

Current Practice With in the Field Of Dyslexia in Scotland, UK



***Anna L Cunniff**

Postgraduate at University of Edinburgh, UK

Submission: June 29, 2017; **Published:** July 26, 2017

***Corresponding author:** Anna L Cunniff, Postgraduate at University of Edinburgh and Associate Psychologist at DysGuise Ltd, Scotland, UK,
Email: annacunniff@hotmail.com

Abstract

The aim of this paper is to examine current practice in the field of Dyslexia, within Scotland. Firstly, a discussion of theoretical issues provides a conceptual framework for subsequent consideration of assessment and intervention strategies. Secondly, a critical description is presented of the assessment process for Dyslexia. Thirdly, building on previous context, within school barriers to learning are identified and analysed. Finally, examples of Inclusive Practice are outlined, providing evidence-based practical solutions to promoting Inclusion.

Keywords: Dyslexia, specific learning difficulties, learning, inclusive practice, Scotland

Introduction

The aim of this paper is to examine current practice in the field of Dyslexia, within Scotland. Firstly, a discussion of theoretical issues provides a conceptual framework for subsequent consideration of assessment and intervention strategies. Secondly, a critical description is presented of the assessment process for Dyslexia. Thirdly, building on previous context, within school barriers to learning are identified and analysed. Finally, examples of Inclusive Practice are outlined, providing evidence-based practical solutions to promoting Inclusion.

Dyslexia may be understood as a hidden learning difference Thomson [1], Reid [2], unrelated to intellectual ability Wagner [3], manifesting at biological, cognitive and behavioural levels Morton [4]. Processing differences in people who have Dyslexia affect intake of information, how it is understood, memorised and categorised (cognitive processing). It also impacts upon how learning is demonstrated. Defining Dyslexia allows insight into types of challenges faced, identifying areas for intervention. Reid [2] definition places cause to one side, defining Dyslexia as:

"A processing difference, often characterised by difficulties in literacy affecting reading, writing and spelling. It can also have an impact on cognitive processes such as memory, speed of processing, time management, coordination and automaticity. There may be visual and/or phonological difficulties and there

are usually some discrepancies in educational performances" Reid [2].

Current Theoretical Issues

Developmental disorders frequently present on a continuum Ott [5] and overlap (Bishop and Snowling, 2004). Research suggests up to 60% of children with reading disability also meet criteria for another disorder, making it the rule, rather than the exception Boda and Pennington [6]. The estimated ratio of males to females diagnosed is 3:1 Anderson [7]. It is possible this could be a result of 'referral bias', with boys tendency to act out more in class increasing referral Arnett et al. [8]. Dyslexia is associated with secondary factors such as sequencing, concentration, organisation and memory Smith-Spark, Messer [9]. Genetic issues are also influential, with 30-50% of children of a parent with Dyslexia, developing Dyslexia Skeid et al. [10]. Pre-school indicators, such as poor early language and motor skills, can identify those 'at risk' of developmental disorders Bergen et al. [11].

The importance of literacy in education and beyond is widely supported Hulme et al. [12], with reading essential for education, the workplace and overall well-being Froiland et al. [13]. The impact of Dyslexia extends beyond learning, to social and emotional adjustment Glazzard [14], Gibson and Kendall [15]. Unidentified literacy difficulties may lead to later negative

outcomes Mc Nulty [16]. Difficulties in school have potential to negatively impact self-esteem, leading to anti-social behaviour, exclusion and offending Lane et al. [17], Macdonald [18]. Highlighting the link between poor literacy and behavioural problems, Hewitt-Main [19] surveyed prisoners at Chelmsford Prison, finding 53% (n: 2,029) compared to the UK population of 10%, had Dyslexia. As such, importance of early identification and significance of diagnosis is highlighted Snowling [20].

A research base of international evidence exists, including systematic reviews and meta-analysis Brambati et al. [21] Rath et al. [22] highlighting similar difficulties, despite differing orthographies. A drawback, however, concerns the lack of longitudinal studies and differences in study samples/methodologies across fields, making comparisons challenging. In evaluating the evidence, it is crucial to take a critical approach and acknowledge alternative explanations.

Theories of Dyslexia may be considered at biological, cognitive and behavioural levels. At biological level, differences are identified in brain structure Ramus [23] Singleton et al. [24]. Magnetic Resonance Imaging (MRI) has repeatedly highlighted differences in the neural stem for typical versus dyslexic readers, Kraft et al. [25]. Results comparing MRI for those with/without Dyslexia, reading pseudo and real words, show greater activation during phonological analysis in typical compared to Dyslexic readers, in posterior reading systems. Potential weaknesses with MRI data, however, include type 1 and 2 errors, alongside selection bias Ripley et al. [26].

The Cerebellar Deficit hypothesis (Fawcett and Nicholson, 2008) offers a biological level explanation, suggesting the cerebellum is susceptible to gestational damage, impacting motor and language factors. Research has demonstrated influence on skill acquisition, timing/automation of cognitive and motor skills Snowling [27], and offering explanation for co-occurring issues. Critics, however, highlight uncertainty regarding motor skills issues, suggesting relevance only for a minority sub-group with attention issues Raberger and Wimmer [28].

