Trainee doctors with learning difficulties: recognizing need and providing support

Specific learning difficulties affect medical students and trainee doctors. These conditions impact on processing and learning skills, and are associated with positive attributes. Having an awareness of these is key for successful and effective medical educators.

Specific learning difficulties is an umbrella term that refers to a collection of syndromic disorders that can pose a barrier to learning. The disorders themselves comprise a specific set of symptoms that, in particular combinations, make up defined conditions. Dyslexia, the most common specific learning difficulty, affects up to 1.9% of medical students and a proportion of doctors in speciality training (Shrewsbury, 2011; British Dyslexia Association, 2012). Concern has been raised regarding the safety of practice of doctors with dyslexia, but these concerns are not supported by evidence. Many specific learning difficulties are associated with strengths in creativity, spatial thinking and problem solving, which should be harnessed to strengthen the future medical workforce (Everatt et al, 2007).

The effects of specific learning difficulties are lifelong and dynamic, as symptom profiles change with age. Adults with specific learning difficulties often suffer from a psychological overhang of their childhood experiences, affecting self-confidence and ability to cope with stress. Working in the medical profession is a significant risk factor for depression and stress (Hawton et al, 2001; Schernhammer and Colditz, 2004). It is not known if these factors would combine or be linked in any way, but the potential for co-occurrence raises important questions about the psychological welfare of medical professionals with specific learning difficulties. The medical profession combines educational with employment opportunities. All health-care professionals involved in education have a responsibility to recognize learners with difficulties, to provide accessible opportunities and to empower such individuals to contribute to the profession.

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Defining specific learning difficulties

The definition of specific learning difficulties is vague (*Figure 1*), and encompasses a broad range of conditions, including:

- Dyslexia
- Dyspraxia
- Dyscalculia
- Attention deficit-hyperactivity disorder (ADHD)
- Scotopic sensitivity (Meares–Irlen) syndrome.

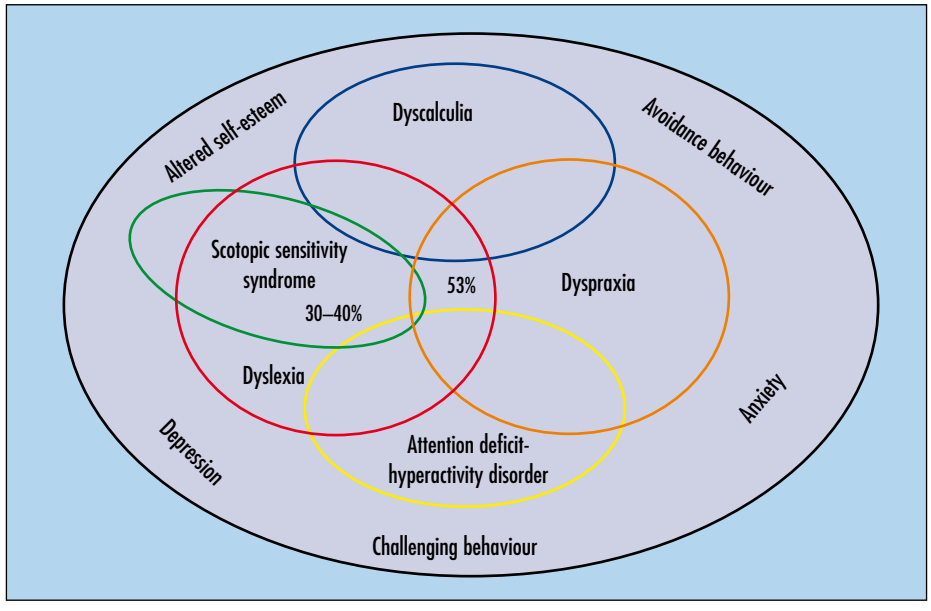
Figure 1. Defining specific learning difficulties.

