The Dyslexia Debate: Moving forward!

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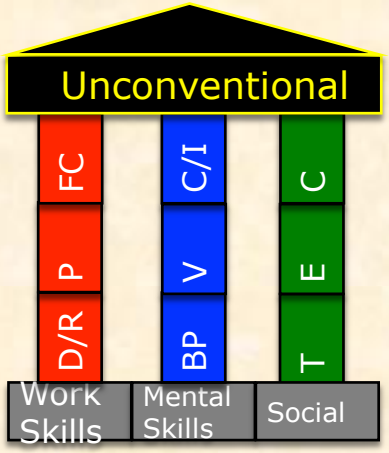
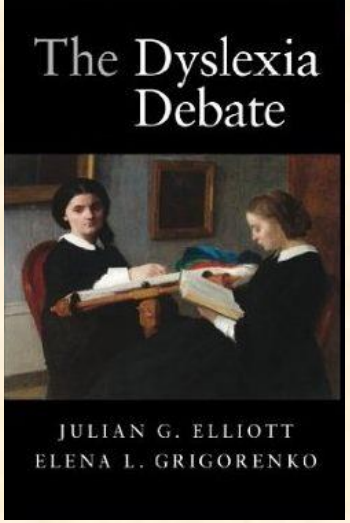


Dyslexia Guild
London, June 2017

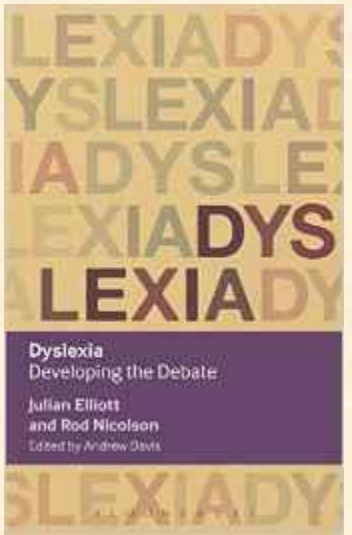
Points I want to make

- The Dyslexia Debate is really about how assessment may be best linked to support for children struggling with reading
- I will highlight the importance of emotion – the disabling effects on brain function of repeated failure
- I will also argue that members of Dyslexia Support organisations are well placed to make significant contributions to the real debate.
- … in getting to this point I will answer many of the puzzling questions for dyslexia research and practice