Cognitive theories point to processing differences, such as processing speed Breznitz [29] and procedural timing Fawcett and Nicholson [30]. Issues surround factors such as: phonological awareness Vellutino et al. [31], literacy acquisition (decoding/encoding) and automaticity Jones et al. [32]. At cognitive level, the Phonological Deficit Hypothesis Snowling [29] emphasises the speech-sound basis of language. Related difficulties include phoneme deletion, and non-word repetition. An advantage of this explanation is that it helps individualise intervention Dickie [33]. As with much research, the exact interactions between phonological awareness and representations remain to be understood. The phonological deficit hypothesis, for example, is challenged by work suggesting phonological representations may be intact, whilst subsequent access is impaired Boets et al. [34]. Furthermore, there is no explanation for sensory and motor difficulties Snowling [29].

Whilst evidence accumulates, Morton and Frith [4] Causal Modelling Framework provides guidance from which to understand contributions of differing theories. Applying theory to practice, the framework provides a multifaceted explanation, integrating current research findings. Its flexibility allows teachers to understand the range of co-occurring factors, whilst accounting for developmental stage, environmental factors and their impact in class. Teachers can consider characteristics at each level, such as awareness of genetic predisposition (biological) and poor spelling, phonological awareness and organisation (behavioral). Behavioural level factors such as anxiety, attempts to hide work, copying, hesitant reading and task avoidance, may be observed.

Reid [2] highlighted the importance of social/cultural environmental influences, and acknowledging different learning styles. For example, environmental factors such as exposure to books Carlson [35], has been shown to predict later literacy achievement. At school, aspects such as class size, instructional methods, teacher knowledge, are all influential Shaywitz et al. [36].

Policy

Recommendations from UK policy reports have provided guidelines regarding definition and intervention for Dyslexia Rose [37]. In Scotland, local authorities hold a duty under the Equality Act (2010) to promote equality and inclusive practice. Specific to Scotland, the Education (Additional Support for Learning) (Scotland) Act Scottish [38], has outlined legal issues in relation to local authority practices.

This includes an obligation to identify and provide effective intervention for additional support needs. The Act, and associated Code of Practice Scottish [39], outlines a 'good practice' framework including partnership working, coordinated support plans, seeking learners' views and continuous review. Subsequent Scottish reports: Education for Learners with Dyslexia Scottish [40] and the 'Making Sense' review Scottish Government 2014, highlight the importance of unified approaches and early intervention, alongside dissemination of good practice. Embedded within the broader context of the Curriculum for Excellence Scottish [41], Getting It Right For Every Child Scottish [40] (GIRFEC) emphasised the necessity of a staged approach, targeting needs of children with Dyslexia. This incorporates a framework for assessment, planning and intervention.

Throughout policy documents, early identification and a move from the 'Wait to Fail' approach Leij [42] are key messages for all staff. A recommendation from the Rose Report was a need for specialist teacher training, so that all schools have a level of expertise Rose [37]. The Addressing Dyslexia Toolkit (ADT) (Scottish Government and Dyslexia Scotland) promotes an evidence-based practical resource for educating learning providers, allowing them to identify appropriate assessment/

intervention strategies. The 'Making Sense' review Education Scotland [43], recommends greater use of the Toolkit and national accreditation schemes for dyslexia friendly practice. In terms of translating research into practice and implementing policy, the revised March 2017 ADT offers a flexible, although potentially under-used resource for training/guidance and intervention.

The Assessment Process in Scotland

Assessment involves gathering information using various methods, such as observations, interviews, personal history, and tests Phillips and Kelly [44]. The testing component is only one strand of this process, feeding into the development of a pupil profile. The purpose of assessment is to identify strengths, weaknesses and barriers, resulting in adjustments geared towards learning style and support provision Kirkup [45], Newton [46]. The presence of strengths or any compensatory strategies can be used to individualise subsequent support. Strengths should be encouraged, as these often compensate for 'left brain' weaknesses and may be advantageous Nicholson [47]. Assessment should be individualised and appropriate to the objectives of the curriculum Chanock et al. [48]. In light of research indicating the detrimental impact of the 'Wait to Fail' approach Wagner [3], early intervention is key to preventing disengagement Brooks [49]. In the case of indicators (e.g. poor sequencing), provision of prompt support is important, alongside considering wider environmental context. Collaboration between teachers, learning support and parents is central to gaining perspective of a child's strengths and challenges Everatt and Brooks, [50]. Parents play a key role in awareness of early indicators, such as motor skills and developmental milestones Jones and Kindersley [32]. Parental involvement should be facilitated and can also serve to reassure, as parents may be anxious about their child's future. The 'gathering information' form (form 1, Dyslexia Pathway) within the ADT can be used to identify relevant issues, including developmental milestones and family history Reid [2].

Outlined the importance of 'whole school involvement' and staff awareness of Dyslexia indicators. The availability of a policy in school to identify and monitor observations is important. Drawing upon a Staged Process Model, GIRFEC encourages a holistic overview allowing identification of strengths, whilst considering the child's views. The Pathway Overview for the Identification and Support of Literacy and Dyslexia within the ADT can be utilised throughout the identification process. Steps include: raising initial concern, a 'what to look for' checklist, 'establishing needs' (Form 1) and monitoring strategies. Early screening can identify problems before a cycle of failure, disengagement Crombie [51] and self-esteem issues begin (Phillips et al, 2013, p.58). Research also demonstrates that earlier detection leads to better outcomes from intervention Bradley 1989.

