Twelve Tips for Teaching Medical Students with Dyslexia

Abstract

Dyslexia is a common learning difficulty within the UK. As a result of SS' own experiences as a medical student with dyslexia, we have been researching and teaching on this topic for the past two years. Here, we present twelve tips for teaching medical students with dyslexia. These are gathered from our personal experiences and research, discussions with other educators, and wider literature on the topic. This article aims to shed some light on dyslexia, and also to make practical suggestions.

Teaching students with dyslexia should not be a daunting experience. Small changes to existing methods, at minor effort, can make a difference – for example, adding pastel colours to slide backgrounds or avoiding Serif fonts. These tips can help educators gain more insight into dyslexia and incorporate small, beneficial adaptations into their teaching.

Introduction

Dyslexia has been defined as a "… learning difficulty that specifically impairs a person's ability to read… despite having normal intelligence" (National institute of neurological disorders and stroke, 2011). Identifying, teaching and supporting students with dyslexia may however be difficult, as the condition differs so greatly between individuals (Shaw et al., 2016).

Dyslexia is common within the UK, affecting an estimated 10% of our population (Siegel, 2006). This – 10% – is also quoted as the approximate prevalence worldwide (Dyslexia International, n.d.). Within medical students, there are no recent prevelance data. However, the British Medical Association estimated a 1.4% prevalence back in 2007 (British Medical Association, 2009). As an educator it is, therefore, almost impossible not to encounter learners and colleagues with dyslexia on a day-to-day basis.

Given its high prevalence, legislation exists to protect individuals with dyslexia across many countries (Cappa and Giulivi, n.d.). For example, in the UK dyslexia is recognised under the

Equality Act as a Specific Learning Difficulty, and therefore merits educational adjustments (Great Britain, 2010).

A previous Twelve Tips article discussed the provison of support for undergraduate medical students, but did not touch on the education of medical students with dyslexia (Vogan et al., 2014). We wereunable to locate any medical educational literature on teaching medical students with dyslexia – only three studies of the fairness of different exam types, with and without extra time (Ricketts et al., 2010, Gibson and Leinster, 2011, McKendree and Snowling, 2011, Shaw and Anderson, 2015a).

Development of our recommendations.

Here, we aim to give tips to enhance teaching sessions and practices. These are synthesised from: SS' personal experiences with dyslexia; JA's experiences as a senior medical educator; our research; discussion with others over the past two years; and hot topics from the wider literature. A full autoethnographic study of SS' own experiences can be found elsewhere (Shaw et al., 2016).

Whilst some of our tips are specific to learners with known dyslexia, others are more general. This is because they may apply to all students – including those with as yet undiagnosed or undisclosed dyslexia.

Tip 1

Bear in mind that dyslexia manifests itself in many ways.

Dyslexia affects different people in different ways. It is not well known that dyslexia can affect more than reading and writing abilities . Thus, it may be difficult to adapt one's

teaching to suit everyone. An awareness of the ways dyslexia can affect people may prove useful for teachers. Some of the known symptoms of dyslexia are listed below (Smythe and Everatt, 2001, Davis Dyslexia Association International, n.d., Moody, n.d., Shrewsbury, 2016):

- Slow reading and/or writing – particularly for complex material;
- Poor spelling;
- Poor or chaotic organisation skills;
- Poor short-term memory – particularly for complex material;
- Difficulty expressing themselves in spoken words;
- Difficulty pronouncing long or unfamiliar words;
- Difficulty answering open-ended questions;
- Anxiety;
- Low self-esteem;
- Frustration and isolation;
- Dyslexia interferes with processing – but it does not diminish intelligence.

Consider whether any of the above symptoms were surprising or unkown to you. Whilst this list is not exclusive, it is intended to provide a brief overview to inform teaching practices on a non-specialist level.

For example, SS is a slow reader and writer but has no issues with spelling. Dyslexia can be very specific to the individuals with the condition. Where possible, it might be prudent to discuss the issue with learners at the beginning.

