklet Dyslexia in the workplace which can be accessed through the site.

www.southampton.ac.uk

University of Worcester Institute of Health and Society

Contains a link on the nursing course pages (Dip HS or BSc or Graduate Diploma) – to an advice booklet, written by a student nurse for students with dyslexia on clinical placements.

www.worcester.ac.uk

Inspiration

www.inspiration.com

Kurweil Reader

www.sightandsound.co.uk

Mind Manager

www.mindjet.com.uk

Mindgenius

www.mindgenius.com

Reading Pen and Oxford Dictionary

www.wizcom.com

Spark Learner

<http://spark-space.com>

TextHelp Read and Write Gold

www.texthelp.com

Assistive technology

Digiscribble

www.scanningpensco.uk

ClaroRead and Write, ClaroView, Screen Ruler

www.clarsoftware.com

Dragon Naturally Speaking

www.nuance.com

EndNote Bibliographical Software (organises reference lists)

www.adeptscience.com

Free versions of software

Some manufactures offer free versions of assistive technology software. These are usually a more basic format than those commercially available and they may therefore lack some of the advanced functionality. Nevertheless, these are extremely useful and offer a valuable resource to those unable to secure funding. The following websites offer a range of assistive technology programmes – just follow the on-screen links and menus to access those that will help with identified areas of difficulty.

www.abilitynet.org.uk/atwork-resources

www.techdis.ac.uk/getfreesoftware

Further reading

To avoid unnecessary duplication the following list contains easily available core resources suitable for a general audience. The books, articles and websites identified within the reference list represent useful further reading, some of which are more specialised or accessible than others.

Dyslexia

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- Dale C and Aiken F (2007) *A review of the literature into dyslexia in nursing practice*, London: RCN.
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Reid G and Kirk J (2001) *Dyslexia in adults: education and employment*, Chichester: Wiley.

Dyspraxia

- Colley M (2005) *Living with dyspraxia, a guide for adults with developmental dyspraxia*, (3rd edition), London: DANDA.
- Portwood M (2000) *Understanding developmental dyspraxia: a textbook for students and professionals*, London: David Fulton.

Dyscalculia

- Bird R (2007) *The dyscalculia toolkit: supporting learning difficulties in maths*, London: Paul Chapman.
- Butterworth B and Yeo D (2004) *Dyscalculia guidance: helping pupils with specific learning difficulties in maths*, London: nferNelson.

Generic

- Health Professions Council (2006) *A disabled persons guide to becoming a health professional – a guide for prospective registrants and admissions staff*, London: HPC. Available at www.hpc-uk.org (last accessed 28 March 2010).
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Appendix 1

Examples of good practice

The following areas have been identified as offering particularly good support to students or staff with a specific learning difference. It is hoped that this list will continue to grow.

The Employers' Forum on Disability (EFD)

celebrates the work of employers that understand the value in getting it right on disability. Seventeen employers from across the public and private sector were shortlisted for EFD's Disability Standard 2009 awards. The awards celebrate good practice in disability and employment among participants in the Disability Standard. It is the only business-led benchmark that measures an organisation's performance on every aspect of disability as it affects a business.

The following NHS employers were amongst those shortlisted for the Disability Standard Most Improved Award in 2009:

- Bradford and Airedale Teaching Primary Care Trust
- Plymouth Hospitals NHS Trust
- Portsmouth Hospital NHS Trust.

Loughborough University: Dyscalculia and Dyslexia Interest Group (DDIG)

Collaborative group originally set up by staff from Loughborough University, Coventry University and De Montfort University to provide advice and support in relation to mathematical problems associated with dyscalculia or dyslexia.

www.ddig.lboro.ac.uk

University of Nottingham School of Nursing, Midwifery and Physiotherapy

Has created a resource known as Reusable Learning Objects (RLO) which covers a range of topics and provides a multi sensory approach to learning which often benefits those with a SpLD. There are also two RLO on the topic of dyslexia.
www.nottingham.ac.uk

University of Southampton Dyslexia Services

Created a booklet *Supporting students with dyslexia in practice placements* (on which this toolkit was modelled) and which is available for download. The service has also produced a useful booklet *Dyslexia in the workplace* which from the website:
www.southampton.ac.uk

University of Worcester Institute of Health and Society

Offers a booklet, written by a former student nurse, which provides advice for other students about managing their dyslexia whilst on placement. Access is via the link on the nursing course pages (Dip HS or BSc or Graduate Diploma) at the following address: www.worcester.ac.uk

West Middlesex University Hospitals NHS Trust

Runs a support group for students with dyslexia, where individuals can share strategies they have found useful and generally offer peer support. The group usually self facilitates but is supported by Tina Jones, a Clinical Practice Educator based at Isleworth.
See www.west-middlesex-hospital.nhs.uk

Appendix 2

Personal stories

The following personal stories were generously provided by members following a request on the RCN website. A large number of stories were received and it has therefore not been possible to include them all, but in some cases a decision was taken not to include a story as the events described were so specific that the individual might be identified. For the remainder all identifying features (whether personal or employer) were removed to protect the individuals concerned. Finally, as some stories were very detailed, only certain excerpts have been included to illustrate what it is really like to live and work with one of these conditions. The accounts have not been edited in any way in terms of spelling or grammar – merely shortened where necessary.