Early indicators may be non-verbal, such as memory, weak coordination, and poor awareness of rhyme and slow development of speech. At informal early stages, screening questionnaires and checklists can be used to record observations. Examples of early screening tests are the Cognitive Profiling System (CoPS 1) Nicholson and Fawcett 1995 and the Dyslexia Portfolio Turner [52]. At later stages, literacy indicators may arise including poor spelling, slow reading and missing lines of text. Related behavioural and emotional issues may arise as a result of frustrations.

Background information from multiple informants starts the formal assessment process. Developmental frameworks Ehri [53] provide additional guidance, accounting for developmental influences and stages. Potential factors such as visual stress, and EAL status (cultural bias, fluency) Jones and Kinsersley [32], must be also be considered. Following this process, formal testing of cognitive ability and attainment occurs. In order to assess cognitive abilities, verbal and non-verbal tests allow insight into verbal reasoning and vocabulary knowledge. Non-verbal ability tests assess visual perception (visual reasoning and visuo-spatial ability). Drawing upon theories such as the Phonological Processing Hypothesis, areas such as phonological awareness (ability to identify/manipulate sounds) and processing speed (phonological/visual processing) are assessed. Norm referenced attainment tests may be administered for reading (accuracy, comprehension, fluency, speed), writing, spelling, single-words, non-words, silent and oral reading comprehension (fluency and understanding), listening comprehension, spelling and free writing. Criterion referenced assessments (curriculum based) may identify progress with specific skills, Fisher [54].

In collating results, Morton and Frith's [4] framework can be referred to, ensuring factors at each level are considered. In reaching a 'diagnosis', observation of strategies used for verbal and non-verbal tasks (e.g. chunking) or potential influences, such as anxiety, are noted. 3 'D's: discrepancies (expected versus achieved), difficulties (e.g. timed tasks) and differences, provides additional guidance for interpretation. Like a jigsaw, evidence is collated to see how it 'fits' in relation to Dyslexia. It is important to understand the impact of a profile on attainment and which processes are impaired Callens and Brysbaert [55]. The 'best fit' label to describe the learners' profile is concluded, leading to appropriate adjustments.

Within School Barriers to Learning

It is important to be aware of potential barriers, anticipating them in advance, when working with Dyslexic learners. This involves being prepared for inclusion, requiring knowledge and understanding of Dyslexia. It is important that 'Inclusion' is not negative for teachers, in terms of time, resources or feeling 'spread thin'. Austin BDA Handbook [56] identified a lack of teacher training, resulting in teachers feeling unconfident in understanding and identifying Dyslexia. This presents a barrier

at policy, school and individual level, although the ADT is making progress towards overcoming these issues.

Education in Scotland is guided by legislation and educational policy in relation to inclusion and additional support needs (e.g. Additional Support for Learning Act). The Centre for Studies in Inclusive Education in the UK (www.csie.org.uk/inclusion), promotes valuing and respecting individuals, whilst welcoming diversity. In stating 'inclusion is about practice, not just criteria', highlights importance of awareness, and acting upon guidelines. According to key factors for successful inclusion are: authority commitment, realisation of inclusion issues and needs, embracing social, cultural and educational equality, flexible approaches and acknowledging individual differences.

There are different ways of thinking about barriers, ranging from theoretical frameworks for considering risk factors, to practical issues such as staff training. Wearmouth [57], identified potential barriers within the learning environment as challenges to Inclusive Practice. She highlighted factors reducing schools' capacity to respond flexibly to learning needs, including: regimentation, lacking individuality and chronological age grouping. Teaching environments are influential, indicating the importance of focusing on factors (e.g. task format, expectations) outside the child Reid and Came [58]. Furthermore, expectations of teachers and their motivation to understand/support struggling learners need to be acknowledged Lindsay [59]. Considering wider context is important, as barriers may arise due to interaction between child characteristics and context of the pedagogy/support resources.

The Rose report [37] outlines how these aspects can be addressed in practice. Practical examples of classroom barriers might include poor staff awareness in relation to how they present information, teachers talking too fast for a child to process, teacher/peer attitudes, lacking differentiation, no opportunity to over learn and inappropriate focus on spelling, resulting in demonization. Additional barriers include the 'waiting for assessment' approach alongside poor collaboration between staff and parents.

School-wide staff needs awareness of potential barriers and acknowledgement that their understanding and attitudes are influential. Reid outlines the 'Whole School Involvement' model Reid, 2016 [2] as a guide to ensuring staff training, awareness, understanding the impact of teaching and need for collaborative monitoring. In response to these challenges, suggested factors necessary for accommodating individual needs in an Inclusive Environment. These include diversity (e.g. recognising different learning styles), collaboration (e.g. whole school approaches), flexibility (to needs), integrity (needs before policy and obligations) and ambition (goals that maximise potential).