Although no true consensus exists, specific learning difficulties can be broadly defined as an impairment in learning, unexpected given the individual's general abilities, characterized by lifelong deficits in attention, concentration, reasoning, understanding, memory or coordination. This umbrella term encompasses a number of conditions which all exist, individually, on a spectrum of severity, and can coexist with each other to varying degrees (Wardin and Daniels, 1997; Snowling, 2005).

The learning difficulty an individual has is a result of a characteristic profile of impairments in specific areas of functioning. There is a significant amount of co-occurrence among individual specific learning difficulties as well as with other comorbidities, such as depression (*Figure 2*).

All of these conditions have a neurodevelopmental origin and a genetic basis as demonstrated by patterns of heritability and brain imaging studies (Cardon et al, 1994). None of these conditions preclude excellence in mathematical or skill-based achievements, and many sufferers have an above-average intelligence. However, the difficulties will mean that learners have to work harder to overcome them (Snowling, 2005).

Figure 2. Co-occurrence of specific learning difficulties, showing the co-occurrence rates for dyspraxia with dyslexia (53%) and dyslexia with scotopic sensitivity syndrome (30–40%). The relationships between the difficulties and psychological and behavioural changes are also shown.



Dyslexia in medicine

Dyslexia is the most common specific learning difficulty, affecting between 3 and 10% of the general population, and nearly 2% of medical students (Miles, 2004; Shrewsbury, 2011; British Dyslexia Association, 2012). The number of students at UK medical schools that have declared a diagnosis of a specific learning difficulty has steadily increased since 2004 (Gibson and Leinster, 2011; Shrewsbury, 2011).

What happens to these students after qualification is uncertain, but some are known to go into GP training, as reflected by a small number of applications made by trainees with specific learning difficulties to the Royal College of General Practitioners for 'reasonable adjustments', such as extra time, in assessments. In 2007, only 3 (0.1%) applications were made, but by 2011 this figure had increased almost tenfold to 29 (0.9%) (Royal College of General Practitioners, 2011). Similar data are not available from other Royal colleges, but there is a strong possibility that you will encounter an individual with learning difficulties in your professional and personal life.

Legal responsibilities

Since the empowerment of the Equality Act 2010, a more proactive stance towards equality and diversity in policy and practice encourages the inclusion and support of those with specific learning difficulties. This is reflected in the Education Strategy published by the General Medical Council (2010). A responsibility is placed on every organization that provides educational or employment opportunities.

The Equality Act 2010 protects people with specific learning difficulties against forms of discrimination and mandates positive action to include individuals with protected characteristics. As a consequence, organizations are responsible for providing reasonable adjustments to facilitate achievement unimpeded by disability. In the case of dyslexia in adults, this tends to be administrative support and extra time in written assessments to cope with the burden of written communication. Provision of reasonable adjustments can create questions about the integrity of the assessment process.

Identifying specific learning difficulties

Identifying a student or trainee with a specific learning difficulty is not easy. The features outlined in *Tables 1* and *2* can indicate if an individual may require assessment or support by appropriate agencies. *Table 1* suggests some traits that adults with dyslexia may experience, and shows how these may become apparent in the hospital environment (adapted from Snowling, 2005).

It is important to remember that a high number of unaffected people will exhibit some of the characteristic difficulties or associated behaviours at any one time. For instance, many of us will struggle with spelling some words on occasions. In isolation, this does not mean that a diagnosis of a specific learning difficulty is likely. The profile of performance in discreet domains that is below that expected of the individual, given his/her general abilities, gives rise to a diagnosis of specific learning difficulties. The 'presenting complaint' may not be immediately related to the difficulty. For example, many people with dyslexia report frequent headaches and having to read up-close to material, in the absence of a visual refractive error. Key features of other common specific learning difficulties in adults are shown in *Table 2*.

