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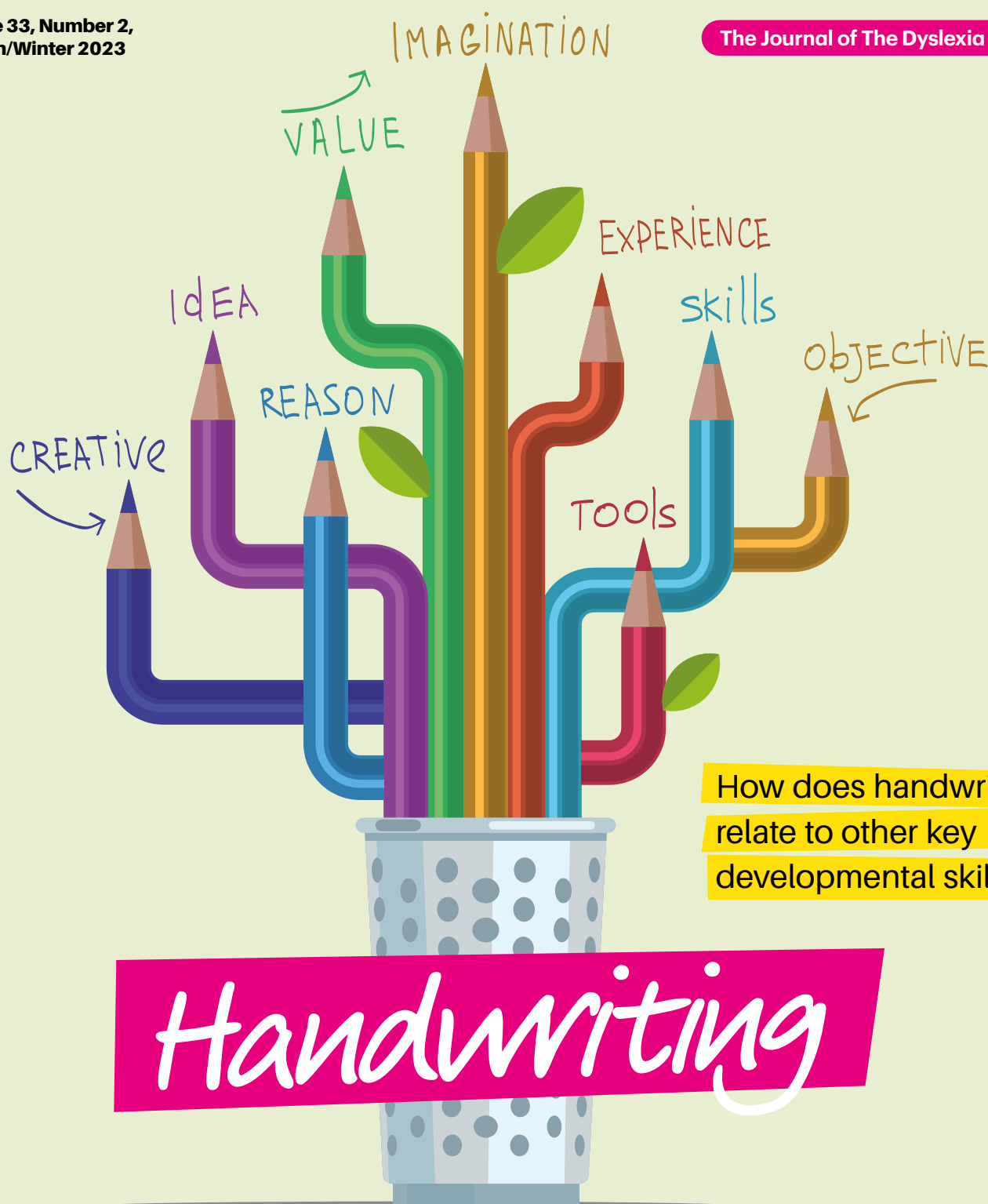
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Dyslexia and its impact
on adult outcomes

Dyslexia Review

Volume 33, Number 2,
Autumn/Winter 2023

The Journal of The Dyslexia Guild



How does handwriting
relate to other key
developmental skills?

Handwriting



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Dyslexia
Guild**

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For further information see: dyslexiaguild.org.uk

Welcome

Welcome to the Autumn/Winter issue of *Dyslexia Review*.

Welcome to our Autumn/Winter issue of *Dyslexia Review* where we hope to whet your appetite with this season's thought-provoking articles.

We are pleased to present Cameron Downing's recent research into handwriting which sits well with the imminent launch of the second edition of *Detailed Assessment of Speed of Handwriting (DASH)*.

As Cameron shows us, it isn't all about speed, and I have always been interested in how attentional skills interact with the process of writing: it makes sense that selective and sustained attention are needed, as well as lots of other cognitive processes and it is useful to see this captured in research.

COVID-19 was a challenging time for everyone; we are still learning about its impact. As an assessor I often question whether the difficulties that I am evaluating have been exacerbated by the pandemic and, if so, to what degree. A large body of work has been produced in the last couple of years concerning this issue and I have attempted to pick out and summarise some of the key findings to try to encapsulate what this period meant for our pupils and students.

As well as attainment, emotional wellbeing was certainly an issue during that period and how to support these difficulties is a perennial challenge.



However, the answer might be dog-shaped! A recent research graduate on the Masters in Special Educational Needs with Real Training, Charlotte McHugh, talks us through her fascinating research project.

She describes how she evaluated the difference her therapy dog, Freddie, made on the wellbeing of pupils in a large further education college.

As well as what happens in school and college, as educators, we are often concerned about what happens to children and young people with dyslexia when they leave school or college. The adult outcomes that those with dyslexia can experience is explored by Natalie Houalla, one of our resident contributors. Some of the facts make for uncomfortable reading but we can also appreciate that those with dyslexia will sometimes develop unique skill sets and go on to leave their mark on the world! This is often dependent on the support that young people and adults receive, and Citizen Literacy is an organisation concerned with just that! Tania Rogers, one of our specialist teacher tutors takes a look at an app that has been launched by Citizen Literacy and which is free of charge and aimed specifically at adult learners, but which may prove to be useful for other age groups too.



Cover: Autumn/Winter issue.

Technology can make a huge difference for learners who struggle with conventional learning approaches and it seems certain that artificial intelligence (AI) will play a role in some way. Jane Dupree, one of our Guild members, looks at this revolution and how AI can be used to support students and also what it can't necessarily help with.

As well as all these articles, we have our customary book reviews and there are topics for everyone in this collection: a fresh look at maths tuition, how to engage with pupils who are struggling to attend school, a guide to memory processes, supporting adults with dyslexia for whom English is an additional language and the experiences of being black and dyslexic.

On a closing note, if you would like to review a book or write an article about an issue that you feel passionate about, we always welcome expressions of interest so do get in touch with me using the email below. I hope this issue inspires you through the winter months and that you continue to enjoy the benefits of being part of the Dyslexia Guild.

Dr Anna Smith
Editor



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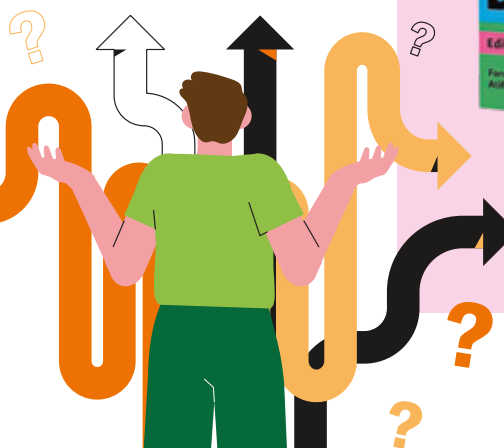
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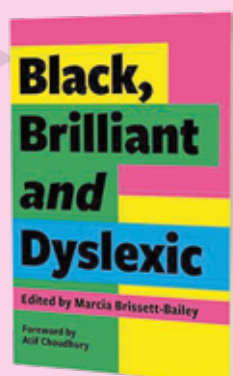
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Jan Beechey Dip LIS MCILIP, Guild Membership and Librarian

The Dyslexia Guild Online Conference 2023

This online event was well attended by members and attracted non-members due to the interesting topics presented by our speakers. This has been our first online conference event and we hope it gives all members the opportunity to attend, no matter where they are based. In fact we had attendees as far away as Kenya, Hong Kong and the Middle East. Eighty-nine per cent of you said the event was excellent or good and we have considered comments carefully to make sure it is even better in the future.

There was high praise for our keynote speakers:

If you have suggestions for the sort of subjects or research you would like to hear about next year, look out for our survey coming soon!



Dr Jean-Philippe van Dijck *Working Memory and Maths Anxiety*

"Eye-opening re: the potential rates of anxiety as well as how it can directly and indirectly impact the cognitive ability to 'do something' with the maths problem, e.g. how the rumination can itself become a blocker."

"New information for me presented in a very visual way, great." "I am very interested in this area so came at just the right time."



Jessica Jarman *Supporting EAL Learners with Dyslexia*

"A very well constructed and engaging presentation that clearly explained all aspects of working with EAL students, including identification, assessment and support. It was very interesting to hear about the various challenges associated when considering the student's first language."

"It felt well-rounded and I learnt a lot about how dyslexia might be defined, measured or present differently depending on the language. Practical lesson ideas were very useful, as they were all evidence based."



John Casey and Diane Gardner *Citizen Literacy – The Right to be able to Learn to Read and Write*

"As an adult literacy tutor here in the ROI I understand the lack of awareness, understanding, funding, resources, training etc., so it was great to hear about this initiative and the work they have done creating this resource. I will be very interested to share this with my learners and colleagues to see how they find it."

"There's so much here to apply to my work – again, beyond expectation and super interesting. Will be revisiting this and exploring the app."



Irfaan Adamally *Vision and Learning*

"The science was amazing and will cement my recommendations in my reports."

"High-level knowledge, helping to combat myths in this field, equipping us to give good advice to parents."

"This chimed with difficulties my students have reported when being required to deal with a lot of small and complex text and graphics. I am of course aware of sensitivity to light/dark contrast, but his talk shed more light on underlying physiological causes."

Introducing our new fellow Becki Tall FDG

I was delighted when I heard that I had been accepted as a Fellow of the Dyslexia Guild. My initial involvement with SpLD was as a primary teacher, which soon evolved with a rewarding role as SENCo. I completed my Masters in SEND in 2008 and have continued to keep up with training and development, which is a passion as much as a professional necessity. After gaining Rose Review funding and training for AMBDA, I added Specialist Teacher and Assessor to my portfolio of skills. Alongside teaching and assessing, I have spent over a decade as a University Lecturer in Dyslexia and Dyscalculia research.

It is great to work with exceptional people and we are surrounded by them in the SpLD field. As a SENCo, I was involved with a very dedicated team, was responsible for training and assessment, ensuring that children and their families were well supported and that funding applications were made and maintained. In over a decade's work lecturing at Level 7, I have trained many new specialist assessors, initially for dyslexia with the Open University AMBDA Panel and the University of Chester, then delivering the first Level 7 Dyscalculia Assessment course at the University of Chester.

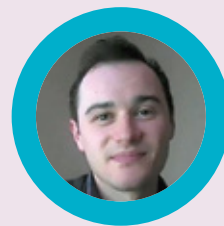


It is great to have news from former students, celebrating successes in their professional lives, in the progress of their students and their ongoing research. The research basis for dyslexia, dyscalculia and co-occurring difficulties is very important to keep up with and I enjoy reading publications and talking with parents, teachers and students about how this translates into effective practice.

Assessment fascinates me, with each person having such a range of strengths and challenges. Having been assessing for well over a decade I can certainly say that every dyslexic person has their own unique profile and it is very satisfying to see how they benefit from understanding their particular strengths and challenges. Keeping up with changes in research and practice is essential as much as it can feel a whirlwind at times, and is an effective way of providing consistent reflection on how best to meet the needs of our clients, in keeping skills fresh and meaningful. Communities of practice are really important and being part of an organisation like Dyslexia Guild enables contact with other assessors for ongoing development of skills and understanding.

I am looking forward to choosing the training session that comes as part of my Fellowship package.

How does handwriting relate to other key developmental skills?