It is important to remain vigilent of the above symptoms. If you do encounter learners who are struggling with the literary elements of the course – concerning you, in line with the above symptoms – it may be prudent to sit with them and discuss their struggles in an open and non-judgmental way. This may, if appropriate, result in the suggestion that they consider an assessment for dyslexia. The reason for this is simple. If they do subsequently get diagnosed, they may unlock access for further supports and adaptations – helping them to achieve their full potential. Such adaptations may include extra time in written exams, or similar varations in assessment methods. Whilst we recognise that this may not be an easy conversation to have, we suggest that the potential good may outweigh the risks.

Tip 2

Use pastel colours as backgrounds on slides

Dyslexia is commonly associated with visual disturbances – namely Irlen syndrome (Uccula et al., 2014). These can manifest in many ways: for some people, letters may move around a page, for others they may blur, inverse or flip (British Dyslexia Association, n.d.-a, British Dyslexia Association, n.d.-b). Simple adaptations to text can reduce their impact. For instance, use pastel colours as backgrounds for documents, handouts or slides. This is known to reduce the effect of visual stress in people with dyslexia (Shaw et al., 2016, British Dyslexia Association, n.d.-a). We suggest that dark backgrounds with light wording should be avoided.

SS experiences what is known as ‘rivers’ – when looking at a page of text, he does not see black text on a white background. Instead he sees a blurred background of black, with the white spaces interconnecting down the page, resembling rivers. His background colour of choice is pastel yellow and when presented with black text on a this colour, his visual

disturbance disappears. This can make a big difference when trying to read slides in a lecture or trying to revise from handouts. Having searched the available literature we, however, do not know which is the most popular colour.

Tip 3

Avoid Serif fonts.

Fonts have differrent visual impacts (British Dyslexia Association, n.d.-a). Serif fonts (E.g. Times New Roman) are generally more challenging for people with dyslexia to read (British Dyslexia Association, n.d.-a). For example, the extra elements on Serif letters (E.g. the flicks on the corners of T or F) make it harder for SS to efficiently and accurately read text without becoming overly fatigued. Using such fonts may increase the reading difficulty of teaching material and hinder the assimilation of content. The British Dyslexia Association (BDA) recommends using fonts that are evenly spaced, and are size 12-14 point (British Dyslexia Association, n.d.-a). This simple alteration could benefit learners with dyslexia across all stages of their medical education.

Tip 4

Keep it simple – use short words and short sentences – in both speech and written material.

Some people with dyslexia have difficulty in taking in and making sense of long, convoluted speech or text. This may result in confusion and distress and possibly "switching off".

Learning medicine involves learning a new language (Jalal et al., 2015). It is filled with new words and phrases, many of which can be daunting when they are first encountered – 'Endoscopic Retrograde Cholangiopancreatography', for example. To show how "learned" we are, we may try to impress by showing off our knowledge and may use long, quite

complex sentences. For the purpose of inclusivity, it might be prudent to 'aim low' – putting across the same content using simpler sentence structures and vocabulary. Where challenging vocabulary is vital (E.g. 'Endoscopic Retrograde Cholangiopancreatography'), you might break it down – assisting the decoding process. For example:

"Let's start with endoscopic. There are two parts to this word. The first is 'endo-' – meaning inside. The second is '-scopic' – i.e. it will involve a scope. Endoscopic, therefore, means that we will be inserting a scope inside – an 'endoscope'."

In taking the time to explain new and complex material, educators could save learners with dyslexia – and, probably, other students – hours of time and distress over the course of their degree. This is a simple technique that could make a difference.

Tip 5

Don't belittle or stigmatise people with dyslexia.