In practice, Morton and Firth's [4] Causal Modelling Framework can be used as a guide to identify potential barriers. In reference to the model, Reid and Came [58] suggest that

when identifying barriers, it is essential to include cognitive (learning skills), environmental (learning experience) and behavioural (progress in basic attainments) factors. Most importantly, barriers can be identified by observing, and talking to learners and parents. Dyslexia Scotland's [60] guide 'Working with Parents' outlines issues to consider when adopting a positive collaborative approach to working with parents. Collaboration between teachers, learning support and parents is also crucial in order to gain a complete picture of a child's strengths and challenges, supporting them to achieve the goals of the Curriculum for Excellence. The Lamb Inquiry Lamb 2009 highlighted that parents welcome involvement in assessment and decision making. This also promotes parental confidence in school and allows a role in any intervention Phillips [44].

In translating research to practice, Calder [61] describes a 'best practice scenario', aiming to promote an inclusive environment customised to students' needs. This involves comprehensive assessment, parental and multi-agency involvement, appropriate differentiation, building self-esteem, encouraging autonomy and development of life skills. Clearly, this type of approach requires understanding of Inclusion principles (acknowledging differences/recognising strengths/flexible teaching approaches). It also requires school commitment, planning and staff training. The availability and awareness amongst staff of a clear policy in school to identify barriers and monitor observations is important. Access to guidelines and understanding of responsibilities promotes good practice and collective understanding. In school, ongoing staff training at all levels (class teacher, teaching assistants and support for learning teachers) is crucial. Resources such as the Route Map for Dyslexia and Inclusive Practice (Dyslexia Scotland) within the ADT can support this.

Also addressing these issues, the Dyslexia Pathway, incorporated within the ADT, offers an accessible, standardized framework for all teaching staff and local authorities in Scotland to work within. The Scottish Government have made significant advances towards overcoming within school barriers, by improving awareness, recently doubling funding to Dyslexia Scotland and highlighting importance of the ADT. Drawing upon GIRFEC principles, the ADT provides an evidence based, teacher friendly resource covering identification, assessment and support. A key benefit is provision of practical step-by-step guidance, alongside access to templates supporting identification (for example: National Pathway for the identification of Dyslexia) and information gathering, such as the Holistic Assessment Collation Template. Tools such as the Reading and Writing Circles highlight points to consider when devising support strategies for children with Dyslexia.

Inclusive Learning and Teaching Approaches

As emphasised by Bidwell [62], children of all abilities can, and will, learn. To demonstrate ability, dyslexic learners need

academic support and accommodations. This is underpinned by a requirement for management to commit resources and time specifically for this purpose. In devising support strategies, it is important to promote learner independence and involve them in planning. The assessment process indicates areas of strengths and weakness, alongside discrepancies. From the learner profile, areas of weakness indicate a starting point for planning targeted support. Lack of progress may indicate that teaching strategies need reviewing, requiring targeted differentiation and accommodations.

Thinking about how to teach, as well as content, is crucial in promoting inclusion, minimising barriers and ensuring learners gain from Curriculum for Excellence-related experiences. Research models inform practice, for example, intervention aimed at phonological training draws upon the Phonological Deficit hypothesis Schatschneider and Torgesen [63]. In contrast, interventions drawing upon the Visual Deficit Hypothesis Stein [64] focus on altering the visual process, including use of coloured overlays (Wilkins, 2003). Each approach draws its own critics, with phonological approaches criticised for not accounting for areas of strength and weaknesses to support learning, and ignoring individual differences Fiorello et al. [65].

General Principles

Highlighting good practice, recommendations from The Rose Report [37] include use of multisensory methods, individualising, structured phonics programmes, reinforcement, rapport, purposeful activities, met cognition, empathy and teaching to improve working memory and learning strategies. Throughout the literature Brooks [49], multisensory approaches are perceived as beneficial Velutino [31] despite some suggestions e.g. Joshi et al. [66] of a lack of evidence for efficacy. The strength of this approach is repetition, via different modalities, to reinforce learning. Strategies depend on stage, for example early primary support could include rhyme and syllable reinforcement. At later stages, met cognitive awareness can be modelled to encourage self-monitoring and working with learning style preferences. These tend to be right hemisphere based, such as preference for processing visual versus written information. Support is a collaborative process, with learners at the centre, requiring staff to be supported in understanding dyslexia and devising supportive strategies. This requirement for staff understanding is highlighted by potential to miss dyslexic indicators, or misinterpret as 'bad behaviour' Dahle and Knivsberg, [67]. Strategies to reduce distraction and maximise attention may also be incorporated. These might consider how tasks are presented or offering movement breaks.

Reading

In relation to reading difficulties, according to Everatt and Reid [68] strategies should be interactive and multisensory, allowing over learning promoting automaticity. Strategies such as paired reading, audio books and high interest reading material

(e.g. Barrington-Stoke publications) can be incorporated. Higher-order thinking skills, such as predicting, understanding, and questioning, reinforce comprehension. Programmes such as Reading Recovery Clay [69] offer short lessons, starting with the familiar, reinforcing a sense of achievement. Developing comprehension skills through reading practice can be facilitated by programmes such as Lexia Reading.