Cameron Downing is a Senior Lecturer at Leeds Trinity University where he continues to build on his doctoral and postdoctoral work at Bangor University focusing on typical and atypical development of spelling and handwriting skills.

Introduction

Handwriting continues to be an important skill for children to use to communicate their knowledge in the classroom. It also remains an important component of wider literacy development. Furthermore, handwriting difficulties are often reported amongst people with dyslexia. Despite the importance of handwriting, there has been relatively little effort to understand handwriting development compared to reading and spelling. In this article, I explore what recent research tells us about handwriting and its relationship with other developmental skills, and what this means in school.

Why focus on handwriting?

In an increasingly technology filled world, handwriting is often superseded by typing or texting in our daily lives. Perhaps unsurprisingly schools around the globe are increasingly moving away from providing handwriting instruction. However, being able to write legibly and fluently are critical skills for children. In school, handwriting remains the primary method of communicating our knowledge, and illegible and/or slow handwriting are cited as the most common reasons for children's referral to occupational therapy. Handwriting is also important for literacy development too. Recent work has shown that learning to write letters is likely to help children build letter knowledge



Handwriting legibility relies on developing fine motor skills and spelling ability whereas handwriting fluency relies on developing fine motor skills, (selective) attention, and spelling ability.

(Wiley & Rapp, 2021), a critical skill for later reading development. Furthermore, development of handwriting has long been linked with later writing quality.

What do we mean when we talk about handwriting?

We often think of handwriting as a single skill or ability. However, research is increasingly demonstrating that we should consider handwriting as two separate skills: fluency and legibility. Handwriting fluency is our ability to write text at speed without hesitation or

too much effort, whereas handwriting legibility is our ability to write words which are decipherable by the reader. Evidence that fluency and legibility are separable skills comes from findings of different rates of development. Whilst handwriting fluency increases through childhood, often handwriting legibility reaches a peak and plateaus much earlier (Gosse et al., 2021).

Given that handwriting is likely made up of two separate skills, it is important then that we can measure both fluency and legibility.

Handwriting fluency is straightforward to measure objectively and tests such as the Detailed Assessment of the Speed of Handwriting (DASH) have long been used effectively in practice. Handwriting legibility, on the other hand, is much trickier to measure objectively and relatively fewer well-validated and reliable tests of legibility exist. However, two recent tests include the Handwriting Legibility Scale (HLS) by Barnett et al. (2018) and our own Spelling and Handwriting Legibility Test (SaHLT, Downing & Caravolas, 2023a) which measures both spelling accuracy and handwriting legibility. The lack of high-quality tests of handwriting fluency and legibility has been a major issue in trying to understand the development of handwriting skills and its relationship with other skills important for development such as spelling, fine-motor skills, and attention (see Figure 1).

How does handwriting relate to other skills?

Despite the importance of handwriting in school and for development, relatively little is known about how handwriting fluency and legibility relate to other important developmental skills. There are varying accounts of how spelling, fine motor skills, and attention may be related to either or both handwriting fluency and handwriting legibility. A potential relation between these skills is also evidenced by the often-reported findings of handwriting difficulties in individuals with dyslexia, developmental coordination disorder or dyspraxia, and attention deficit hyperactivity disorder (ADHD). So, in a recent study (Downing & Caravolas, 2023b), from a project funded by the Waterloo Foundation, we aimed to examine how spelling, motor skills, and attention may be related to both handwriting fluency and legibility across



a large sample of primary-aged children. To do so, we asked children aged between 8 and 10 years old to complete tests of spelling, fine motor skills, and (selective) attention as well as the DASH to measure handwriting fluency and the SaHLT to measure handwriting legibility.

Considering handwriting legibility first, we found fine motor skills were most strongly related to legibility, followed by spelling ability. This means that children who have well-developed motor skills and good spelling ability are more likely to write more legibly. Conversely, children with poorer motor skills and/or spelling ability are less likely to write legibly. Interestingly, we found that children's attention abilities did not seem to be related to their handwriting legibility.

Considering handwriting fluency next, we found that spelling, fine motor skills, and attention were all related to fluency. However, the pattern of these relations differed to their relations with handwriting legibility. Spelling was more strongly directly related to handwriting fluency than fine motor skills. This was the opposite to what we discovered for handwriting legibility. Interestingly, we also found that the relationship between children's motor ability with handwriting fluency was

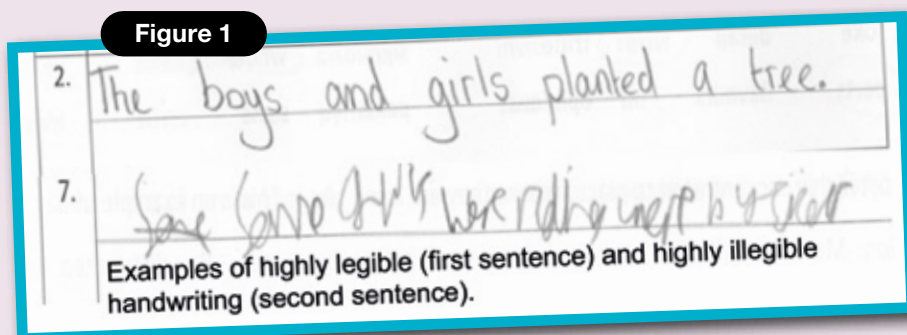
influenced by their attention skills. In this study we measured children's selective attention, which is their ability to focus on specific information or processes whilst suppressing other irrelevant information or processes. With this in mind, we believe that our findings show that children who are still developing handwriters use their attentional skills to focus specific fine-motor skills to help them write fluently.

These findings together show children's spelling, fine motor, and attentional skills are all related to their handwriting. These skills are all utilised to a different extent in handwriting fluency and legibility. That is, handwriting legibility relies on developing fine motor skills and spelling ability whereas handwriting fluency relies on developing fine motor skills, (selective) attention, and spelling ability. Whilst children of all abilities took part in this study, these findings help inform our understanding of handwriting amongst people with dyslexia and other specific learning difficulties (SpLDs).

Handwriting and dyslexia

We often see that people with dyslexia write less fluently and legibly. The findings from our study along with other studies help us understand why this might be. We now know that spelling is related to handwriting fluency and legibility. Indeed, other studies have shown that we write words less fluently when the word's spelling is more complex (Kandel & Perret, 2015). Furthermore, certain aspects of handwriting legibility, such as how well we form letters (letter formation) are more strongly related to spelling skills.

Figure 1



This evidence suggests that spelling processes can directly influence our handwriting, particularly in children. In the case of dyslexia, where spelling difficulties are expected, we see that less fluent and less legible handwriting is primarily because of these spelling difficulties.

As we have seen, handwriting also relies on motor and attention skills. SpLDs are associated with difficulties with motor (e.g., Developmental Coordination Disorder (DCD)/dyspraxia) and attentional (e.g., ADHD) skills and so handwriting difficulties are also found amongst other SpLDs too. Importantly, though, we know that dyslexia frequently co-occurs with other SpLDs such as DCD/dyspraxia and ADHD (Downing & Caravolas, 2020; Gooch et al., 2011), which means that people with co-occurring dyslexia and other SpLDs are also likely to have handwriting fluency and legibility difficulties. In people with dyslexia and co-occurring DCD and/or ADHD, handwriting difficulties are likely to stem from spelling as well as motor and/or attentional difficulties, also.

What does this mean for practice?

We should consider what we know about handwriting in relation to assessment and intervention. Handwriting remains an important skill in education that is related to several other critical skills for school success (e.g., spelling) and so handwriting should be routinely measured in people who either have, or we think may have, dyslexia. As handwriting comprises handwriting fluency and handwriting legibility, it is important that both skills are measured routinely alongside other literacy skills using valid and reliable tests. Given that handwriting difficulties are found in other SpLDs which frequently co-occur with dyslexia, it is important that we consider the possible causes of handwriting difficulties. Specifically, whether these handwriting difficulties fit within a wider pattern of literacy difficulties and motor or attentional difficulties, also.

In addition to assessing handwriting, it is also important to target handwriting fluency and legibility difficulties as part of intervention work. Given the close

Given the close relationship between spelling and handwriting, explicit and systematic handwriting instruction should be considered alongside spelling instruction.

relationship between spelling and handwriting, explicit and systematic handwriting instruction should be considered alongside spelling instruction. Compared

to reading and spelling, relatively little research has focused on effective handwriting instructional techniques, although, the evidence does point to individualised instruction which focuses on different areas of handwriting being effective (Santangelo & Graham, 2016).

Although we increasingly type and text, handwriting remains a critical part of our development. The development of handwriting fluency and legibility is intertwined with the development of other key abilities such as spelling, fine motor skills, and attention. It is important we adequately measure handwriting fluency and legibility and develop effective instruction and interventions to ameliorate handwriting difficulties.

To find out more about handwriting research, learn about the Spelling and Handwriting Legibility Test (SaLHT), or to get involved in current and future research projects please contact me via email: c.downing@leedstrinity.ac.uk



Take home messages:

- Handwriting remains a critical skill for school and development.
- Handwriting comprises fluency (handwriting at speed without hesitation) and legibility (producing writing which is decipherable).
- Spelling and fine motor skills are important for handwriting legibility.
- Spelling, fine motor, and attention skills are important for handwriting fluency.
- (Selective) attention likely aids in the control of fine motor skills when young handwriters are writing at speed.
- Developing, testing, and using effective evidence-based assessments and interventions for both handwriting fluency and legibility is critical.

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Where are we now? Understanding the impact of COVID 19 on our pupils



Dr Anna Smith, Head of the Dyslexia Guild

As we recall all too well, most of our schools in the UK were closed to their pupils from 20th March 2020 to 1st June 2020 and again in the new year until March 2021, with the exception of children of key workers and vulnerable children. Now that this difficult time is behind us, we may want to consider the impact that this had on the learning of our children and young people.

Anecdotally, when listening to parents and teachers, I have heard a wide range of perspectives: some parents were able to spend an unexpected period of time with their children and were happy to throw themselves into a teaching role, in many ways reporting that they enjoyed this unique experience. Others found it extremely challenging, and spoke about trying to manage a stressful work role whilst attempting to deal with home-schooling, sometimes adding that this was a task they didn't feel qualified to take on.

In terms of the number of hours children actually spent learning during this period of disruption, there were very clear reductions. The table shown here adapted from Thorn and Vincent-Lancrin (2022) shows that precious study hours were significantly reduced compared with typical non-pandemic learning times of 23-30 hours per week.

This certainly suggests that learning delays will have been an inevitable consequence. The Educational Endowment Fund (EEF), a body set up to provide support and resources for professionals working in schools, nurseries and other early years settings, provided funding for three large studies to explore the impact of the pandemic, focusing primarily on primary-aged children.

The youngest children

One of these studies, carried out in the early days of the pandemic, estimated that the delay for typical primary school children amounted to about one to three months for both reading and maths education (Rose et al, 2021). What is important for us to know now is what kind of impact this has had. This same cohort was followed up in 2023 to examine long-term outcomes and the story appears to be that Year 3 pupils have managed to catch up in both reading and maths, while younger Year 2 pupils are still behind in reading by about three months (EEF, 2023). So, in effect, and as you might expect, younger children, in their reception year during the pandemic and now having just completed Year 2, have been shown to be more susceptible to the impact of school closure during that time.

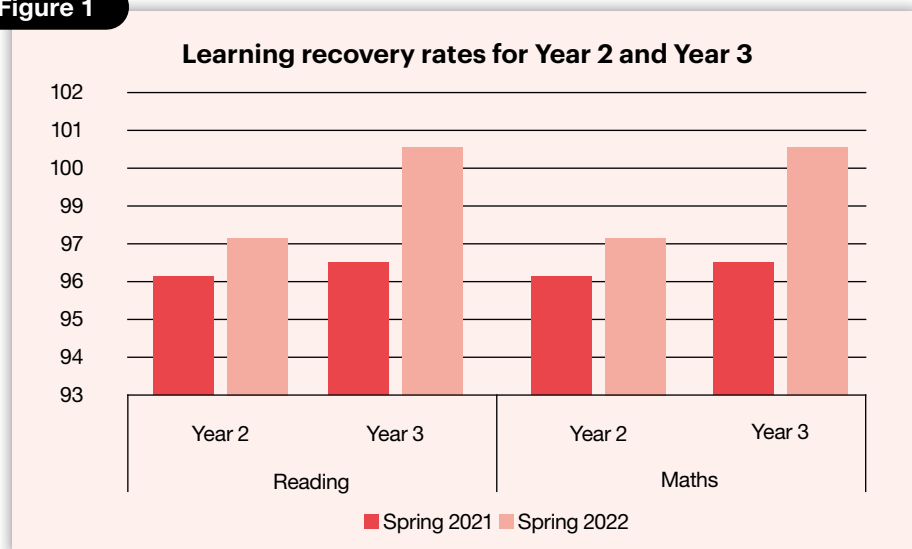
Year 3 children, whose mean standard scores for reading were just below 97 during the Spring of 2021, scored just over 100 a year

later so that suggests a normalisation of performance in this age group. For maths, the story is similar, with mean scores changing from 98 to 101 over the same time period (EEF, 2023). See Figure 1 overleaf.