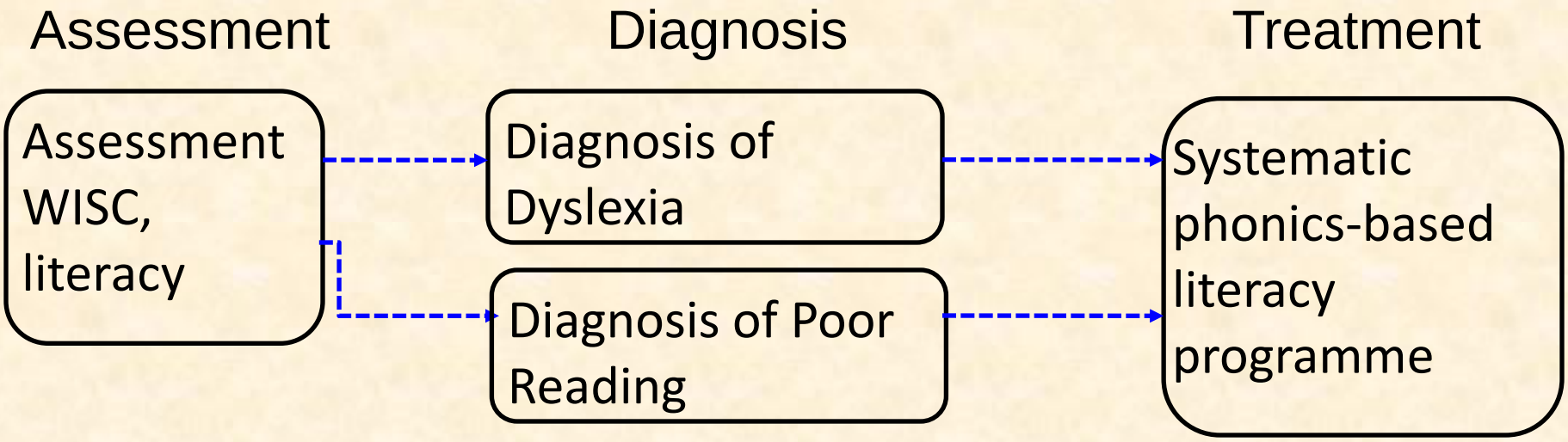
Julian Elliott
The Dyslexia Debate



1. Teacher then Educational Psychologist, then academic, now Professor at Durham University
2. The Dyslexia Myth (2005)
3. National and International Talks
4. The Dyslexia Debate:
   Elliott & Grigorenko (2014)
5. Dyslexia: beyond the Debate
   Elliott & Nicolson (2016)



Deficit-based Statutory Support in School (UK) Elliott's Critique



- The Assessment is lengthy and complex
- The Diagnosis depends on identifying a discrepancy between IQ and reading performance
- Following a diagnosis of dyslexia, a systematic phonics programme is recommended, following current best practice
- Following a diagnosis of 'not dyslexia', a systematic phonics programme is recommended, following current best practice
- Why do a diagnosis at all!?

Four Anecdotes

- Harry Chasty – ".. We must teach them the way they learn"
- Frank Vellutino – "… there can't be a general learning difference that is specific to reading"
- John Rack (Spell-It) – 21% time on target
- Margaret Nicolson – Child T (trier) vs Child E (excuses)

Four Challenges

- How do dyslexic children learn?
- Why do dyslexic children show specific reading difficulties?
- How can we ‘Assess for Success’ rather than ‘… for dyslexia’
- What opportunities does this framework give for members of the Dyslexia Guild?