Spelling

It is important that spelling difficulties do not stifle creativity, allowing learners to write without concern. Spelling involves phonological awareness and fluency, alongside spelling rules. Irregular words need to be sight learned which can be supported using a Sight Words app from iTunes, to build a word bank. Phonological awareness programmes include Toe by Toe (<http://www.toe-by-toe.co.uk>) and 'Jolly Phonics' (<http://www.jollylearning.co.uk>). Strategies such as 'words within words', can help with prefix and suffix combinations. Associating words with visual cues also reinforces learning. Adding to multisensory strategies, magnetic boards and the LSCWC technique can provide a memory trace for letters and spelling. Simultaneous oral spelling, incorporating physical tracing whilst articulating sounds, further reinforces learning. Resources such as Crossbow Education and Word shark (White Space) can also be useful.

Writing

Strategies to support writing include providing categories of key words- descriptive, names and feelings. Use of 'cloze passages' can help to prompt word finding and assess comprehension, without placing unnecessary demands. The 'KWL grid strategy': what you know, what you want to know and what you have learned, encourages self-monitoring. The Big Write Formula of VCOP (vocabulary, connectives, openers, punctuation) provides structure and pointers for organising sentences. Suggests that supporting strategies include use of charts and diagrams to highlight the bigger picture, mime and gesture, pictures, colour, labels, key words on cards, Mindmaps, small frequent presentation and opportunities for repetition.

ICT

ICT can be advantageous, although barriers such as poor teacher knowledge or confidence need to be addressed. Benefits include provision of visual support (e.g. podcasts), multisensory approaches (images/sounds) and different ways of recording (e.g. cameras). Reference can be made to CALL Scotland's list of resources Scotland 2017, including text to speech, speech recognition and word prediction and their list of targeted iPad Apps. ICT can also support spelling and editing, with touch typing a key skill (NessyFingers-8+:<http://www.nessy.com/uk/product/nessy-fingers/>).

Additional aspects such as time management can be supported through extra time and accepting bullet point answers instead of full sentences. Furthermore, homework should

focus on quality versus quantity. From a cognitive perspective, accounting for factors such as weaknesses in working memory (e.g. following verbal instruction and note taking), instructions in class may be broken down or given as a visual checklist and pairing with a 'buddy' can help. To develop working memory, strategies such as Mind maps, highlighters, coloured paper, and visual charts are useful. Programmes such as Cogmed training (Pearson Education) are options for older learners.

Reflection

In summary, a journey has been traced from theory to policy and practice, highlighting interconnections and practical considerations. Crombie's observation that *politically, literacy is richly debated, but problems remain* highlights a need for further progress within the field of dyslexia practice. Research has identified potential for a negative impact of Dyslexia on learners' emotional adjustment and self-esteem, without timely identification and support Carawan and Jenkins [70]. Of note is the importance of a multidisciplinary approach, involving all staff with the learner at the core. The learner's voice, including preferences and satisfaction with support, must remain the priority throughout. Acknowledging strengths is important, both for learner self-esteem and in devising strategies.

Inclusion of parents is crucial, especially in light of identified parental lack of information regarding Dyslexia policy, and potential for isolation from involvement (Scottish Government response to 'Making Sense' [71], Sandberg and Ottosman [72] noted a need for collaboration between parents and teachers, suggesting that lack of teacher training (in additional support needs) may impact teacher willingness to engage. Teachers need awareness that, for some parents, school environments may be intimidating. Others may feel anxious and upset about their child and there are complex issues (e.g. guilt) for parents who themselves have faced learning issues. Parents may also struggle to deal with 'after school fallout'. The 'effective communication' section (section 1.6.) within the ADT offers a useful resource for facilitating collaborative work with parents.

A review of policy and practice identified lack of teacher training and perception of poor knowledge to address Dyslexia. Similarly, Austin highlighted insufficient teacher training, resulting in low confidence and understanding in identifying Dyslexia. All school staff needs awareness of potential barriers and acknowledgement that their understanding and attitudes have an impact. According to West (2009) dyslexic diversity is largely untapped within formal educational systems. These points to urgency in promoting Dyslexia awareness as a mandatory element of teacher training, with potential for every teacher to have a positive impact on Dyslexic learners' potential.

Collaboration between teachers, learning support and parents allows multiple perspectives into strengths and challenges. It is important that staff have access to guidelines promoting good practice and collective understanding. The

Dyslexia Pathway, as described in the ADT, provides a framework for local authorities in Scotland to work within. Reid reinforces the importance of 'Whole School Involvement' requiring staff training, promoting awareness, understanding the impact of their teaching and the need for collaborative monitoring.

Although not routine, addressing self-esteem issues is important and future versions of the ADT could be strengthened through inclusion of the child, parent and teacher versions of the Strengths and Difficulties Questionnaire Goodman [73]. This would reinforce monitoring, establishing a 'baseline' and tracking improvement in adjustment, once strategies are in place (sdqinfo.org) [74-80].

As a final thought, a well-known Einstein quote reminds us of the importance of considering our own attitudes when supporting dyslexic learners. Dyslexic learners are individuals foremost, and our role is to gear the environment towards individual needs, promoting opportunities to fulfil potential. *"Everybody is a genius, but if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid"* (Albert Einstein) [81-92].

Acknowledgement

Sincere thanks to my tutor Carol Graham at Edinburgh University and to my mentor Dr Jennie Guise at Disguise Ltd, Edinburgh, UK. I am grateful for your enthusiasm and the learning opportunities you have given me. Above all, I am grateful to learn the skills that allow me to help other people to fulfil their potential.

