

Interventions for Dyslexia and Learning Differences In the Early Years and Primary Sectors: A Movement Approach
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Key Themes

- Indicators of Dyslexia and Neuromotor Immaturity
- The use of early screening programmes to identify these indicators and possible underlying contributory factors
- The rationale for addressing identified weaknesses through a physical intervention
- The pedagogical dilemma: Address the causes or symptoms?
- Current Small Research Project

My interest is in researching how targeted physical programmes may contribute to improvements in classroom performance for children in the early years and primary age with learning differences. In addition to the more conventional indicators for dyslexia, The British Dyslexia Association has produced 'non-language' indicators that have some similarities to indicators linked to retained primitive reflexes and associated interventions, as identified by bodies such as The Institute for Neurophysiological Psychology in the U.K. and the National Health Service in the U.K.

Is it possible that some physical programmes can exert measurable impact on classroom performance and the extent to which students are able to improve functioning in specific areas and cope with more complex processes without the need for accommodations such as software and occupational therapy resources? I argue that in the early stages of education, time spent on the physical aspects of development can reap later rewards in terms of improving the child's cognitive motor development, thus minimizing reliance on external accommodations and increased autonomy and locus of control. 'I can choose if I use the tablet or write my report'. However, teachers and schools then face a pedagogical dilemma and external pressure that requires decisions about how to get the best results from students: a theme I will return to later.

At the end of this article I will outline a current small-scale research project I am carrying out in England, with 15 children aged 5-11.

The British Dyslexia Association promotes the early identification of dyslexia and has been campaigning for over 40 years to raise public awareness and influence decision making at national, regional and local levels. In 2007 the BDA Annual General Meeting agreed the policy on the Early Identification of Specific Learning Difficulties that identified the ways in which legislation should empower all schools to honor their statutory duties in respect of assessing a child's specific learning difficulties 'at the earliest opportunity in a child's school career'.

Some of the key non-language indicators that appear on the BDA website for pre-school and primary children are as follows:

- May have walked early but did not crawl: May have shuffled on bottom or wriggled on the tummy instead.
- Persistent weak self-help skills (tying laces for example)
- Weak ball skills
- Weak performance in hopping and skipping
- Difficulty with clapping rhythms

- Difficulties with sequencing
- Poor sense of direction
- Often perceived as not listening/ paying attention

What Is Neuromotor Delay?

Goddard-Blythe (2010) refers to this in terms of the retention of immature patterns of movement control that can act as a barrier to optimal learning readiness. Primitive reflexes develop in utero and contribute to early development, but should be inhibited and replaced by postural reflexes before a child reaches school age. Movements of the head, for example, prompt reflexive movements of the limbs that are involuntary and can impede physical control of the body. This has implications for classroom performance as a student may struggle to achieve optimal performance:

As he lifts or turns his head, his posture shifts reflexively, and needs to be kept under control. His balance and visual focus are also compromised and interfere with cognitive functioning.

From my own perspective as a practitioner, primitive reflexes are often implicated in students who are under-performing academically, when their underlying cognitive profiles suggest that they should be achieving at a higher level. Educational psychologists refer students to me when the indicators from the BDA or those below suggest that a physical approach to their difficulties would be appropriate as a component of the intervention programme. This is an important point: There is not an intention to substitute a physical approach for the more conventional approaches, rather this is intended as a 'kick start' to promote a recalibration of the ways in which information is processed efficiently by addressing the retained primitive reflexes that impede optimal performance.

Some Indicators of Neuromotor Immaturity

- Missing 'motor stage' of crawling
- Difficulty in learning to dress self and tie shoelaces above age of 6-7
- Difficulties catching a ball
- Difficulties with balance and the control of slow, precise gross motor skills with eyes open and closed
- Difficulties sitting still/ attention
- Academic underachievement

The use of early screening /assessment programmes to identify these indicators and some possible underlying contributory factors

I am currently researching screening and assessment programmes that can help parents and teachers to make decisions about interventions for students whose progress is a cause for concern in relation to cognitive profiling or parental/ school perceptions of academic potential.

A screening programme can be characterized as the first stage in a filtering process to identify children with potential learning issues. I am suggesting that a screening process that includes 'non-language' aspects of children with dyslexia may identify those who would benefit from a developmental movement programme that addresses sensory immaturities.

I am also very fortunate to be working with Professor Fawcett on trialing the new version of the Dyslexia Early Screening Test that includes observations of balance and movement.

It is important that teachers have access to knowledge and resources that enable them to pinpoint potential difficulties in young children so that the child's confidence is not eroded and their strengths are recognized. Whereas we are not necessarily able to counteract the genetic influences of dyslexia, we should not discount those factors that do lie within our control and that can be addressed through the use of exercises to develop more mature vestibular and sensory functioning.