Stimgatising or belittling remarks such as "You're a fake dyslexic" have been reported by medical students with dyslexia (Shaw and Anderson, 2015b). These may be psychologically damaging. Within UK healthcare, hostility and stigmatisation from educators and/or clinical supervisors has been documented (Morris and Turnbull, 2006, Shaw and Anderson, 2016b). Psychologists suggest that, in adulthood, dyslexia manifests itself primarily as "low self-esteem, anxiety and frustration" (Shrewsbury, 2016, Moody, n.d.). This is in keeping with the findings of our own research into medical students and junior doctors (Shaw and Anderson, 2015b, Shaw and Anderson, 2016b). It is, therefore, important not to collude with such behaviours – for the psychological wellbeing of learners.

Within medicine, dyslexia holds a degree of stigma (Shaw and Anderson, 2016b, Shaw and Anderson, 2016a). It may be difficult for students and doctors to disclose their dyslexia. However, 'inclusive' practices such as additional time in exams, reading aids, etc. form a double-edged sword. In addition to helping students , they may single them out and leave them vulnerable to discrimination. This is a dilemma which we need to be aware of in terms of being supportive, and in combatting potentially discriminative behaviours from other students.

It is also worth considering how many of your own learners may have undisclosed dyslexia. We recognise that in many higher education institutions, it may not be common practice for teachers to be automatically informed of learning difficulties – leaving it to the learners to self-disclose. This requires them to reveal a rawness within themselves, making them emotionally vulnerable. It is therefore worth considering whether your class rapport and personal demeanour would promote such open discussion from learners. This is important because, should they not disclose, you may not know the degree to which they are struggling – stunting your ability to help.

By maintaining an open and inclusive culture, educators might promote disclosure behaviours. By censuring negative stereotypes and labels, educators can promote inclusivity and tackle prejudices.

Tip 6

Foster creativity.

People with dyslexia often develop personal coping strategies that allow them to 'think outside the box' (Guyer, 1988, Shaw et al., 2016). This may be attributed as a positive aspect

of dyslexia – being able to find innovative and atypical solutions to problems. This may be a natural result of the ways they have had to adapt to overcome their difficulties. As such, students with dyslexia may not complete interactive tasks in the ways we expect. You may find this impressive, or dismaying at times but, it is important to facilitate their adaptations or strategies rather than attempting to force compliance with a more difficult option.

SS found that, to overcome his dyslexia, he often learns and solves problems in different ways to others. Whilst they may not always seem the most efficient, they work for him. And they have sometimes impressed teachers and supervisors with their novel approach. For example, in many of his assignments he made extensive use of visual material and colour co-ordination of diagrams and tables. Taking frequent notes in clinical settings allows him to better recall information. It could be difficult to alter the way he problem-solves and thinks, and make him conform to others' conventions.

Tip 7

In handouts, less is more (see Tip 3).

Excessive written information is distracting for individuals with dyslexia. Write in numbered or bullet lists instead of prose where possible (Dyslexia Scotland, 2011) both in lecture slides and handouts.

One literature review highlighted how, in the design of learning resources, the drive for inclusivity within education does not necessarily result in teachers being adaptable (MacDougall, 2009). The aim should be to find a resource of best fit – i.e. fit the approaches used to the learners, rather than expect all learners to adapt to an unyielding approach (MacDougall, 2009). Or, by creating one approach that suits all, or most students. In abiding

by this principle, educators might benefit their learners with dyslexia with no additional resources – and without making them feel different to the rest of their cohorts.

We therefore recommend that a simplified handout should be provided – making use of visual content and simple, bulleted text (see Tip 8). These could be provided electronically, then Learners would be able to read them on their own devices, with any technological aids such as background colour changing packages, or software packages that read text aloud.

Tip 8

Use illustrations to explain points where possible.

Dyslexia causes difficulty in reading large amounts of text. The challenge lies in finding the best way to overcome this. The BDA recommend the use of flowcharts to aid the learning process (British Dyslexia Association, n.d.-a). Incorportating these might provide a visual framework or 'skeleton', to which learners can attach and associate further information. Another option is to use mind-maps to help organise and assimilate information (British Dyslexia Association, n.d.-c). For example, SS creates his own mind-maps as revision aids. This allows him to visualise associations between information clusters.