Reception year pupils formed the focus of another major study funded by the EEF (Tracey et al, 2022). A collaborative team of 3 different institutes gathered data from 94 schools, 1105 families and 3253 children. They also made use of Early Years Foundation Stage Profile (EYFSP) data for these children. The data suggested that the socio-emotional wellbeing, language and numeracy of these young children had been influenced by their experiences during the pandemic, with 59% of children achieving a 'Good Level of Development'. Compare this to a previous (pre-pandemic) cohort (2018–2019) acting as a control, where 72% achieved this level, and this amounts to a highly significant difference in percentage.

United Kingdom: average time spent by the oldest or only child in the household on learning using materials provided by their teachers in the previous week						
	Average hours per week (% of students)					
Age/Level	0 h	1-10 h	11-20 h	21 plus hours	Average hours per week	Average hours per day
5-10 years ¹	2	59	32	8	10	2
Primary ²	–	–	–	–	–	2.4
11-15 years ¹	–	38	35	28	16	3.2
16-18 years ¹	3	39	37	21	15	3
Secondary ²	–	–	–	–	–	3.0

Sources (1) ONS (2020), Table 2; (2) Pensiero et al. (2020)
 Note The estimates from ONS (2020) concern the following population: parents/guardians in households with dependent children aged 5-18 years who (a) indicated that they had home-schooled their child/children and (b) indicated that the eldest or only child in the household being home-schooled has used resources provided by the school. This represents 66% of all parents/guardians with dependent school-age children. As a result, this will over-estimate the average time spent by school pupils on schoolwork.

Figure 1

This difference was mirrored when comparing the proportions of children who achieved 'at least expected' for various aspects of learning. In the earlier control cohort, 71-87% of children were achieving this level but in the 2020-2021 cohort, percentages had dropped to 62-82%, with the most obvious change occurring for literacy (a drop of 9%) and the least obvious change occurring for physical development (a drop of 5%) (see Figure 2). Once again, this data suggests that the children who began their reception year during the pandemic did not find it easy to bounce back.

A Wider View

While it is clear from this data that these young children right at the beginning of their education journey have been impacted by the pandemic, a helpful review of several studies examined the impact of COVID 19 on learning across lots of different age groups (EEF, 2022). This review suggests that the learning of both primary and secondary children was disrupted in some way by the pandemic. Different studies focus on different aspects of learning and different age groups but a consistent finding across the studies reviewed appears to be that in older primary-age children the pandemic may have impacted maths more than reading and in line with this finding, another of the reviewed studies found that reading attainment had normalised for older primary school pupils, supporting what has been shown for Year 3 pupils described earlier.

This is certainly supported by data provided by a different source, the Office of National Statistics (DfE, 2022) which shows a reduced impact on reading, a COVID 19 gap of -0.8 months, compared with maths which they estimated to be -1.9 months. We can only speculate why this might be: perhaps some children may have been able to catch up more easily with reading, whereas maths support requires a lot of time and expertise which parents and/or carers may not have had and perhaps missing those earlier building blocks that are so crucial for maths may have taken its toll.

The story is less clear for secondary school children and they have not been the focus of many studies but one source worryingly suggests that learning losses are thought to have increased since Summer 2021 and the end of

the closures. The latest DfE publication (DfE, 2022), reviewing learning loss for reading at the Autumn 2022 point, has very clear data: the initial reading learning loss in primary school children of -0.8 months mentioned above appears to have remained stable while for secondary pupils, an initial -2.4 months reading loss has worsened by another half a month. We can only guess why this might be but reading in younger children is often more supervised and so they may have been encouraged to persist, while reading in secondary aged pupils ordinarily becomes more independent and reduced reading habits may have gone unchecked.

Disadvantaged children: how have they fared?

As you might predict, many sources do suggest that the pandemic period had a specific impact upon the attainment levels of economically disadvantaged children. A study funded again by the EEF, with access to a large sample of about 18000 primary school pupils between Years 2 and 6 provides a realistic model for the existing and recognised national disadvantage gap (Weidmann, 2022). While pre-pandemic data estimates this gap to be about five months for maths and six months for reading, this gap appeared to widen for maths but not for reading. Interestingly too, that widening seems to have occurred during the initial closure but remained stable after this period. The columns in the graph are expressed

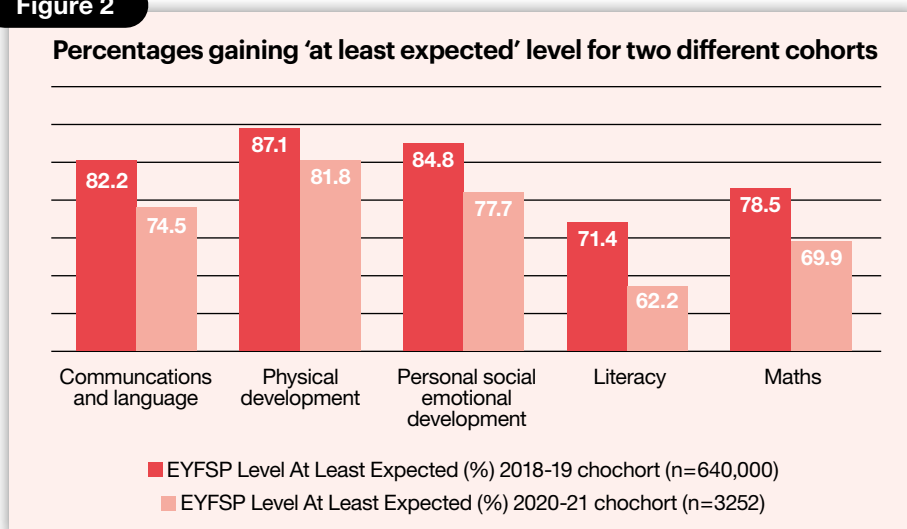
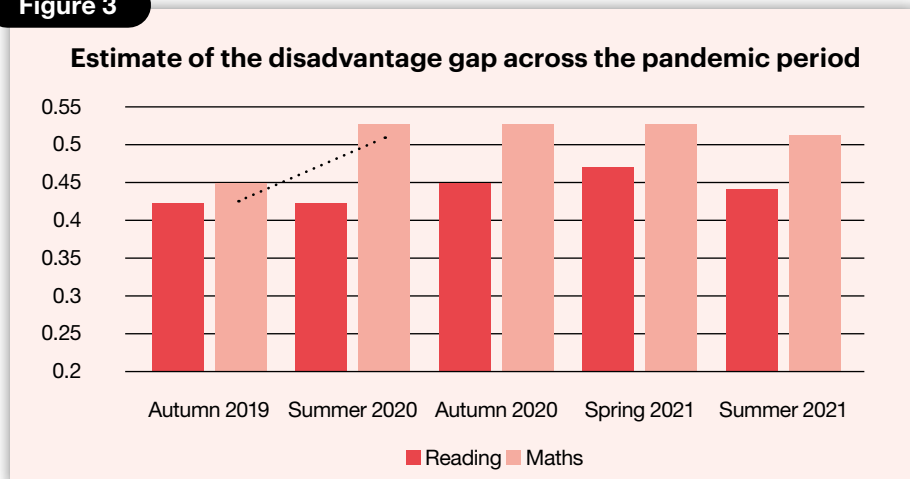
Figure 2

Figure 2: Data extracted from Tracey et al, (2022) describing reception year children's learning outcomes as measured by Early Years Foundation Stage Profile (EYFSP).

Figure 3**Figure 3: Estimate of the disadvantage gap for Years 2 to 6 (EEF, 2022)**

as effect size units (a measure of difference) and the pattern can be seen in Figure 3. A concerning increase in the gap (as shown by the dotted line) can be seen for maths in the Summer of 2020 that is not seen for reading. The most recent data from EEF (2022) also supports this pattern where the differences in these two groups remain unchanged from Spring 2021 to Spring 2022.

DfE research on the disadvantage gap extends to older children in some instances, reporting data on older primary (Years 4 to 6) and secondary school pupils for reading as well as older primary children for maths (DfE, 2022). The data is presented by the authors in more simple terms using attainment scores rather than scores that describe change (See Figure 4). Note that in this data there is not an obvious disadvantage gap for maths before the pandemic as attainment scores are quite level in Autumn 2019 but as you can see, after the pandemic, differences emerge.

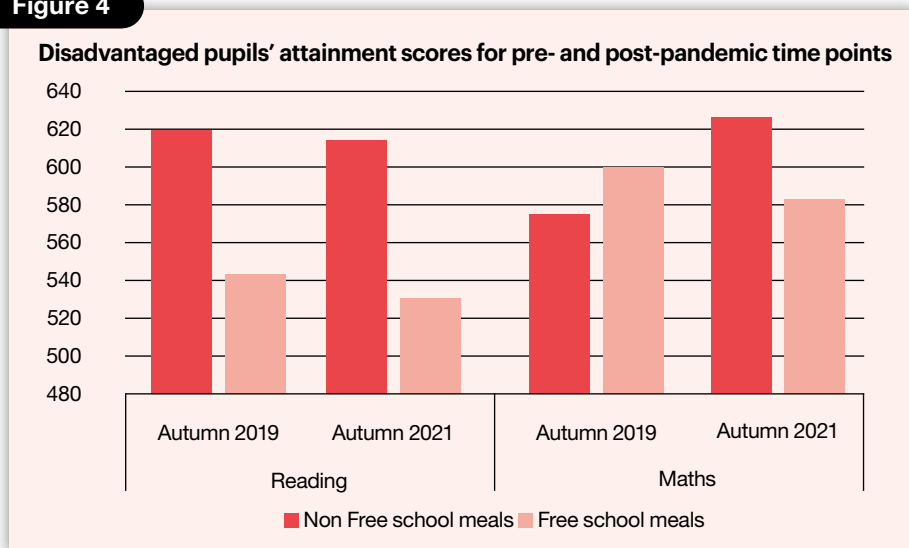
The differences in reading attainment by contrast are quite similar in Autumn 2019 and Autumn 2021.

To close this article and present a less quantitative and more personal perspective, it is helpful to visit a review of retrospective observations by teachers and parents about the children in their care in the post lockdown period funded by Education Wales (Tyrrie et al, 2023). Teachers reported to the authors that in the post-pandemic period they began to observe behaviours in the classroom that they hadn't seen in previous cohorts, such as interrupting, and difficulties with turn taking. On a more positive note, they also

described how their relationships both with pupils and their families seem to have been strengthened, along with what seemed like better communication. Teachers expressed some concern about the possible pressure that children might feel to recover in terms

of their attainment while parents reported that although it was initially difficult to get young children to learn in such a different way, they felt that there may have been an improvement in digital skills in their children.

This review largely focuses upon very formal documents that try to make sense of what happened in the field of education here in the UK but there are many more articles to be explored looking at other settings and other communities. While this article just touches the surface, as practitioners it is important for us to consider this recent period and how it might have impacted our children and young people: there are stories of resilience and of risk and we should be sensitive and aware of these factors in our interactions with children and be careful not to make assumptions about each individual's experiences.

Figure 4

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Freddie sets the blueprint for future therapy dogs in post-16 settings



Charlotte McHugh is a newly appointed Principal in a post-16 SEND provision and works for Lincolnshire County Council. Charlotte has spent many years in the further education sector heading up Student Support Services and, most recently, has successfully implemented a Therapy Dog Intervention programme. Charlotte has just completed her Masters in Special Educational Needs, which included the Enquiry-based SEND Practice 60-credit module, and she describes her work for us here.