References

1. Thomson M (2008) Supporting students with Dyslexia in secondary schools. Every class teacher's guide to removing barriers and raising attainment. Routledge.
2. Reid G (2016) Dyslexia: A Practitioner's Handbook, Fifth Edition. Wiley-Blackwell.
1. Wagner R (2008) Rediscovering Dyslexia: New approaches for identification, classification, and intervention. In: G Reid, A Fawcett, F Manis, L Siegel (Edn), The Sage Dyslexia Handbook. London, Sage.
2. Morton J, Frith U (1995) Causal modelling: A structural approach to developmental psychopathology. In: D Cicchetti and DJ Cohen (eds), Manual of Developmental Psychopathology Psychological Assessment of Dyslexia and John Wiley and Sons, New York, USA.
3. Ott P (1997) How to detect and manage Dyslexia: A reference and resource manual. Heinemann Educational Publishers, Oxford, UK.
4. Boada R, Willcutt EG, Pennington BF (2012) Understanding the comorbidity between dyslexia and attention-deficit/hyperactivity disorder (Report). Topics in Language Disorders 32(3): 264-284.
5. Anderson, Kristen G (1997) Gender Bias and Special Education Referrals. Annals of Dyslexia 47(1): pp. 151-162.
6. Arnett AB, Pennington BF, Peterson RL, Willcutt EG, Defries JC, et al. (2017) Explaining the sex difference in dyslexia. Journal of Child Psychology and Psychiatry (pages not stated online yet, as new article)
7. Smith-Spar H, Messer E, Zieck (2016) Executive functions in adults with developmental dyslexia. Res Dev Disabil 53-54: 323-341.