“I started my Nurse Training at age 21 and did not have any particular problems until children’s ward. of course it is necessary to calculate the correct drug dosages for each child and as a student nurse this was one of the objectives to be achieved in order to complete the placement. I struggled to do the maths and the staff would deliberately avoid doing any drug calculations with me. I was capable of doing the calculations but I needed more time to complete them, which they did not seem prepared to give. Some staff were overtly rude and I remember one Senior Staff Nurse refusing to even do drugs with me”.

“The principle gripe I have at the moment is that I have very little access to computers. Word processors (as they were then) helped me through school and university. The ‘spell checker’ is an invaluable tool for me and not one I have ready access to at work. I have to fight with elbows to get near to computers to write letters and there is no computer in

my department at all!!!! I have not thought about making my case for a computer on the basis of my “disability” because I do not like drawing attention to it. I do not believe that dyslexia is a classic “disability” because it is a difference in the brain make up and that difference makes me the way I am and I think that my brain is okay and that it makes me a good nurse”.

“On placement I informed my mentors of my dyslexia but not everyone knows what this means or they have the wrong idea of what it is. Every mentor I have had has been excellent they have corrected the odd sentence so it flows better as I have missed out a word or if I miss spelt a word pointed it out so I can sort it. I used a little booklet for my placements that was designed for dyslexic students I could write things in, it was colour coded for different subjects, it was given to me by the disabilities department. Which was really helpful. At first when I was diagnosed, I felt anger with my school, for labeling me as lazy and not identifying my dyslexia 20 odd years ago. I also felt anger towards my parents as well for not trying to understand why I struggled with English, writing and speaking. My father’s reaction summed it up when I told him, he simply said “since when”, like I had just caught dyslexia rather than suffering with it all my life”.

“I had my test done in the march of my first year but did not hear back till April with the result. At the time I was writing my first essay since school which was 17 years ago at the time. When I read the report I was at home on my own I was in tears, it was like the my world had come to an end, I wondered what was the point of doing the course I had wanted to do since school. It made sense why I never got the grades at school and through my two years pre

nursing course I did too. I didn't give in to the idea of stopping because of being told I was dyslexic, I gave myself a kick and decided I wasn't going to give up what I had waited so long to do. I contacted the disabilities department to inform them it had been confirmed I am dyslexic, this is where I received more help I was aloud one to one meetings to go through strategies of learning, revision, essay writing and note taking in class. They would also read through my essays to point out areas that I have repeated, show sentences that were too long and any spelling errors. I met with **** who was the tutor of the group and who also had dyslexia and dyspraxia which was a great help as it was someone who understood where you were coming from all the time. I also received a laptop with special programmes on to help learn in a way that suits me. I found a programme called inspirations fantastic it helped with formulating my essay plans to revision for exams. A Dictaphone to record lecture so I don't miss anything and the PowerPoint's of most lessons prior to the lecture so I could print them out and write next to the corresponding slide any extra information which I found really useful".

"When I first started my training it was very hard because I was the first to come to the university and be dyslexic. When I first as a tutor were I was able to find the support I needed and was told I would find it very difficult and that I might not pass the course. I did of course and I have been qualified since 2005. During my placements as a student I would inform my mentors so that they were aware. Each mentor was very supportive".

"I did not know about dyscalculia about about three years ago when I heard someone speaking about their problems and realised that this was exactly what I was experiencing. I have never been formally diagnosed. Nowadays I still struggle with combinations of numbers such as telephone

numbers. My main problem is that all offices in the NHS have number coded access to the doors. I am forever getting the numbers wrong and therefore getting stuck, sometimes between floors. My way of dealing with this is keep the number codes in a secret place so that I have access in emergency. I carry my mobile on me when I am in the building so that I can call someone if necessary otherwise I rely on kind passers-by to rescue me if I get stuck. Another way of dealing with this is to get to know alternative routes (usually a very long way round) that avoid using number codes. I don't think any one here knows my problem, they just think I am a bit forgetful or 'dappy'".



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