Personal strengths

Specific learning difficulties, such as dyslexia, are also associated with positive attributes, such as creativity, ingenuity and multi-dimensional thinking (Sanderson-Mann and McCandless, 2006). Albert Einstein and Thomas Edison are often cited as having had dyslexia (British Dyslexia Association, 2011). Although there is a lack of research evidencing claims, it is reported that people with specific learning difficulties are often imbued with greater powers of creativity and are more dynamic communicators (Everatt et al, 2007). It is believed that having a disability adds an extra dimension to the experience of any health-care professional (Roberts et al, 2005). Acceptance of diversity within a range of abilities can help ensure that expectations of colleagues and trainees are both reasonable and matched up to their personal strengths. More could also be done in the learning and working environment to play to these strengths.

Table 1. Features of dyslexia and the impact in the clinical environment

Difficulty associated with dyslexia	Presentation in clinical environment
Verbal: speech-finding problems, poor verbal memory and malapropisms	Hesitance to contribute to group discussion, avoidance of using trouble vocabulary. Quick forgetting of finer details
Written: slow reading and writing speed, poor proofreading skills	Increased time taken to work with written information. More spelling mistakes in written communications (e.g. ePortfolios)
Non-technical: poor spatial, temporal and written organization	Seemingly clumsy, runs late or over time, chaotic communications, difficulty in dealing with stress

Table 2. Key features of other common specific learning difficulties in adults, and the impact in the clinical environment

	Dyspraxia	Attention deficit-hyperactivity disorder	Scotopic sensitivity syndrome
Key features	Slow development in motor coordination and fine movement control	Poor concentration, hyperkinesis, need for attention, anxiety	Visual defects similar to migrainous aura or distortion of text, exacerbated by glare and contrast between text and background
Emergence in clinical environment	Slower to develop skills drawing on fine, manual dexterity. May present as fatigued or over-pressured because of 'over learning' practical skills	Easily distracted to other duties before fully completing tasks. Easily bored and frustrated. Thrives in busy and dynamic environment	Slower, inaccurate reading (especially off electronic screens). Rapid fatigue and headaches with reading. Needing to read up-close to material despite lack or correction of refractive error

Compensating

Specific learning difficulties exist on a spectrum from a severe form to what could be considered 'near-normal'. These gray areas of high intelligence and 'milder' specific impairments is where those working and training within the medical profession are likely to exist. In order to gain entry to medical school and achieve a primary medical qualification, learners will become proficient at studying for, sitting and passing exams. The same can be said of the learner with dyslexia. However, in order to progress, they develop strategies that mitigate their difficulties. These strategies, of internal origin, can be considered compensatory mechanisms rather than adjustments or accommodations.

An individual, like Abi (see *Case study*), who struggles with processing in one modality will often spend extra time, in the order of tens of hours, repeating the work in other modalities and covering the subject in greater depth. This is a process called 'overlearning' and can place considerable strain on an unsupported individual (Rosebraugh, 2000).

There is a significant amount of written communication in everyday working life in the medical profession. Although this could pose a challenge to a dyslexic individual, this can be compensated for more readily than the time-critical and pressured verbal communication. An individual may be prone to making errors (that he/she does not detect or recognize) in spelling and grammar, but this is ameliorated by the increasing use of spell-checker functions in word processing packages. How an individual deals with the pressures of vast verbal information may be a little more telling, in that information may be missed, misinterpreted or rapidly forgotten. This may also show as increased stress or rapid fatigue in a high-pressured environment. How a difficulty, like dyslexia, presents on the surface reflects the extent to which the individual struggles with his/her dyslexia, and how this affects his/her behaviour, such as avoidance (*Figure 2*).

Approaching the learner with difficulties

It is very possible that the learner him-/herself may recognize that he/she experiences difficulties, or knows that he/she has a specific learning difficulty, but is reticent to volunteer the information. The reasons behind this are complex, but there is still a large amount of perceived professional and social stigma. An individual's insight into his/her learning difficulties can yield valuable information and can even hint at what support may be most helpful to him/her. Broaching the subject of specific learning difficulties with someone requires good communication skills and diplomacy as this can be a very sore and threatening subject for some.