A fast-emerging strategy in medical education is the idea of 'concept mapping' (Daley and Torre, 2010). These are more than simple mind-maps. A concept map "is a device for representing a set of concept meanings embedded in a framework of propositions" (Novak and Cañas, 2008). They are designed to show direct associations between new knowledge and that which is already known (Novak and Cañas, 2008).

Using these could help all learners understand how individual topics fit into the broader picture (Daley and Torre, 2010) by providing a visual, rather than a verbal overview. Teaching learners to compile these themselves could also help to promote long-term retention of information (Daley and Torre, 2010).

Tip 9

Avoid writing in captal letters, underlining and italicising text.

The BDA and Dyslexia Scotland both explain that underlining or italicising text can make it appear to "run together" for people with dyslexia (British Dyslexia Association, n.d.-a, Dyslexia Scotland, 2011). They also discuss how writing in block capitals makes it harder to read for people with dyslexia (British Dyslexia Association, n.d.-a). Because this can increase the difficulty of reading and processing the content of written text, avoiding these could be a simple adaptation to enhance the accessibility of slides and handouts. Perhaps setting important points apart – e.g. by taking a new line – might help.

Tip 10

People with dyslexia are not 'thick' or 'slow', let them show their own creative ways.

Dyslexia is known to be associated with certain positive aspects or strengths (Guyer, 1988). Some feel that their dyslexia allows them to develop enhanced communication skills and natural teaching abilities (Jalal et al., 2015, Shaw et al., 2016). Some of their other documented strengths include sentivitity to the needs of others and creativity (Guyer, 1988).

The challenge is, therefore, to think of teaching and learning strategies which can play to strengths – other than rote learning – in all of our students. Options might include group

discussions and interactive exercises based upon ethical, empathic, general problem-solving or broad concepts. In large group teaching, these students may still benefit from more visual content with simple explanations and time to process what they are learning.

Tip 11

Define new vocabulary and abbreviations in advance.

We can use the "primacy effect" – learners are most likely to retain the first things in a lesson (Miller et al., 2004) – to highlight key issues, new vocabulary, or abbreviations. As these are also likely to be harder for individuals with dyslexia to learn, introducing them at the beginning of a session – in the format discussed in Tip 4 – might give them the best chance to understand and remember them. This simple adaptation can be applied to both teaching sessions and handouts.

Tip 12

Do not panic or make an issue about teaching students with dyslexia

Kerr explored the development of a Learned Helpless state in school educators teaching students with dyslexia (Kerr, 2001). In this instance, we might think of Learned Helplessness as a state in which repeated failure with dyslexic students has led to educators feeling as if anything they try to do to help is doomed to fail. This can result in teachers losing their motivation to try, generating an inability to mobilise energy for change (Shea and Hurley, 1964, Hahner, 1989).

Our experiences support these findings. SS has taught several sessions on dyslexia to medical educators on a PGCert. Within these sessions, uncertainty about powerlessness in teaching and/or marking medical students with dyslexia is consistently flagged.

Our advice is: do not panic. We hope that by assimilating the above eleven tips, you will give them the best chance to take control of their own education.

Conclusions

Here, we have outlined twelve tips for teaching medical students with dyslexia. These are drawn from our research, our personal experiences , and supported by the wider literature on dyslexia in education. Simple changes, at negligible effort and cost, could make a large difference to the learning experiences of medical students with dyslexia. For example, replacing white backgrounds with pastel colours, using Sans-Serif fonts and avoiding underlining titles within presentations and handouts.

It is our hope that this article will be of interest to those involved at all levels of medical education, and will provide some insights to facilitate their pedagogical development as inclusive educators.

Notes on Contributors

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Declaration of interest

The authors report no declarations of interest.

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