Dogs have become increasingly popular in the field of therapy or other school-based interventions, with the intention of supporting and promoting mental health and wellbeing, yet the research and evidence available to support this is quite limited, particularly in the older age bracket of students that I work with. Much of the existing research focuses on studies in America but the research findings are overwhelmingly in support of therapy dogs being an effective way to reduce stress in young people in an education setting. For example in the research, *A Doggone way to Reduce Stress* (House, Neal and Backels, 2018), the authors were predominantly interested in seeing if time with therapy dogs would provide some stress relief in university students prior to their sitting final exams.



Above: Charlotte and Freddie





The results were found to be extremely positive and having Therapy Dogs on campus was shown to be extremely beneficial in decreasing stress and homesickness. Not one of the 235 students surveyed reported, "...neutral, little or no stress relief..." after exposure to the therapy dog (House, Neal and Backels, 2018).

The college where I previously worked purchased a therapy dog, Freddie, from Autism Dogs Charity with the intention that he became fully trained, and his training started at 10 weeks old when he first joined Lincoln College. As you can imagine, the staff and students adored having a puppy in college and his first few months were filled with cuddles and mischief, all of which led to him becoming a very sociable and happy dog. Freddie completed his training under the expert guidance of the Autism Dogs team and continues to receive regular check ins. Freddie is now three years old and to date, the college has been able to gather some anecdotal evidence that Freddie's dog therapy had been successful.

My research aim was to evaluate, with more formal research, the impact of Freddie the therapy dog on the mental health and wellbeing of the students at the college.

Freddie was already in situ, so this was a very real piece of research that did not require exposure sessions or specific interventions to be set up. Freddie was attending lessons, going on walks with students and was available for those that needed him in common/social spaces. I developed and issued a survey to all the students at the college, inviting them to share their views and experiences with Freddie. I was keen to find out whether students knew what a therapy dog was and also whether they knew about Freddie specifically. For those that indicated they had interacted with Freddie, I was keen to learn how much time students were spending with him, what activities they enjoyed undertaking with him, and which activities worked best with him. Critical to the research was to measure the impact he was having on mental health and wellbeing and to do this I chose to use a self-reporting scale where students would rate their happiness levels before interacting with Freddie and then after interacting with him. My survey had both quantitative and qualitative questions for students to answer.

My survey was responded to by 179 students, which I felt was a really good response rate. When analysing the results, nearly all of those that responded (96%) knew that the college had a therapy dog and 75% of respondents had interacted or met with Freddie. Eighty-five per cent of the respondents said either 'Yes' or 'Definitely Yes' when asked

whether having a therapy dog was a good idea. When asked to state their reasons why, many of the respondents included Freddie in their answers, so I felt that their answers were personal: they were describing why they thought it was a good idea at their college and how having a therapy dog makes them feel. Respondents said things like, "he makes my day" and "he helps me forget about my worries". I have created the image above to represent the key words that students included in their answers.

The respondents that had seen Freddie were asked questions around how they felt before and after they had seen him. They were asked to rate these feelings on a scale of 1-10, and the results can be seen below.

I feel my research has highlighted that regardless of how much time a student in a post-16 education college spends with a therapy dog, the location they are in, or the activity they are taking part in with the dog (playing, stroking, walking etc.), they will feel happier after that interaction.

Students perceived that this time has had a positive impact on their mental health and wellbeing.





1. The effect size is calculated by comparing mean scores and evaluating that difference with the standard deviation of scores. An effect size greater than 0.8 is considered to be large and meaningful (Cohen, 1988)

This finding is supported by the quantitative data, where students were asked to rate their happiness on a scale of 1-10 for before and after interacting with Freddie (as shown in the graph on the previous page). The effect size¹ was calculated at $d=0.85$, and this is important as it is a way of demonstrating the differences between the two means, regardless of sample size. The qualitative data reflected this finding that students do feel happier after interacting with the therapy dog. Students have commented that he makes them feel happy, positive and he cheers them up.

In addition to feeling happier after the therapy dog intervention, another theme that was identified was **anxiety reduction**. Students said they feel calm and safe when they are with, or have been with Freddie.

The reason for these feelings could be because they love and trust dogs, and that being with Freddie acts as a distraction from the source of anxiety at the time. There are multiple potential explanations as to why someone would experience anxiety reduction after interacting with a therapy dog, some of which have been the subject of research (Wood et al., 2017).

It is interesting to note that the students interacting with the therapy dog in this research reported a relatively good starting point, with the average score being 5.81 on the happiness scale. My research suggests then that this type of intervention is good for those with mild difficulties and perhaps it can prevent some people from slipping further down the scale into anxiety or depression. Those that are at a much lower starting point may have been too anxious to come forward and ask for help or may be absent from college and therefore would not have had the chance to benefit from the intervention.

Two further positive themes identified in my research were **anticipation** and **increased attendance**. Students reported that they feel excited to find out if the therapy dog is in their lesson that day and that they are more likely to attend college because of Freddie – they are more motivated as they know they will see him. The presence of Freddie feels reliable: the students know he will be there and they build up feelings of excitement to see him.

There were some responses (only a minority) that indicated the intervention is not always suitable. For example, some students are allergic or have a phobia of dogs. Others commented that they felt sad that Freddie did not interact with them and some felt he was too food orientated. This could suggest that the intervention could be refined and expectations could be set. This sentiment is echoed in another project, the PAWSing Student Stress study (Dell et al., 2015) where researchers stated that most settings may



lack identifiable objectives, such as clear statements about how the therapy dog programme will achieve its goals, along with recognising that approaches can alter depending on the handler of each therapy dog.

Overall, however, my research supports the literature that exists on this topic; **a therapy dog can have a positive impact on the mental health and wellbeing of students.**

Since undertaking the research, Freddie has now moved to my current post-16 setting, the Young People's Learning Provision at Lincolnshire County Council. Lincoln College has been so pleased with the success of the intervention that it has purchased two new puppies to now follow in Freddie's pawprints.



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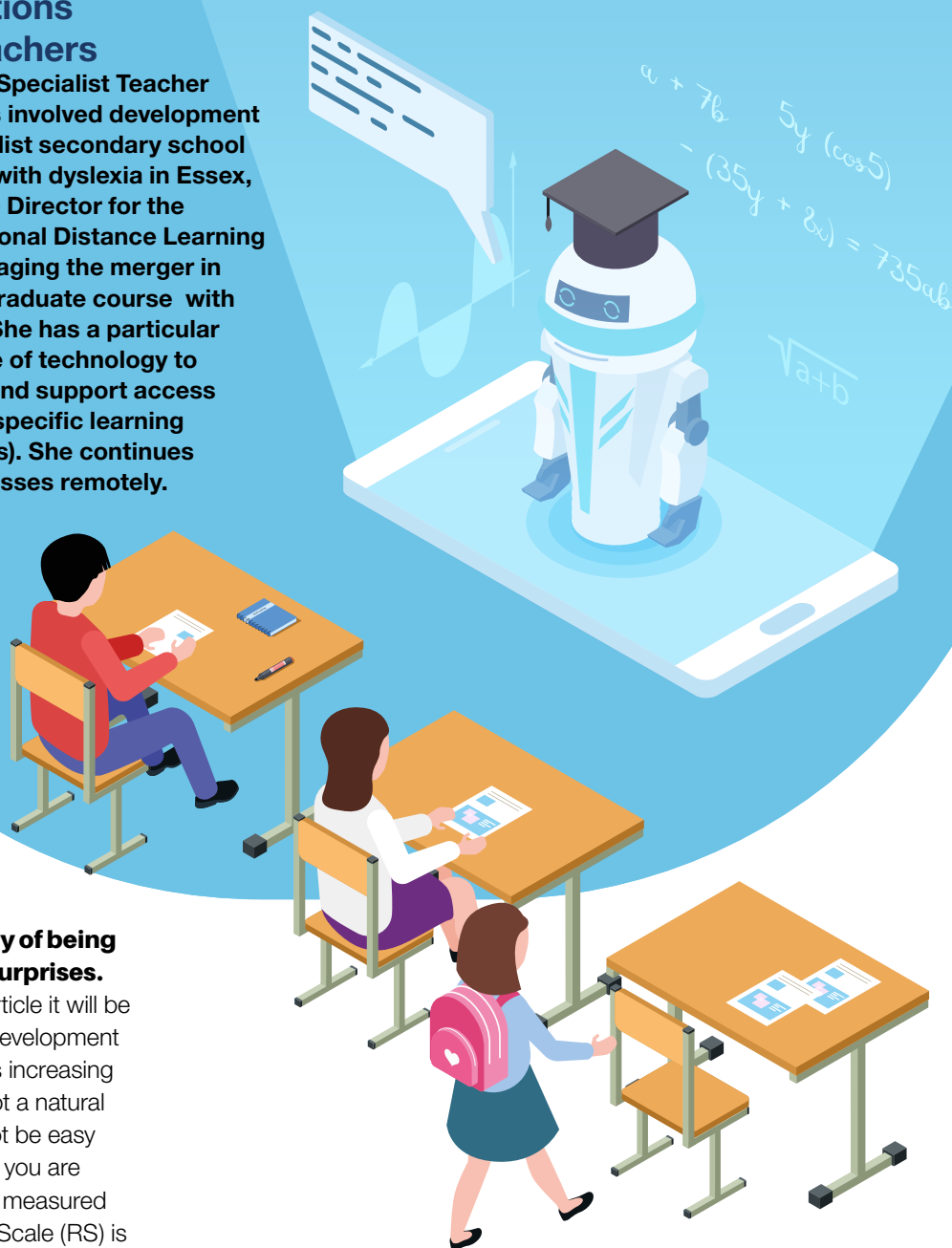
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Artificial intelligence: its power and disruption



The implications for us as teachers

Jane Dupree is a Specialist Teacher whose career has involved development of the first specialist secondary school unit for students with dyslexia in Essex, and being Course Director for the Hornsby International Distance Learning programme, managing the merger in 2007 of its post-graduate course with Dyslexia Action. She has a particular interest in the use of technology to remove barriers and support access for learners with specific learning difficulties (SPLDs). She continues to teach and assesses remotely.



Technology has a history of being fast moving and full of surprises.

By the time you read this article it will be out of date. The speed of development in artificial intelligence (AI) is increasing logarithmically. If you are not a natural mathematician, this may not be easy to grasp in detail. However, you are familiar with it: decibels are measured logarithmically; the Richter Scale (RS) is logarithmic in base 10 so an earthquake RS 7 is 1000 times more powerful than an earthquake with a magnitude of RS 4. AI is merely following in the footsteps of many technical advances that have moved faster than expected and we are being urged to prepare for it.

During the development of the mobile phone in the early 1990s, new technology provided two voice channels for communication and a 'spare' channel.

It was suggested that rather than waste the channel, it could be used to send text-to-text messages between phones and networks. No one assumed it would be used, yet it took off, despite the clumsy nine keys of a mobile phone of the time. By 1997, Nokia had released the first mobile phone with the Qwerty keyboard. Texting was here to stay and the world now sends 23 billion text

messages every day. The first iPhone was released in 2007 and in the interim 16 years, smartphones have become the devices that we cannot live without; as teachers, parents, and students we are all aware of the advantages and disadvantages that the smartphone has in our lives. Education must embrace AI: it is not like the hardware of a smartphone; it is invisible and ubiquitous.

One cannot simply ban it from the classroom to remove its undesirable effects. I wanted to write this article to raise awareness and generate discussions within our profession of AI currently impacting education, being used by our students and perhaps less so within the classroom and to look forward. In my opinion, there can and will be many advantages for students with SpLDs but there are also disadvantages unless we develop our teaching and learning, in the light of advances in AI.

Defining AI

There are many definitions of AI. This article makes use of the definition: “Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.” (Burns, E. 2022.)