8. Skeide MA, Holger K, Kraft I, Schaadt G, Muller B, et al. (2015) Genetic dyslexia risk variant is related to neural connectivity patterns underlying phonological awareness in children. *Neuroimage* 118: 414-421.
9. Bergen E, Jong P, Maassen B, Leij A (2014) The Effect of Parents' Literacy Skills and Children's Pre-literacy Skills on the Risk of Dyslexia. *J Abnorm Child Psycho* 42(7): pp.1187-1200.
10. Hulme C, Nash HM, Gooch D, Lerag A, Snowling MJ (2015) The Foundations of Literacy Development in Children at Familial Risk of Dyslexia. *Psychological Science* 26(12): 1877-1886.
11. Froiland J, Powell DR, Diamond KE, Son SC (2013) Neighborhood socioeconomic well-being, home literacy, and early literacy skills of at-risk preschoolers. *Psychology in the Schools* 50(8): 755-769.
12. Glazzard J (2010) The impact of dyslexia on pupils' self-esteem. *Support for Learning* 25 (2): 63-69.
13. Gibson S, Kendall L (2010) Stories from School: Dyslexia and Learners' Voices on Factors Impacting on Achievement. *Support for Learning* 25(4): 187-193.
14. McNulty MA (2003) Dyslexia and the Life Course. *J Learn Disabil* 36(4): 363-81.
15. Lane K, Wehby Joseph H, Menzies HM, Gregg RM, Doukas GL, et al. (2002) Early Literacy Instruction for First-Grade Students At-Risk for Antisocial Behavior. *Education and Treatment of Children* 25(4): 438-58
16. McDonald S (2012) Biographical pathways into criminality: understanding the relationship between dyslexia and educational engagement. *Disability and Society* 27(3): 427-440.
17. Hewitt-Main J (2012) Dyslexia behind bars: final report. *Mentoring* 4U.
18. Snowling MJ (2013) Early identification and interventions for dyslexia: a contemporary view. *Journal of Research in Special Educational Needs* 13(1): 7-14.
19. Brambati SM, Termine C, Ruffino M, Danna, M, Lanzi G, et al. (2006) Neuropsychological deficits and neural dysfunction in familial dyslexia. *Brain Res* 1113(1): 174-185.
20. Rath J, Klinger N, Hoellinger I, Geissler A, Gruber S, Aichhorn M, et al. (2009) Variability of somatosensory cortex localization across different fMRI centers-a multicenter patient-control study. *Neuroimage* 47: p.131.
21. Ramus F (2014) Neuroimaging sheds new light on the phonological deficit in dyslexia. *Trends in Cognitive Sciences* 18(6): 274-275.
22. Singleton C, Horne J, Simmons F (2009) Computerised screening for dyslexia in adults. *Journal of Research in Reading* 32(1): 137-152.
23. Kraft I, Schreiber J, Cafiero R, Metere R, Schaadt G et al. (2016) Predicting early signs of dyslexia at a preliterate age by combining behavioral assessment with structural MRI. *NeuroImage* 143: 378-386.
24. Ripley B, Levin D, Kelil T, Hermens JL, Kim S, et al. (2017) 3D printing from MRI Data: Harnessing strengths and minimizing weaknesses. *J Magn Reson Imaging* 45(3): 635-645.
25. Snowling MJ (2008) Specific disorders and broader phenotypes: The case of dyslexia. *Q J Exp Psychol (Hove)* 61(1): 142-156.
26. Raberger, T. and Wimmer, H. (2003) On the automaticity/cerebellar deficit hypothesis of dyslexia: balancing and continuous rapid naming in dyslexic and ADHD children. *Neuropsychologia* 41(11): 1493-1497.
27. Breznitz Z (2008) Special issue on the use of electrophysiological measures in reading research. *Journal of Neurolinguistics* 21 (4): 277-278.
28. Fawcett A, Nicholson R (2008) Dyslexia and the cerebellum. In G. Reid, A. Fawcett, F. Manis and L. Siegel (Eds) *The Sage Handbook of Dyslexia*, London, Sage.
29. Vellutino FR, Fletcher JM, Snowling M, Scanlon DM, et al. (2004) Specific reading disability (dyslexia): what have we learned in the past four decades? *J Child Psychol Psychiatry* 45(1): 2-40.
30. Jones A, Kindersley K (2013) *Dyslexia Assessing and Reporting: The Patoss Guide*. Hodder Education
31. Dickie C, Ota M, Clark A (2013) Revisiting the Phonological Deficit in Dyslexia: Are Implicit Nonorthographic Representations Impaired? *Applied Psycholinguistics* 34(4): 649-672.
32. Boet B, Op De Beeck H, P Vandermosten M, Scott SK, Gillebert C, et al. (2013) Intact but less accessible phonetic representations in adults with dyslexia. *Science* 342(6163): 1251-1254.
33. Carlson E, Bitterman A, Jenkins F (2012) Home literacy environment and its role in the achievement of preschoolers with disabilities. *The Journal of Special Education* 46(2): 67-77.
34. Shaywitz SE, Morris R, Shaywitz BA (2008) The Education of Dyslexic Children from Childhood to Young Adulthood. *Annual Review of Psychology* 59: 451-475.
35. Rose J (2009) Identifying and teaching children and young people with Dyslexia and literacy difficulties. London: Department for Children, Schools and Families.
36. Scottish Government. (2009) Additional Support for Learning (Scotland) Act (Scottish Government 2009).
37. Scottish Government (2010) Code of Practice (Scottish Government, 2010). Scottish Government.
38. Scottish Executive (2008) Getting It Right For Every Child: An Overview of the Getting It Right Approach. Scottish Executive.
39. Scottish Executive (2004) Curriculum for Excellence. Scottish Executive.
40. Leij A (2013) Dyslexia and Early Intervention: What Did We Learn from the Dutch Dyslexia Programme? *Dyslexia* 19(4): 241-255.
41. Education Scotland (2014) Curriculum for Excellence.
42. Phillips S, Kelly K, Symes L (2013) *Assessment of Learners with Dyslexic-Type difficulties*. Sage, London.
43. Kirkup C (2006) Using assessment information to inform teaching and learning. *Education* 34(2): 153-162.
44. Newton P (2007) Clarifying the purposes of educational assessment. *Assessment in Education: Principles, Policy and Practice* 14(2): 149-170.
45. Nicholson R (2016) An interview with Rod Nicholson: 'Find your dyslexic people and nurture them'. *The Psychologist* 29(12): 934-936.
46. Chanock K, Farchione D, Paulusz W, Freeman, S, Lo-Giudice, L, et al. (2010) In search of a simple assessment instrument for identifying dyslexia in university students. *Australian Journal of Learning Difficulties* 15(1): 35-49.
47. Brooks G (2013) What works for children and young people with literacy difficulties? The effectiveness of the interventions schemes (4th edn). London, SpLD Trust.
48. Everatt J, Weeks S, Brooks P (2008) Profiles of strengths and weaknesses in dyslexia and other learning difficulties. *Dyslexia* 14(1): 16-41.
49. Crombie M (2016) Literacy. In: L. Peer and G. Reid (Eds), *Special Educational Needs: A guide for inclusive practice*. London, Sage.