Some specific learning difficulties, such as ADHD, are more likely to have been diagnosed during childhood because of the early presentation of behavioural and social difficulties. This is reflected in guidelines that suggest, for example, that ADHD be diagnosed before the age of 7 years (National Institute for Health and Clinical Excellence, 2008). These conditions do persist into adult life, although the individual may have developed coping strategies and have achieved a great deal by the time he/she reaches postgraduate medical training.

Making a diagnosis

Formal diagnoses are complex and require professional support. *The International Classification of Diseases and Related Health Problems* (ICD-10; World Health Organization, 1994) and the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 2000) make specific reference to the conditions encompassed by the term specific learning difficulties. However, the labels used, such as 'mental disorder' (1.2:315 in the DSM-IV) or 'mental retardation' (F80 to F84 in the ICD-10), carry negative connotations that contravene both the social model of disability and the constructive aim of valuing diversity and supporting an inclusive learning and working environment.

Screening tools combined with clinical judgement can inform a probability of someone having a specific learning difficulty. A diagnosis is made based on the profile of performance in a battery of tests, which may demonstrate a discrepancy among domains of ability. Assessments can be performed by a professional with a qualification recognized by the Department for Education and the British Dyslexia Association. Only someone sufficiently qualified, regulated and registered can author a report that will be recognized by universities, the Royal colleges and other regulatory bodies. The average cost of these assessments for most specific learning difficulties is around £350. Some deaneries have a system in place whereby struggling learners will be provided with the opportunity to be tested. Such facilities usually require some form of referral from an educational supervisor.

Specific learning difficulties in medical education and practice

Having a specific learning difficulty and being given accommodations in assessments is not believed to negatively impact on clinical performance or patient safety. Adjustments in assessments do not convey unfair advantage or undermine the criteria and standards by which all medical professionals, dyslexic or not, are held to (Ricketts et al, 2010). That said, there is a distinct paucity of research into this area, and more needs to be done to inform all sides of the debate.

A report into the perceptions that various groups, including the public, had of doctors with disabilities, including dyslexia, highlighted that there was a general acceptance of people with diverse abilities within the

Case study

Abi, 27, always wanted to be a doctor. She enjoyed medical school, although she struggled with the work, scraping through and having to re-sit two exams, despite working harder than many of her peers, staying up most nights. She excelled in practical things, and all of her reports glowed with praise and predictions of success. She struggled with organizing, and often finds herself feeling late or flustered. Over the years she has learned to use mind-maps and lists to help organize herself, and set her clock half an hour forward so that she arrives on time. Applications on her mobile phone have also proved helpful, such as recording memos. She struggles with coordinating different tasks and deadlines for her ePortfolio, but her educational supervisor thinks very highly of her clinical abilities. Since starting her postgraduate training, she has become very anxious, and complains of headaches regularly. She failed the first set of membership exams by a narrow margin, and has since begun to display symptoms of depression.

caring profession. There was some concern that dyslexic doctors could be more prone to making serious prescribing errors (Roberts et al, 2005). However, this concern is not supported by any evidence.

Support for learners with difficulties

There are many ways to provide support to learners, in the form of:

- Study and exam skills coaching
- Mentoring
- Supervision.

There is benefit in all learners developing an awareness of their strengths, weaknesses and preferred learning styles. For specific learning difficulties, there are a number of interventions that have been developed and proven to work, such as phonemic awareness teaching. However, these are almost exclusively used at primary school age and are unlikely to prove useful in the context of postgraduate medical or surgical training. Nevertheless, many adults find awareness training, which is offered by specialist tutors and is processing-difficulty focused, very helpful. Advice provided during such sessions can be tailored to the individual's needs and the realities of his/her working and learning environment.

Three examples from practice demonstrate how simple measures can make an important difference in supporting trainees with specific learning difficulties:

- Mindful practice
- Multisensory approaches
- Re-purposing existing technologies.

Mindful practice is a form of awareness training, focusing on common processing (rather than content) errors. Individuals can then approach their work in a mindset that enables them to anticipate mistakes, using safety-checking mechanisms to prevent them. The concept has evolved from mindfulness and is regarded as a 'characteristic of good clinical practice' (Epstein, 1999).