AI in education today at the microlevel

Many applications have AI embedded, including Alexa, Siri, Grammarly, the Editor button in Microsoft Word, Google Classrooms, Duolingo and speech-to-text online text software. This article will focus on two areas of the curriculum where there is some considerable impact from AI already: maths and English. To begin with there has been an explosion in the use of online maths programmes – particularly to set homework, mark, and monitor students’ progress from years 7 to 11. These programmes have undoubted advantages for teacher and student. Marking is replaced with monitoring, which targets support and saves time. Programmes can personalise learning, a goal that as specialist teachers we have long advocated, to increase differentiation for our students. Embedded AI can monitor student responses and time spent when logged in and can repeat areas and topics that the student has found challenging. These techniques support overlearning so that students receive a cumulative experience.

Are you aware of apps such as ‘Snapmath’? Many of our students are.



The app takes a screenshot of your question; handwritten or from the computer screen, it takes a few seconds, and provides you with a worked solution, (see later panel, GCSE level 3 and 9).

I tutor online and I was introduced to such apps by students. The examples of questions I have shared here have written solutions. I have some students with well-developed intrapersonal skills who may look at the solution, learn from it, and use it as a model to work out the next question independently, until they understand and have embedded the skill in their long-term

memory. However, I have other students who will look at the answer, look at the multiple-choice solutions provided on screen in their maths programme and click. Hey presto A1, 100% correct. Move me on! Unfortunately, within a short space of time, the online programme has ‘personalised’ their experience beyond their knowledge and skills. You might think, “Goodness me, don’t let them find out about these apps” and then you remind yourself that teenagers are smartphone experts and additionally, they are very collegiate and share their discoveries quickly.

g is inversely proportional to the cube of h . Given that $g = 47.5$ when $h = 4$, find the value of g when $h = 2$. $g =$

To solve this problem, we can use the formula for inverse variation:

$$g = \frac{k}{h^3}$$

where k is the constant of variation.

We are given that $g = 47.5$ when $h = 4$.

Plugging these values into the formula, we can solve for k :

$$47.5 = \frac{k}{4^3}$$

$$47.5 = \frac{k}{64}$$

Multiplying both sides of the equation by 64, we get:

$$k = 47.5 \times 64 = 3040$$

Now we can use this value of k to find g when $h = 2$:

$$g = \frac{3040}{2^3}$$

$$g = \frac{3040}{8}$$

On the other hand, research by the University of Cambridge, (Brown, E., Culora, A, and Europe, R., 2021) looked at the relationship between the online platform Sparx Maths and maths outcomes and conclusions were largely positive. The authors note however that whilst the programme does not 'exacerbate any existing gaps for lower pre-attainment students, it is also not able, on its own, to close these gaps.' They emphasise that it is 'usage'

that is important. Therefore, in embracing AI we need to be looking at how our students use the programmes we give them to practise independently. We need to blend their use within class activities and evaluation. If there is no evidence of closing the gap for our lower-attainment students, this has implications for its curriculum usage.

I would advocate that language model-based chatbots can also be helpful but this is also dependent on usage. ChatGPT, AI software developed by OpenAI (allowing developers to access the source code to develop their own products), can generate natural language and can be convincingly human.

This software passed the Turing Test, originally called the Imitation Game, by Alan Turing, the famous mathematician, in 1950. In a recent experiment, I typed into chatGPT the question, 'How powerful is Lady Macbeth?' I asked for 600 words and in less than one minute I had the essay below.

Embedded AI can monitor student responses and time spent when logged in and can repeat areas and topics that the student has found challenging.

Simplify the expression:

$$p^2 + 2pq + 4qp - p^2$$

To simplify the expression, we can combine like terms. Notice that the terms $2pq$ and $4qp$ are like terms because they both have the variables p and q raised to the first power. Therefore, we can combine them to get $2pq + 4qp = 6pq$.

Now, let's simplify the expression further:

$$\begin{aligned} p^2 + 2pq + 4qp - p^2 &= 6pq - p^2 + p^2 \\ &= 6pq. \end{aligned}$$

Therefore, the simplified expression is $6pq$.

Case study

Lady Macbeth is one of the most intriguing and complex characters in literature, known for her ambition and her unwavering determination to help her husband achieve his goals. She is an enigmatic figure who is often the subject of much debate among scholars, with some viewing her as a powerful and ruthless woman, while others see her as a tragic figure who ultimately succumbs to guilt and madness.

At the start of the play, Lady Macbeth is presented as a strong and determined woman, who is willing to do whatever it takes to help her husband seize the crown. She is clearly the driving force behind the couple's plot to murder King Duncan, and she shows little hesitation or remorse as she urges Macbeth to follow through with their plan.

Lady Macbeth's ambition and her desire for power are evident from the very beginning, and it is clear that she is a woman who will stop at nothing to achieve her goals.

As the play progresses, Lady Macbeth's power and influence over her husband become even more apparent.

She is the one who spurs Macbeth on when he begins to falter, and she is the one who devises the plan to frame the guards for Duncan's murder. Lady Macbeth's strength and determination are critical to the success of the couple's plot, and without her, it is unlikely that Macbeth would have ever become king.

However, Lady Macbeth's power is not without its limitations. Despite her ambition and her cunning, she is ultimately unable to control the guilt and the madness that consume her husband. As Macbeth becomes more and more unhinged, Lady Macbeth is powerless to stop him, and she begins to spiral into her own descent into madness. Her guilt over her role in Duncan's murder consumes her, and she is plagued by nightmares and hallucinations that eventually drive her to suicide.

In many ways, Lady Macbeth's power is a double-edged sword. While her ambition and determination are impressive, they ultimately lead to her downfall. Her desire for power blinds her to the consequences of her actions, and she is unable to see the toll that her schemes are taking on both herself and her husband. In the end, Lady Macbeth is a tragic figure, a woman who is destroyed by her own ambition and her inability to control the consequences of her actions.

Despite her ultimate demise, Lady Macbeth remains one of the most powerful and compelling characters in literature. Her unwavering determination, her cunning, and her ambition are all traits that have made her a favorite among readers and scholars alike. While her power may have ultimately been her undoing, there is no denying that Lady Macbeth is a force to be reckoned with, a woman who is not afraid to take control and make her own destiny.



AI in education tomorrow

On 14th June this year Gillian Keegan, the Secretary of State for Education, launched a call for evidence, seeking the opinions of education and technology experts in 'Using artificial intelligence to transform education in a positive way'. It appears to focus on AI as it is now and not on a yet unimagined or curricular level. We could be teaching, from year 8, lower attainment language students how to access peer-to-peer translation of hundreds of languages, using programmes such as Meta's newly launched SeamlessM4T (Edwards, B. 2023). The Department for Education consultation summary has yet to be published, but it is encouraging to see the education sector placed at the forefront of change. Very recently on 4th July this year, the Russell Group of universities published five principles aimed at ensuring students and educators have 'AI literacy' and that both the opportunities and risks are managed, and these are worth looking at.

The use of AI is not just an ethical dilemma, it is a challenge to us all and one that must be embraced.

If you teach English literature, you will immediately see the flaws. However, if you are a student who struggles with 'how to get started' or with writing organisation and are overwhelmed by the task of essay writing, then the lead sentences of each paragraph would be very helpful to you. Whilst ChatGPT challenges us and may ultimately change the manner of assessment, to ensure authenticity of a student's work within education, it offers some support to students who lack confidence, and the organisational skills required for essay writing. The knee-jerk reaction of announcing that it will be fine if we keep all exams handwritten is not helpful to our students as they navigate this next industrial revolution. Their future career choices will be impacted by AI and the way that AI becomes integrated into education must be at the forefront. Our current secondary school model of classroom layout has not developed greatly since the Victorian era and so we need to begin to use our human skills as good teachers to integrate AI.

Future career choices will be impacted by AI and the way that AI becomes integrated into education must be at the forefront.

As teachers we are innovative and can find many ways of, for example, using such generated essays within the classroom to develop students' critical thinking skills, knowledge, and readiness for the working world they are about to enter.

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A review of the Citizen Literacy free Learner App

Tania Rogers, a Tutor on our Level 5 and 7 teaching programmes explores the free adult literacy programme.



Citizen Literacy is a small non-profit organisation based in Scotland, aiming to improve literacy skills in English speaking adults.

This organisation has several services available on its website including handbooks, workbooks, custom word activities, phonics dictionary (with video), tutor training and a free learner app and these are well worth an explore.

How the app works:

The app is easy to access: a QR code (given below) or link on the website

(<https://citizenliteracy.com/>) takes you to the web app. No downloads are required and there is no need to register as a user. The homepage has an overview of the units, with numbered lessons in each unit. Within each lesson there is another menu page showing the subsections of the lesson. It is simple to navigate: you can just make use of a simple list-style menu and there is a help button that gives audio instructions as well as a video link for more information. These videos and audio instructions are also present on every lesson activity, giving more information about each step in the programme.



Scan the QR code to download the Citizen Literacy free Learner App



Pros:

👍 The app is cumulative, a word that has a lot of meaning for anyone trained in specialist teaching and it builds up from a handful of graphemes (<m> <a> <t> <s> <p> <i> <n>) to word building, alphabet sequencing, capitals and lowercase, sentence building, reading and writing.

👍 The alphabet activities build up very effectively.

👍 I also particularly liked the homophone activities such as 'to, too, two'.

👍 There is good use of correct terminology throughout.

👍 A learner could pick up this app and work their way through it, building up skills as they go – especially if they are an adult or older child.

👍 This is accessible for learners at any stage in their reading journey as instructions are provided via audio clips and supported by picture cues.

Cons:

👎 There are a couple of glitches: for example, some of the pronunciations of the sounds are not quite accurate so when you blend the word 'to' you tap the <t> and the <o> but the wrong vowel sound is used for this word and you hear <oo> as in book rather than <oo> as in boom. I noticed this for a few of the words. This could be problematic for learners who are working through the programme independently rather than with a tutor.

👎 If you are planning to use this programme in conjunction with Dyslexia Action Literacy Programme (DALP) or other programmes it might be tricky as the words and sounds are pre-populated. This means

you would have to check that those in the app are in-structure for your learner. Looking at the website I can see that they do have a similar app where you can populate your own words into the activities which would be great, but this is part of the Tutor Hub which has a £65 subscription.

👎 It would be useful to have a list of the elements covered in each lesson so that as a tutor you could find exactly which sections you want to use with a particular student. This kind of 'dip in' approach would be helpful if you are trying to use this in parallel with other programmes. The lesson menu simply says 'Lesson 1' and then '1.1, 1.2, 1.3 etc.' for the sections within that.

I think the £65 subscription may be good value but this would depend on how much you plan to use it. If you were able to use it for every student and it could replace some other elements of students' lessons or other subscriptions it might be worth it.

The app is aimed at adults and so is not 'childish'. This is a real advantage if you are working with older learners. It could still be used for younger learners as well but as there are sites where you can populate your own words into fun colourful games for younger learners for free it might be difficult to compete with these options.

The subscription does also give access to the Tutor Hub which includes:

- Tutor handbooks
- Tutor-to-learner messaging and activities in the app
- Custom word and activity builder in the app
- Phonics dictionary and pronunciation coach.

These sections do seem useful and I can see how a tutor could base their teaching on this programme and utilise the related resources.



As for the free app, the main perk is that it can be given to learners almost as homework. Once you have covered an activity in a lesson you could ask them to complete the corresponding lesson at home for reinforcement.

In summary, I would say that for specialist teachers this app is well worth having a look at, especially if your learners are teenagers or adults and you are keen to avoid the child-like qualities of some online materials.

Dyslexia and adult outcomes: navigating challenges and discovering potential

Natalie Houalla is the Senior Instructional Designer for Real Group, as well as a Chair of Governors and SEND and Equalities, Diversity and Inclusion (EDI) Governor for Chesterton Primary School. Natalie is working towards a Masters in Educational Neuroscience and has spent nearly a decade working in education, specifically teacher training and development and SEND provision. Here, Natalie delves into the literature to explore the kinds of outcomes that can often be associated with dyslexia.



Introduction

Dyslexia has garnered significant attention in the context of childhood education. However, its impact also shapes adult outcomes. While often identified and addressed in childhood, dyslexia continues to influence the lives of individuals into adulthood, far beyond the perimeters of the school setting.

This article explores the multifaceted adult outcomes of dyslexia, including both the challenges and unique opportunities that it presents. Here, we will delve into areas such as the criminal justice system, higher education, and unique career paths, shedding light on the diverse journeys of individuals with dyslexia.