50. Turner M (2008) Dyslexia Profile. G L Assessment.
51. Ehri L (2005) Learning to read words: Theory, findings and issues. *Scientific Studies of Reading*, 9 (2): 167-188.
52. Fisher S, Boyle J (2006) Educational Testing: A competence based approach.
53. Callens M, Tops W, Brysbaert M (2012) Cognitive profile of students who enter higher education with an indication of dyslexia. *PLoS One* 7(6): e38081.
54. Austin L (2016) Dyslexia Friendly Teaching. British Dyslexia Association Handbook, 2016. British Dyslexia Association.
55. Wearmouth J (2001) Inclusion: Changing the variables. In: L Peer, G Reid (Edn.), *Dyslexia, successful inclusion in the secondary school*. London, David Fulton.
56. Reid G, Came F (2009) Identifying and overcoming barriers to learning in an inclusive context. In: G. Reid (Edn), *The Routledge Dyslexia Companion*. London, Routledge.
57. Lindsay G (2007) Annual Review: Educational Psychology and the effectiveness of inclusive education/mainstreaming. *Br J Educ Psychol* 77(1): 1-24.
58. Dyslexia Scotland (2011) Working with Parents. Dyslexia Scotland.
59. Calder I (2001) Dyslexia across the curriculum. In: L. Peer and G. Reid (eds), *Dyslexia: Successful inclusion in the secondary school*. London, David Fulton.
60. Bidwell V (2016) The Parents' Guide to Specific Learning difficulties. Information, advice and tips. Jessica Kingsley Publishers, London.
61. Schatschneider C, Torgesen JK (2004) Using our current understanding of dyslexia to support early identification and intervention. *J Child Neurol* 19(10): 759-65.
62. Stein J (2008) The neurobiological basis of Dyslexia: In: G Reid, A Fawcett, F Manis, L Siegel (Eds), *The Sage Dyslexia Handbook*, London, Sage.
63. Fiorello CA, Hale JB, Snyder LE, Mather N, Kaufman N, et al. (2006) Cognitive hypothesis testing and response to intervention for children with reading problems. *Psychology in the Schools* 43(8): 835-853.
64. Joshi R, Dahlgren M, Boulware-Gooden M (2002) Teaching reading in an inner city school through a multisensory teaching approach. *Annals of Dyslexia* 52(1): 229-242.
65. Dahle AE, Knivsberg AM (2014) Internalizing, externalizing and attention problems in dyslexia. *Scandinavian Journal of Disability Research* 16(2): 179-193.
66. Everatt J, Reid G (2009) An overview of recent research. In G. Reid (Edn), *The Routledge Dyslexia Companion*. London, Routledge.
67. Clay M (1993) An observational survey of early literacy achievement (3rd edn.), London, Heinemann Educational.
68. Carawan LW, Nalavany BA, Jenkins C (2015) Emotional experience with dyslexia and self-esteem: the protective role of perceived family support in late adulthood. *Aging Ment Health* 20(3): 284-294.
69. Education Scotland (2008) Making Sense: Education for Children and Young People with Dyslexia in Scotland. Education Scotland.
70. Sandberg A, Ottosson L (2010) Pre-School Teachers', Other Professionals', and Parental Concerns on Cooperation in Pre-School-All around Children in Need of Special Support: The Swedish Perspective. *International Journal of Inclusive Education* 14(8): 741-754.
71. Goodman R, Ford T, Simmons H, Gatward R, Meltzer H (2000) Using the Strengths and Difficulties Questionnaire (SDQ) to screen for psychiatric disorders in a community sample. *British Journal of Psychiatry* 117: 534-539.
72. Andreou E, Vlachos F (2013) Learning styles of typical readers and dyslexic adolescents. *Journal of Visual Literacy* 32(2): 1-14.
73. Bishop DVM, Snowling MJ (2004) Developmental dyslexia and specific language impairment: Same or different. *Psychological Bulletin* 130(6): 858-886.
74. Booth T, Ainscow M (2011) Index for Inclusion: Developing learning and participation in schools (3rd Edn) Bristol, Centre for Studies on Inclusive Education (CSIE).
75. Clay M (1993) An observational survey of early literacy achievement (3rd edn.), London, Heinemann Educational.
76. Carawan LW, Nalavany BA, Jenkins C (2015) Emotional experience with dyslexia and self-esteem: the protective role of perceived family support in late adulthood. *Aging Ment Health* 20(3): 284-294.
77. Equality Act (2010)
78. Her Majesty's Inspectorate for Education (2008) Education for Learners with Dyslexia. HMIE.
79. Department for Education (2015) Special Educational Needs Code of Practice. DfE.
80. Dyslexia Scotland (2016, revised version) Addressing Dyslexia Toolkit.
81. Dyslexia Scotland (2011) Working with Parents. Dyslexia Scotland.
82. Elgar FJ, McGrath PJ, Waschbusch DA, Stewart AH, Curtis LJ, et al. (2004) Mutual influences on maternal depression and child adjustment problems. *Clin Psychol Rev* 24(4): 441-459.
83. Everatt J, Weeks S, Brooks P (2008) Profiles of strengths and weaknesses in dyslexia and other learning difficulties. *Dyslexia* 14(1): 16-41.
84. Jones A, Kindersley K (2013) Dyslexia Assessing and Reporting: The Patoss Guide. Hodder Education.
85. Joshi R, Dahlgren M, Boulware-Gooden M (2002) Teaching reading in an inner city school through a multisensory teaching approach. *Annals of Dyslexia* 52(1): 229-242.
86. Lamb M (2013) Lamb Inquiry: Special Educational Needs and Parental Confidence. Department for Education.
87. Lindsay G (2007) Annual Review: Educational Psychology and the effectiveness of inclusive education/mainstreaming. *Br J Educ Psychol* 77(1): 1-24.
88. Millar A, Freeman L (2001) Norm-referenced, Criterion referenced, and Dynamic assessment: What exactly is the point? *Educational Psychology in Practice* 26(3): 279-298.
89. Nicholson R (2016) An interview with Rod Nicholson: 'Find your dyslexic people and nurture them'. *The Psychologist* 29(12): 934-936.
90. Nuttall J, Nuttall L (2013) Dyslexia and the Ipad: Overcoming Dyslexia with technology. Self-Published: Nuttall and Nuttall.



This work is licensed under Creative Commons Attribution 4.0 License
DOI: [10.19080/PBSIJ.2017.05.555651](https://doi.org/10.19080/PBSIJ.2017.05.555651)

**Your next submission with Juniper Publishers
will reach you the below assets**

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats
(Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>