A multisensory approach draws on different techniques and modalities (visual, auditory and kinaesthetic) to enrich learning experiences. In practical terms, this may mean recording something, drawing a mind map (Buzan, 2000) and reinforcing this with information from internet-based video clips or podcasts and peer discussion. Anybody can benefit from this approach, whether they have a learning difficulty or not, illustrating the wider benefits afforded when adapting teaching to an audience of diverse ability.

Re-purposing existing technology is exemplified in nursing education literature, where it has been suggested that digital voice recorders can be used to help dyslexic learners deal with the vast amount of information transferred at key points, such as handover (White, 2007). Although these interventions are yet to undergo rigorous testing, they can be easily integrated and effective at helping people with specific learning difficulties. *Table 3* suggests when and how specific interventions may be most useful.

Conclusions

Specific learning difficulties are a varied group of disorders that affect medical professionals. The challenges facing those with specific learning difficulties in the medical profession are multifaceted, including the disorder-related difficulties in learning and processing, additional psychological effects, and the perceived stigma. There is potential for people to have unrecognized or undisclosed learning difficulties. It is necessary to be holistic in your approach to providing support. There are private and deanery-level provisions for trainees seeking specialist input for testing and diagnosis. A formal report, detailing such a diagnosis with an analysis of learning needs, can prove crucial in accessing resources and reasonable adjustments. It can also provide valuable information to the learner about his/her strengths and where he/she may be prone to making errors.

Adopting a multisensory and mindful approach to teaching, learning and working can benefit everyone, but may also be an effective means of mitigating the effects of specific learning difficulties. Legislation protects all those with a specific learning difficulties from discrimination and prejudice. The General Medical Council and Royal colleges are becoming increasingly equal and inclusive in the opportunities that they provide. Evidenced applications can be made for reasonable adjustments in postgraduate exams. By continuing and encouraging the spread of this inclusive and supportive attitude we can ensure that it becomes embedded within the culture of the medical profession. Be aware of learning difficulties among peers, trainees and students, as well as the impact that they may have on their overall well-being. The profession stands to be strengthened by embracing diversity and the hidden strengths among the trainees of today, enriching the skill set of tomorrow's workforce. BJHM

Table 3. Strategies that can be used to help trainees with specific learning difficulties learn and work in the medical profession

Strategy	Examples	Conditions it could help	Effects
Mindful practice	Awareness training	Dyslexia, dyscalculia and ADHD	Develop awareness of common pitfalls, compensates for potential mistakes
	Mindfulness training	All specific learning difficulties	Improve resilience, manage stress, fatigue and burnout
Multisensory approach	Study skills training	All specific learning difficulties (and all learners)	Improve efficiency in study, awareness of alternative approaches
	Mind maps	Dyslexia and ADHD	Visuo-spatial representations of information more readily stored and accessed
	Augmented formatting	Scotopic sensitivity and dyslexia	Colours, fonts and layouts of resources can be changed to better suit learner
Re-purposing technology	Digital voice recorders	Dyslexia and ADHD	Assist memory by keeping lists and notes
	Enhanced spell-checker function	Dyslexia	Reduces spelling error, increases confidence
	Smartphone applications	All specific learning difficulties	May help make lists, take and keep notes
	Computer games (brain training, coordination)	Dyslexia, dyscalculia and dyspraxia	Develop memory span and coordination exercises

ADHD = attention deficit-hyperactivity disorder

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KEY POINTS

- We know that there are medical students and trainee doctors with specific learning difficulties and that they can perform well and achieve success.
- Individuals with difficulties, such as dyslexia, can present with a unique profile of symptoms including weaknesses in some areas of processing, and great strengths in others.
- Individuals can seek screening for difficulties, and formal diagnosis. The latter is usually arranged privately with suitably trained professionals. This can lead to the provision of support and accommodations.
- Adapting teaching methods to cater for learners with specific learning difficulties can be easy and can benefit all learners, even those who do not have a specific learning difficulty.