We will consider both the challenges that may impede success and the opportunities that arise from unique cognitive and characteristic strengths engineered in the face of literacy difficulties.

The Criminal Justice System

Individuals with dyslexia can face heightened vulnerabilities within the Criminal Justice System and challenges include increased risk of incarceration. Studies have suggested a correlation between dyslexia and an increased risk of criminal involvement, specifically that which leads to prison.

Research demonstrates the vast and yet largely hidden problem of high numbers of neurodivergent adults or adults

with learning difficulties trapped within the Criminal Justice System. In fact, 20-30% of offenders have learning difficulties that significantly interfere with their ability to cope within the Criminal Justice System.

The Prison Reform Trust states that the general agreement in prison-based studies is a rate of about 30% dyslexia, though rates of serious deficits in literacy and numeracy in general reach up to 60%. Deficits in literacy and numeracy are often defined as abilities below the age of an 11-year old (Level 1; Rack 2005; Bryan et al. 2004).

By 'serious', however, Herrington (2005) reported rather shockingly, that the *Basic Skills Agency Initial Assessment* showed that an astounding 60% of incarcerated adults had a reading ability equivalent to or less than that of a five year-old learner.

There are many factors which may contribute to overrepresentation of dyslexic individuals in the UK prison system (either directly or indirectly).

Undiagnosed or late diagnosis of dyslexia, for example, can lead to poor academic outcomes and therefore hindered career development and limited employment opportunities. Individuals who encounter barriers to securing stable employment may be more likely to involve themselves in criminal activities.

Similarly, dyslexic individuals may struggle in mainstream educational settings generally, only exacerbated without specialist support, which may lead to academic underachievement, school and task avoidance, and therefore self-esteem, mental health and behavioural issues.



More broadly, there is a limit to educational setting capacity. At times, with restricted funding and resources, education settings thematically find their staff overstretched, capacity for support interventions and ongoing provision may be challenged and lead to educational disparities for those with dyslexia. Again, all of these indirectly impact upon outcomes, attainment, employment barriers, and therefore the potential for individuals to turn to criminal activity.

Challenges faced by dyslexic inmates and implications for rehabilitation and reintegration

The prevalence of dyslexia among incarcerated individuals in the UK remains a subject of ongoing query and research. We now understand that dyslexia and literacy struggles are prominent within the criminal justice system, specifically those incarcerated, and though limited studies have been conducted in this specific context, studies suggest that the prevalence of dyslexia among inmates may be significantly **higher** than in the general population.

Moreover, dyslexia may be underdiagnosed or overlooked during the criminal justice process, leading to unaddressed educational and cognitive needs among inmates.

So, what does this mean for these individuals beyond their penal servitude?

Dyslexic individuals in prison face unique barriers and challenges that can affect their experiences and outcomes within the Criminal Justice System, specifically pertinent to their subsequent reintegration into society. These challenges may include:

- **Limited access to educational resources:** Dyslexic inmates may struggle to access or engage with educational and rehabilitative programmes due to their reading and writing challenges.
- **Communication barriers:** As dyslexia can also affect memory, time-keeping, concentration, organisation, multi-tasking and general communication, inmates with dyslexia

may find themselves at a significant, comparative disadvantage when engaging with rehabilitation services.

- **Exacerbated mental health issues:** The frustration associated with dyslexia, especially when undiagnosed and unsupported within the system, can contribute to poor mental health, potentially inflaming behavioural issues and putting individuals at risk of recidivism.

Interventions and preventative measures

Addressing dyslexia among incarcerated individuals is crucial for rehabilitation and successful reintegration into society. To address these issues, some jurisdictions have begun implementing strategies such as:

- **Screening and assessment:** implementing dyslexia screening and assessment programmes during intake to identify individuals with dyslexia.
- **Legislation:** In some international contexts, this is well under way. In his 2019 article, *Correlation Between Dyslexia and Criminal Behavior*, Douglas Ankney discusses the First Step Act, which includes provisions that require the Attorney General to implement a dyslexia screening programme for federal prisoners, and to 'incorporate programmes designed to treat dyslexia into the evidence-based recidivism reduction programmes or productive activities required to be implemented' by the statute. Unfortunately, the Act only applies to the federal Bureau of Prisons (BOP), while the majority of prisoners in the U.S. are held in state prison systems.
- **Tailored educational programmes:** Providing specialised support that accommodates dyslexic individuals' particular needs, outside of the educational context.
- **Training for prison staff:** Increased awareness can create a more inclusive, rehabilitative environment that meets their specific needs.
- **Legal advocacy and alternative sentencing programmes.**

Studies suggest that the prevalence of dyslexia among inmates may be significantly higher than in the general population.



Education and academic trajectory: challenges in higher education

Moving on to a more general population impact, let us consider adults' transition from school settings into higher education. It is estimated that approximately 10% of the global population has dyslexia, though measuring its prevalence reliably worldwide and across all languages is notoriously complex (Houalla, 2022). In higher education settings, students with dyslexia encounter a unique set of challenges that can hinder their academic success and overall educational experience. Understanding and addressing these challenges is essential for fostering inclusivity and equity in higher education.

For individuals with dyslexia, the transition to higher education can be daunting. The demands of college or university coursework, which often involves extensive reading and writing, can exacerbate the difficulties experienced in earlier academic settings.

Lack of reasonable adjustments can magnify these challenges, limiting access to educational resources. Consequently, many students with dyslexia may face:

- **Struggles with reading-intensive subjects:** Dyslexic individuals often find it challenging to keep up with dense readings in subjects such as history, literature, and the sciences.
- **Time-consuming study strategies:** Compensatory strategies, like reading materials multiple times or seeking extensive help, can consume substantial amounts of time, affecting their overall academic performance.
- **Navigating administrative hurdles:** Obtaining necessary accommodations, such as extended exam time or access to audiobooks, may require significant advocacy and paperwork.

- **Self-esteem, confidence, wellbeing:**

All of the aforementioned examples may contribute to lowered self-esteem, reduced confidence and poor mental health, which undoubtedly interfere with academic progress.

If we think about the historical deficit view of dyslexia, we can see how it may narrow research, hamper the progress of scientific discovery and constrain best practices to the detriment of the overall wellbeing and growth of higher education students with dyslexia. Conversely, we must consider the neurodiversity view of dyslexia, as an alternative to the deficit view, and explore how strengths-based approaches, such as *Universal Design for Learning*, can be used to support the overall wellbeing and development of students with dyslexia.

- **Positive adaptations and strengths**

Individuals with dyslexia often develop remarkable strengths as they adapt to their academic environments.

The unique way in which dyslexic people process language, and even stimuli in general, displays plenty of aptitudes that those without dyslexia may not have.

These include but are not limited to robust retrieval, or factual recall skills, complex puzzle and/or problem-solving, a deftness for creativity, abstract thinking, and making connections. Individuals with dyslexia may easily spot connections between objects, concepts, words or points of view.

Studies conducted at the University of East London found that dyslexic people had comparatively stronger skills in remembering a virtual environment when compared to non-dyslexic people (Attree et al. 2009).

- **Employment and career trajectories: challenges in the job market**

Transitioning from education to the workforce presents unique challenges for individuals with dyslexia. Many struggle with aspects of traditional employment, including:

- **Reading and writing demands:** Jobs that require extensive reading, writing, or data entry may be particularly challenging, leading to lower job satisfaction and performance.
- **Misunderstanding and stigmatisation:** Misunderstandings about dyslexia can lead to stigmatisation in the workplace, potentially affecting interpersonal relationships and career advancement.
- **Difficulty with standardised testing:** Career paths that rely heavily on standardised testing under pressure of time for entry, such as law or medicine, may present substantial barriers.

Unique career paths

The strengths associated with dyslexia can be valuable assets in various career fields. While traditional careers are viable for many individuals with dyslexia, some have carved out unique and unconventional paths. These individuals often thrive in environments that value creativity, adaptability, and hands-on skills. These may include but are certainly not limited to:



Entrepreneurship and innovation

Adults with dyslexia often excel in entrepreneurship as they may leverage their creativity, problem-solving skills, risk-taking abilities, and determination to build successful businesses. Famous dyslexic entrepreneurs like Sir Richard Branson and Sir James Dyson are inspiring examples of success in this field.



Science and technology/STEM fields

Some adults with dyslexia find their niche in science and technology, utilising their problem-solving skills. Notable dyslexic scientists like Albert Einstein and Thomas Edison made groundbreaking contributions to their fields.



Culinary arts

The culinary world offers opportunities for individuals with dyslexia to showcase their creativity and fine-tuned sensory perceptions.



Visual and performing arts

As dyslexic individuals may sometimes exhibit heightened visual-spatial awareness, this makes them well-suited for careers in the visual and performing arts. Fields like graphic design, photography, acting, and dance allow them to showcase their artistic talents.



Healthcare and allied professions

Those who have developed emotional intelligence and coping strategies could consider careers in healthcare, nursing, counselling, and occupational therapy.



Sports and athletics

Dyslexic adults often excel in sports and athletics, benefitting from their inclination towards heightened spatial awareness, determination and ability to adapt to dynamic situations. Athletes like Magic Johnson and Muhammad Ali have demonstrated exceptional success in their respective sports.



Film and entertainment

Dyslexic individuals, including renowned directors like Steven Spielberg and Quentin Tarantino, have excelled in the film industry, capitalising on their visual storytelling abilities.

Strategies for success

Assistive technology

Utilising assistive technology, such as text-to-speech software and speech recognition tools, can help adults with dyslexia overcome reading and writing challenges.

Time management and organisation

Developing strong time management and organisational skills is crucial for success in many careers. Adults with dyslexia can benefit from using digital calendars and task management apps.

Self-advocacy

Encouraging self-advocacy is essential for individuals with dyslexia. This includes informing employers and colleagues about their condition and requesting reasonable accommodations if needed.

Strength-based approaches

Recognising and harnessing their unique strengths can empower adults with dyslexia to excel in their chosen careers. Encouraging a strengths-based approach in education and the workplace is essential.

Inclusive workplaces

Creating inclusive workplaces is crucial for enabling adults with dyslexia to reach their full potential. Employers can foster inclusivity by:

Providing training: Offering training on dyslexia awareness to supervisors and colleagues can help create a supportive work environment.

Reasonable adjustments:

Implementing reasonable adjustments, such as flexible work hours and providing assistive technology can make a significant difference in an individual's success.