The rationale for addressing identified weaknesses through a physical intervention

Reading and writing are executive functions that are dependent on developmentally mature sensory systems. Movement programmes apply 'spiraling' principles similar to classroom overlearning practices that are repetitive and build fluidity, awareness of tempo and rhythm.

They employ a spatiotemporal adaptation frame of reference that means: 'Spatiotemporal adaptation provides an interrelated set of constructs that concern sensorimotor components of human functioning and conceptual categories that explain the adaptation process of the development of performance skills. (Gilfoyle)

Physical interventions therefore can provide the means to build or rebuild the child's perception of spatial awareness and timing that are necessary to access learning more effectively.

The Move to Learn programme maps its exercises to the hierarchical development of primitive reflex integration. Each floor based exercise addresses specific reflexes and builds a foundation for more effective functioning. Children from a very early age can engage in activities such as rolling, creeping and crawling to provide the brain with additional opportunities to revisit these fundamental learning processes that may have been missed for a number of reasons. Primitive reflexes are present in utero and early life and are inhibited through the birth process and early floor based activities. If there are difficulties such as 'C' section births and limited access to activities such as 'tummy time', the primitive reflexes can persist and interfere with academic and general functioning by affecting posture, pencil control, concentration and ball skills for example.

The daily Move to Learn programme works over a one year period, but can be integrated as part of an on-going whole school inclusive intervention. I have seen its use in Poland, Cyprus, U.K., Malaysia, Singapore and Japan and have implemented it in schools in the U.K. and internationally.

The pedagogical dilemma: Address the causes or symptoms?

The dilemma is whether to provide short-term solutions using technology and occupational therapy approaches such as slanted boards, software and wobble cushions to address the symptoms or to use the screening and assessment protocols to determine if there are causes that can be remediated. Whereas it is accepted that teachers are under pressure to produce data that shows progress, I argue that, in the early years, due respect needs to be given to the significance of recognizing and addressing the non-language indicators of dyslexia that can also be measured through improvements of basic physical exercises that most

children should be capable of. However well meaning the short-term interventions may be, they can be perceived as removing the locus of control from the child and, by their nature, characterize the child as 'different/defective'. The occupational therapy intervention may provide a possible solution to the symptoms, not the causes and addresses potential (identifiable) issues with sensory/ vestibular processing. However, as a consequence, the student with dyslexic difficulties has no internal control over his perceived weaknesses and is handed a 'crutch' to limp with forever. Is it not preferable to determine whether we can address these immaturities and provide the student with a means to judge his own improvement in skills that not only impact on classroom but also social and emotional skills?

Current Small Research Project

Treehouse School in England is a small independent primary school that charges no fees and focuses on providing an education that focuses on 'nature, nurture and nourishment'. I am currently working with the school to determine whether the daily implementation of the Australian Move to Learn programme will assist in terms of improving aspects of development, matched against performance.

All children have been assessed:

- DEST-2
- Neuromotor Immaturity Tests
- Visual-Perceptual Test
- Draw A Person Test (adapted Goodenough Test)

The school is being supported in the delivery of the daily programme as I visit on at least a weekly basis. Parents have been invited to a presentation and will attend a practical session where they will have experience of the movements and opportunities to provide feedback on their perceptions.

At the end of each term (December 2016, March 2017, June 2017) pupils will be re-assessed and the results evaluated.

What would progress look like?

Progress will be evaluated against the following criteria:

- DEST-2 scores: changes in performance
- Scores on Neuromotor Immaturity Tests: Tests will evaluate 4 main primitive reflexes as well as aspects of fine and gross motor skills against defined scoring system.
- Independent scoring of pre/post testing of drawing and visual-perceptual tests: A specialist teacher will score drawings with no knowledge of participants' details (age/sex). There will be no information about test participants and all will be scored against agreed standardized criteria.
- Teacher and parent questionnaires relating to perceptions of performance academically, physically and general performance

What Do I Want to Achieve?

I would like to raise the awareness of the potential importance of the physical dimensions to academic performance and the extent to which emotion is also implicated in this process. We are in danger, as educators, of focusing too exclusively on the cognitive systems without recognizing the subtle but powerful influence that our bodies exert on every aspect of functioning. The issue of

emotion in relation to physical interventions is too large to address in this article, and I will return to it later. Suffice it to say that many anecdotal and more formal publications point to the impact of programmes such as Move to Learn on the emotional and affective dimensions of pupil performance.

This is a fascinating area of research that holds out much potential promise to those working with or associated with students with a dyslexic profile. Whilst we must continue to provide rigorous phonological programmes, I argue that current research urges us not to underestimate the importance of 'lower level' non-cognitive functioning.

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