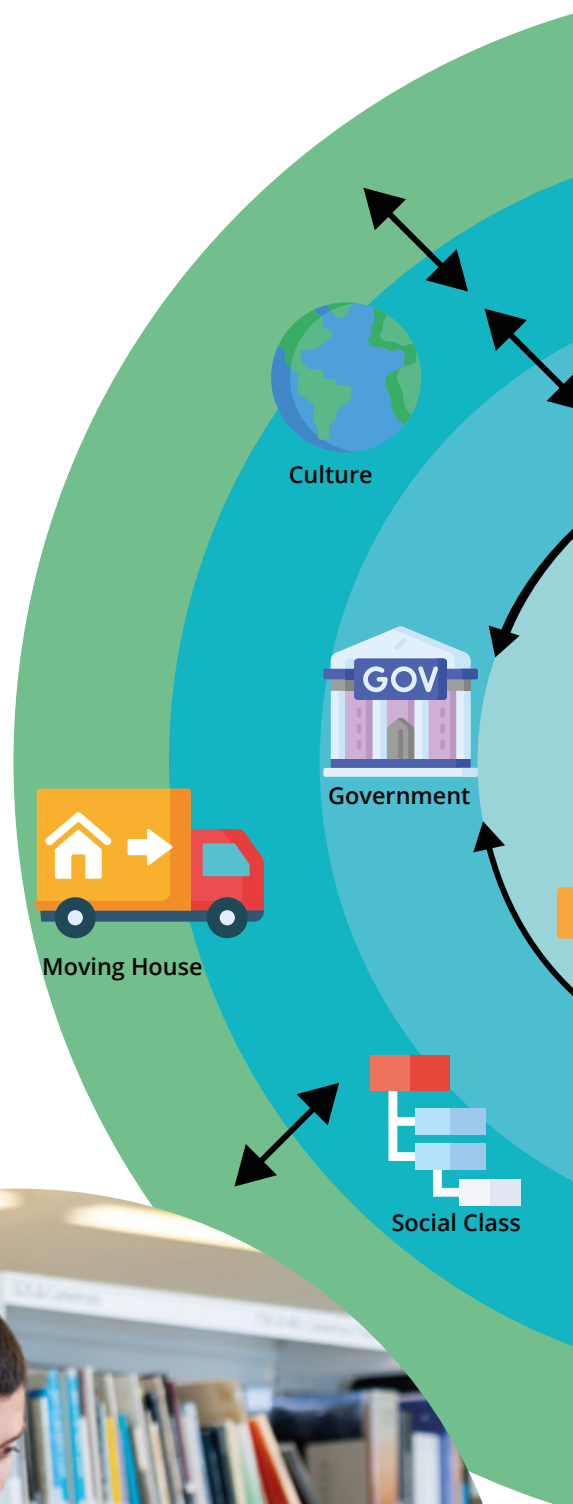
Encouraging diversity:

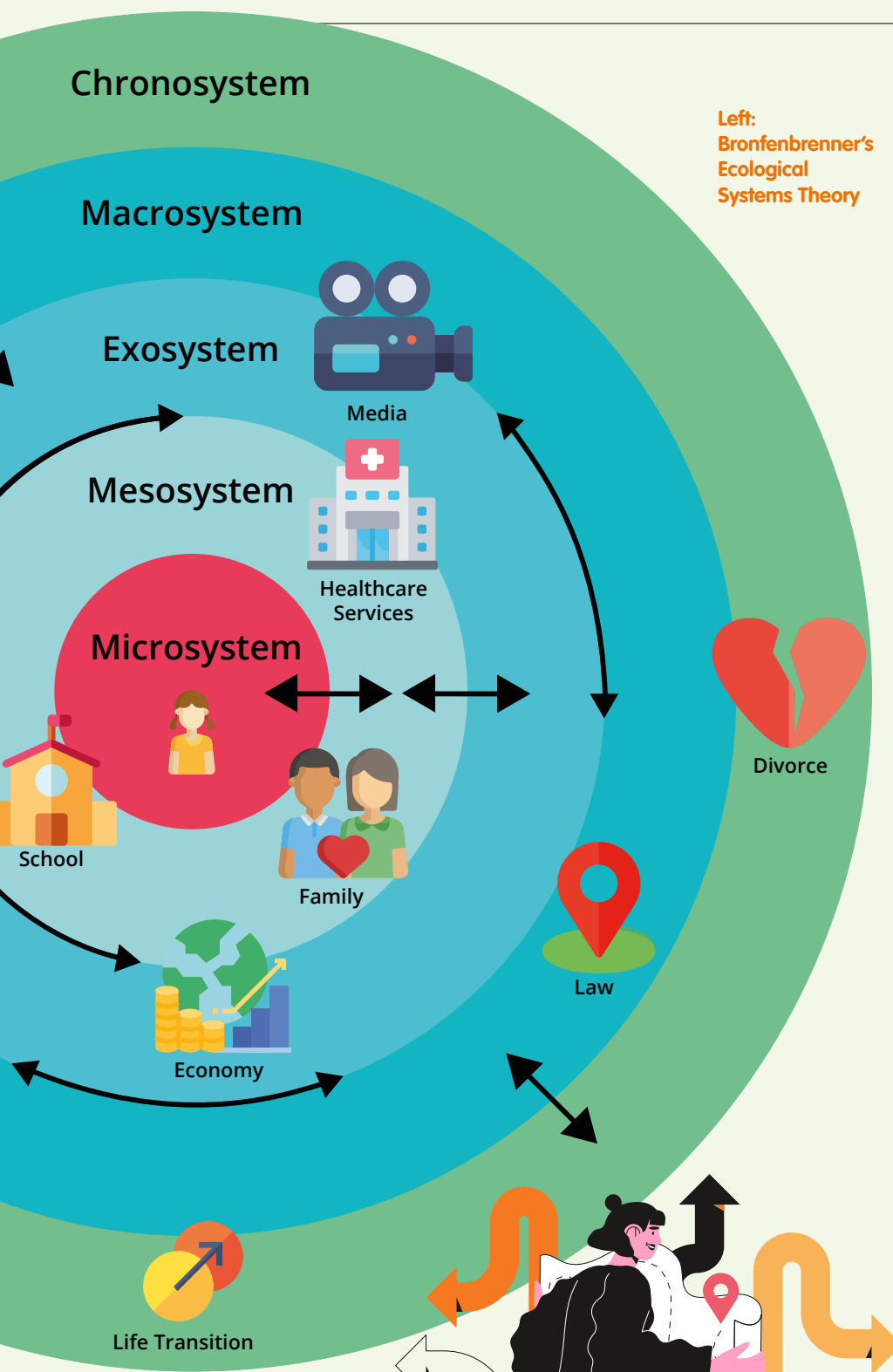
Celebrating neurodiversity and valuing the unique perspectives and abilities of all employees can foster a culture of inclusivity.

Let us take a wider view of dyslexia, including the contribution of an ecological paradigm to current issues. Bronfenbrenner's Ecological Systems Theory, for example, posits that an individual's development is influenced by a series of interconnected environmental systems, ranging from the immediate surroundings to broad societal structures. This may very well align with the notion that outcomes for adults with dyslexia are not influenced strictly by the individual and their immediate challenges with neurodivergence (microsystem), but by a broad range of external and indirect influences which pertain to the provision for, and support of, positive outcomes for those with dyslexia.

While dyslexia presents challenges in education, employment, and the Criminal Justice System, it can also

Celebrating neurodiversity and valuing the unique perspectives and abilities of all employees can foster a culture of inclusivity.





Left:
Bronfenbrenner's
Ecological
Systems Theory

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come with unique cognitive strengths, characteristics, and career opportunities, especially in the presence of appropriate interventions and support mechanisms. Recognising and accommodating the needs of individuals with dyslexia is essential for fostering their success in various domains. As society continues to evolve, embracing diversity in cognitive processing and learning will help to pave the way for a more inclusive and equitable future for all, regardless of neurodivergence.

If you are interested in reading more about dyslexia in adulthood, in the next issue we will be reviewing Dyslexia, Neurodiversity and Crime: Investigating the 'School to Prison Pipeline' by Dr Neil Alexander-Passe

Mathematics Lessons to Look Forward To!

20 Favourite Activities and Themes for Teaching Ages 9 to 16

(2022) Jim Noble. London: Routledge

Reviewed by Becky Bland, Dyslexia Specialist Tutor (APS, ADG, PPM)

Having previously studied early childhood education and being a relatively newly qualified Dyslexia Specialist Teacher I have found it both necessary and useful to widen my subject knowledge and knowledge of activities for maths with older children.

I found the book enjoyable to read, each chapter interjected with the author's humour and clear passion for teaching. The main part of the book, with the lesson ideas, is broken down into 20 chapters, one chapter for each lesson. The book begins with a foreword, prologue, introduction, discussion on the author's thoughts on mathematics education, and then a useful section where the author discusses his intentions of how the reader should engage with the book. The book finishes with an epilogue, two appendices containing further information, references, and acknowledgments. The 20 chapters about lessons are all set out in the same format. Each chapter begins with a brief description of what is going to be discussed in the chapter. This is followed by a discussion (often beginning with humour and relatable tales to get the attention of and engage the reader) about the lesson with practical tips and tricks learned over time and suggestions on how it can be differentiated or adapted to suit different age groups. Finally, each chapter finishes with a section about the main themes and thoughts on the lesson discussed and suggestions on what you, the reader, should try. I did try a couple of activities

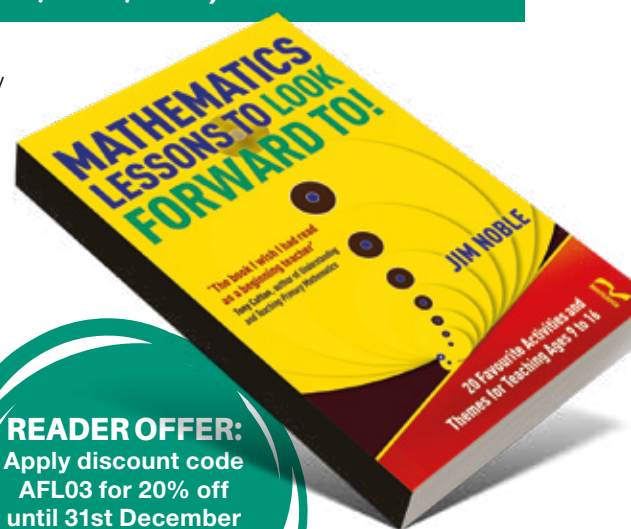
while I was reading the book (I really enjoyed the prime pictures from Chapter 10), but there's plenty more for me to return to.

The lessons described, in the main, are multi-sensory (and made me think very much of the ideas Dr Susie Nyman discussed in her seminar at the Dyslexia Show 2023). The lessons have been cleverly designed to help the maths learning become a concrete experience, which can then become pictorial, and eventually abstract. I noted key elements of the author's lessons being:

1. The initial 'hook', ensuring learners are interested and intrigued
2. Ensuring the learning is memorable
3. Giving students a sense of purpose and responsibility
4. Encouraging creativity, and flexibility of thought
5. Importance of learning and using mathematical language
6. Behaving mathematically – Who? What? Where? When? Why? How?

The author talks of his enjoyment in designing the activities to help make the maths come to life for his students. He clearly has a good sense of humour students will engage with, but also advises it is important to keep task design simple.

The author's lessons are impacted by the fact that he also teaches 'Theory of Knowledge' as part of the International Baccalaureate.



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I noticed scaffolding learning, developing awareness of metacognition, encouraging higher-order thinking and self-check opportunities being incorporated. The lessons also often had cross-curricular links, developing knowledge in geography, history, debating skills, art, verbal reasoning, listening skills, and even dance!

I would definitely recommend this book, for both teachers and tutors. It is hard not to be inspired by this book. While the author may acknowledge errors and possible pitfalls, he is clearly an expert in the field of teaching maths (although he claims he's not!). This book certainly meets the author's intentions for its purpose; it had me engaged throughout and created sparks of ideas about designing maths lessons to be purposeful, effective, fun, and memorable.

'I Can't Go To School!' The School Non-Attender's Workbook

(2023) Suzy Rowland. London: Jessica Kinglsey Publishers

Reviewed by Jo Cavanagh, Specialist Teacher – Maths/Personal Development/Careers, West Cumbria Learning Centre (a Pupil Referral Unit), and Jan Beechey, PG Dip LIS, MCILIP, Dyslexia Guild Librarian

Jo: Both facilitating and supporting discussions for individual and educator, this book is quiet yet chatty. The introduction easily explains the contents then peaks with the deeper thoughtful questions.

In a non-invasive way students are encouraged to interact with activities, providing a vehicle for them to explore thoughts and feelings whilst sharing an insight into their thought processes and understandings.

The activities are structured to scaffold learners' thoughts allowing them to verbalise and think internally thus the educator is able to gain a greater understanding of the learners' cognition and underlying thoughts on the subject.

Jan: The number of children who experience emotionally based school avoidance has increased. The latest Government statistics show that the percentage of 'persistent absentees' (missing 50% of schooling) has increased every year from 2015/2016 to 2020/2021. In primary schools, there was a 0.4% increase to 28,314 absentees. In secondary schools, a 0.6% increase to 46,717. This is a total of 75,031 persistent absentees during 2020/21 (DfE, 2023). Furthermore, persistent absence increases from Year 5 and 6 (4.8%) at primary school and peaks in Year 11 (14.3%) at secondary school (CSJ, 2022). SEND pupils account for 12% of all pupils in England and 20% of all persistent absences. In Autumn 2020, unclassified SEND provision, social emotional mental health (SEMH), autism (ASD) and moderate learning difficulties were the largest SEND-related reasons for absences. So it is very important to get children re-engaged with learning.

Suzy Rowland is an autism and ADHD specialist trainer, author, cognitive behavioural therapist and founder of happyinschool project and Teen Girls Circle. She speaks directly to the reader in a positive and reassuring manner with examples of how to

express feelings. In her book, Suzy Rowland is keen that we treat the anxiety around school refusal with compassion in order to begin solving it.

Although illustrated, I do feel the book is a little text heavy and for this reason I would recommend that it be used with guidance from a parent or teacher, as it may be too onerous for those with reading difficulties.

It is aimed at age range 12-19, but I think the tone and the illustrations may be a little immature for any street-wise older teenager.

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The Teacher Toolkit Guide to Memory: Turning theory into practice

(2022) Ross Morrison McGill. London: Bloomsbury

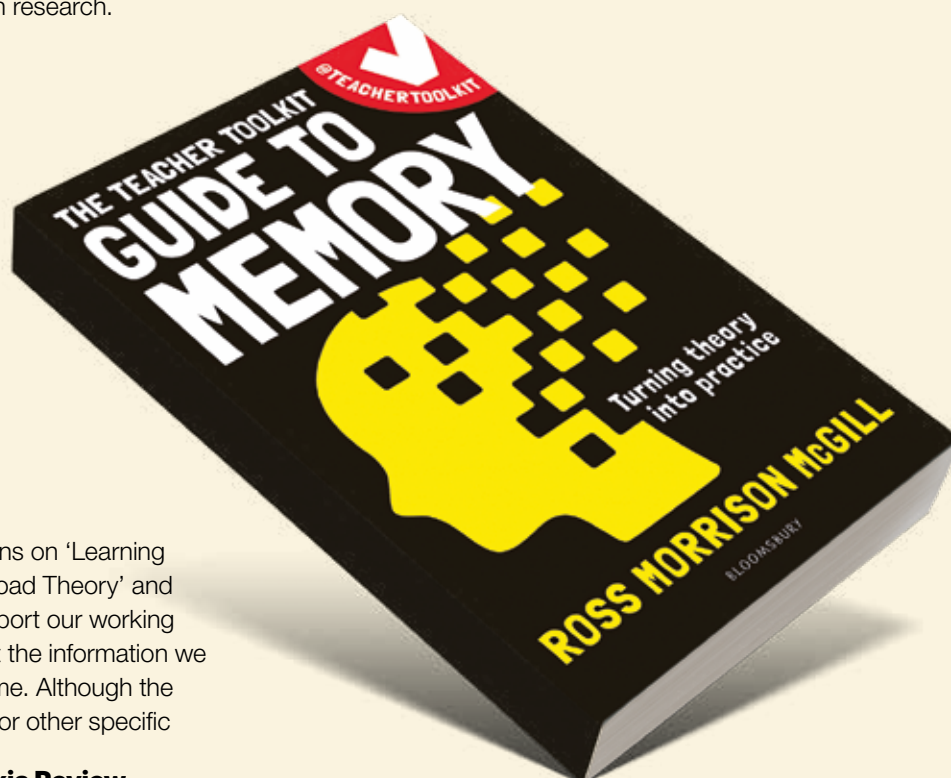
Reviewed by Jan Beechey, Dip Lis MCILIP, Dyslexia Guild Librarian

I have been on the lookout for a really good guide to memory that is easy to read and is related to education and teaching. At last, this publication from Ross Morrison McGill fits the bill. He has put everything he has learned on his own learning journey into a beginners' guide for teachers. He acknowledges the influence of highly respected sources such as Learning Scientists, Education Endowment Foundation (EFF), and authors such as Barak Rosenshine, all of which Dyslexia Action has highlighted to students on our courses. Morrison McGill also recognises the importance of informing ourselves of the relevant research so we can develop a wide range of pedagogical strategies that best fit our students' needs. In his introduction, it was refreshing to see a subheading 'Recall doesn't mean you have learned it'; this dovetails with our own training courses with the emphasis on comprehension and meaningful learning rather than rote learning. The book backs everything up with research. The book chapters are all well set out with four sections:

- 1. Explainer** – what you need to know about the topic, key theories or key terms
- 2. Practical idea** – what helps turn theory into practice with step-by-step instructions
- 3. Worked example** – how this might work in practice with exercises to complete
- 4. Template** – a blank template to help you plan how to implement your ideas in the classroom.

I am pleased to see chapter sections on 'Learning is Emotional', but also 'Cognitive Load Theory' and the idea that we can hinder or support our working memory by being intentional about the information we are giving to learners at any one time. Although the book does not talk about dyslexia or other specific

learning difficulties, how something is taught can have a huge impact on those with memory weakness. I also liked the chapter on 'Brain Plasticity' with some great illustrations plus infographics on how we move from Novice, Intermediate and then to Expert. The chapter on 'Wellbeing and Memory' looks at diet, exercise and sleep and how they can impact memory function. Although these factors are often out of the control of the teacher, the author gives ideas on helping students reflect on their own physical, mental wellbeing and on some of the healthy habits they might adapt to support their learning. Chapter 10 focuses on teacher CPD and getting the most out of it. The book includes QR codes to many further resources, research and a 'Five Minute Memory Plan' to help support you in implementing the ideas from the book into the school year. Although aimed at those working in a school setting, there is a lot in the book that could be adapted for teaching adults such as feedback loops and mnemonics.



Teaching Adult Learners with Dyslexia and English as an Additional Language: Practical Tips to Support Best Practice

(2023) Paul Demetriou, London: Routledge

Reviewed by Jan Beechey, Dip Lis MCILIP Dyslexia Guild Librarian

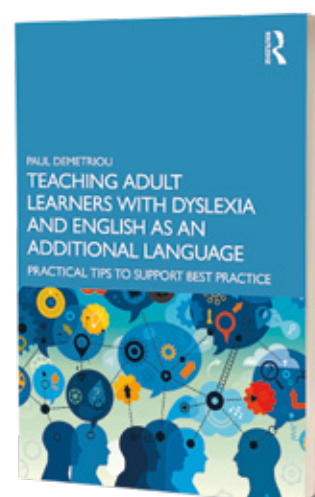
There is not much published on the subject of how to teach adults who have English as an Additional Language (EAL) and learning differences, so it is great to find a book that intends to fill that gap. The book contains both theoretical discussion and practical examples that aim to help you develop a thorough understanding of the needs of these learners, and encourages you to make connections between the various aspects of teaching and to develop a more inclusive approach to minority groups.

I am particularly impressed with the research and statistics that the author has drawn from and referenced, many of them aligned with sources used in our units, *Dyslexia in Multilingual Settings* (DACPD94) and *Supporting Study Skills in Adults with Dyslexia* (DACPD92). The author admits that Universal Design for Learning (UDL) has been a key influence on the design and selection of many of the strategies selected in the book. UDL is a framework based on a series of differentiation principles that aims to provide all learners with equal opportunities to learn, regardless of their diverse needs.

The book covers four areas: Teaching and Learning, Assessment and Feedback, Differentiation, and Academic Skills. Chapters start with an individual contents page listing the strategies available. There are templates that can be used and adapted, and this is a main aim, to make the book a toolkit

that enables you to learn about an issue and identify approaches for addressing them. There are case studies that can help give the strategies context.

Individual chapters cover subjects such as developing students' independent learning skills, and critical reading, writing and thinking – all vital to academic study skills, and all particularly difficult as they are complex and time consuming for students to master. Chapter Four, Assessment and Feedback, looks at some of the main types of assessment such as comprehension tasks, questioning, Dictogloss (a supported dictation strategy used in US high schools), Cued Spelling (an example of peer teaching and assessment), the use of rubrics (assessment tool or set of rules or instructions) and peer assessment. Chapter Five examines how different methods of self-assessment can enhance learning and promote student motivation, self-regulate emotions and manage learning more efficiently. The chapter on differentiated teaching and learning is comprehensive and rightly so, as studies have shown that it is particularly important as a framework to support the needs of students who struggle to access the curriculum due to language or literacy difficulties. The Differentiation chapter is a multi-faceted programme of activities aimed at meeting the individual needs of students and the way they learn in classrooms. The assistive technology chapter covers



types of learning, and some of the key e-innovations such as Remote Teaching, and Active Blended Learning but also use of types of technology such as social media platforms, e.g. videos in TikTok.

The chapter following these looks at the development of academic skills such as critical reading, note taking, summarising etc. The idea is to take all the teaching strategies mentioned in previous chapters and focus them onto a single area of learning that can feel very problematic for those students with both EAL and dyslexia. Chapter Nine looks at barriers to reading comprehension and several methods that can be used to improve this.

I would highly recommend the book to anyone working within further or higher education, and to EAL students themselves, as they can benefit from understanding these multi-dimensional learning preferences.

Black, Brilliant and Dyslexic

(2023) Marcia Brissett-Bailey (editor). London, Philadelphia: Jessica Kingsley Publishers

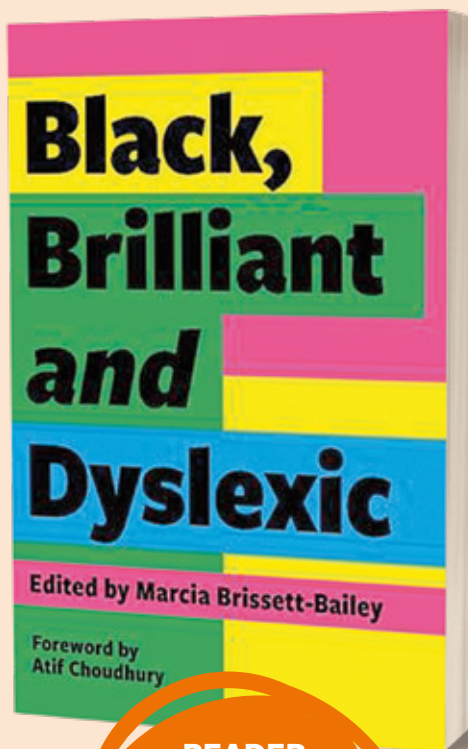
Reviewed by Fiona George, Specialist Tutor, ADG FE/HE

In recent times, dyslexia is a term which is widely used and understood among professional educators and the general population, to a more or lesser extent. This book takes a fresh and novel approach to exploring how it can be understood from the perspective of being black and dyslexic. Most notably, the authors have chosen to highlight positive aspects of dyslexia as their focus by documenting the stories of inspirational role models and entrepreneurs.

The book takes an intersectional approach to consider issues of education, work, daily life and creating success, in relation to how these have impacted the experience of their contributors and this is comprehensively crafted over 26 chapters.

Initially, however, from reading the introduction, defining terms and explanation of what dyslexia is, it would be easy to think that the book offers nothing new or be unclear as to what should be taken from it. Look closer! It aims to bring an awareness of how dyslexia may present in the black community, the stigma, barriers to disclosure, the misdiagnosis and repercussions. In targeting children, young people and adults it hopes to empower people to embrace the different ways in which they think.

The contributors are not only telling their stories of how they battled through adversities to become successful, they also share practical advice, they encourage readers to ask for help, they show how differences can be positively employed and importantly



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give an insight to parents and other influential adults, as to how to negotiate daily life with dyslexia.

This is found to be particularly true when navigating the education system which, in the past, did not recognise dyslexia or individual differences. For many this resulted in feelings of being unintelligent, 'dumb', lacking in confidence and struggling with an identity of being black, backward and disinterested. It is telling, however, that each identifies with the impact of receiving support. Not that this always

proved to be the panacea to all dyslexia problems in the school system as contributors tell of support not being given at the right time to be beneficial or not in the right format nor at the right stage of their education. Equally, however, there are those who can tell of the positive impacts of receiving an early assessment and diagnosis, of having extra in-class assistance, exam support and tutoring and of having knowledgeable understanding teachers, aware of their difficulties and willing to inspire their learning.

Beyond the different accounts of educational experiences, the contributors give an insight into how their dyslexia impacts and/or influences their adult lives. Brissett-Bailey herself, despite her success in academia

and as an author, still feels she has to work twice as hard – a sentiment that is echoed throughout the black community, alongside an ongoing quest for role models 'who look like me!' And this is what this book gives its readers; successful role models, their different paths to career and life success, whilst also acknowledging the very real barriers and obstacles that can come with being black and dyslexic.

Ultimately, the value of this book is in its intersectional approach – how it recognises that this often hidden neurodiversity impacts many different areas of life, and the multidimensional experiences given by its contributors. In reading this book, there will be some aspect of the black experience which both neurodiverse and neurotypical readers can identify with.

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