Part 1:
How do dyslexic children learn?
The Cognitive Dimension

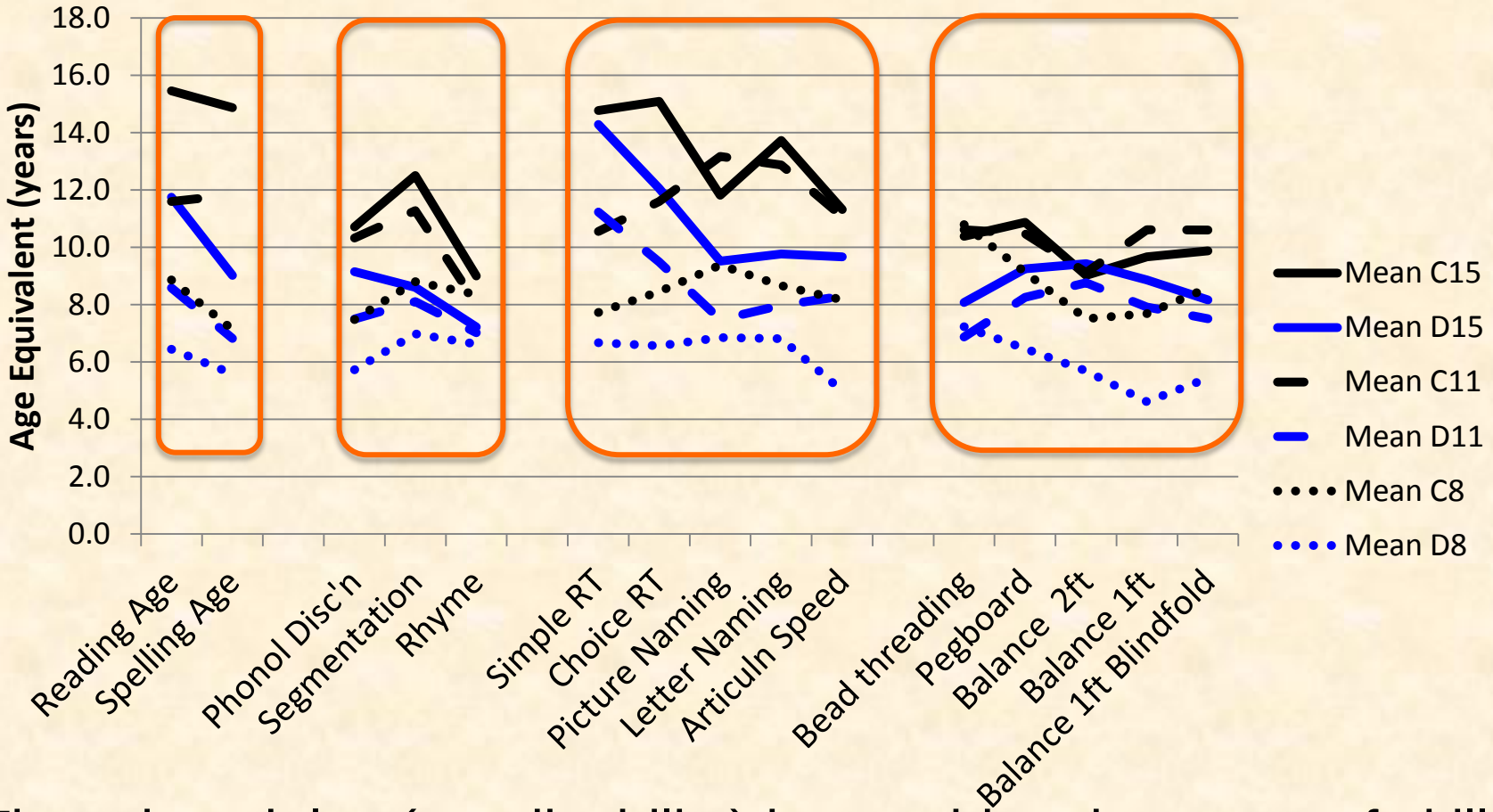
The Automatisation Deficit Hypothesis

Nicolson and Fawcett (1990) argued that the concept of an 'automatisation deficit' provides a coherent framework for the explanation of the range of problems shown by dyslexic children.

- Dyslexic children are slower to acquire skills – they need more and higher quality practice
- They will therefore have difficulties on any task that requires automaticity
- They can often successfully undertake a task, but they often have to achieve this by concentrating harder (conscious compensation)
- They will have particular problems acquiring complex skills (such as reading) or trying to do two things at the same time

- So for a dyslexic child, life is a bit like driving in France – you can do it, but it's never comfortable. Everything requires more concentration and alertness

Developing Dyslexia



There is a delay (not disability) in acquiring the range of skills

Fawcett and Nicolson (1994a,b,c), Nicolson and Fawcett (1995)

Procedural vs Declarative Processes

- Dyslexic children show a delay in acquiring most skills, not just those relating to reading. The more complex the skill, the greater the delay.
- Their problems are in the processes needed to become automatic (known as procedularisation)
- By contrast, their acquisition and use of knowledge is often completely unimpaired and maybe over-achieving
- This maps onto a major distinction in neuroscience, the declarative system for 'knowledge that' and the procedural system for 'knowledge how'
- This led to a reframing of automatisation deficit into the 'Procedural Learning Deficit Hypothesis' (Nicolson & Fawcett, 2007)

How do adults learn?
Principles of Andragogy (Knowles)

Need:

1) ‘Pull’ goals
2) Personal significance
3) Immersion
4) Organic
5) Quality Time
6) Success

Follow your star!

Bad at:

1) ‘Push’ goals
2) No personal interest
3) Bit at a time
4) Completely new
5) One of many
6) Failure

This is the school system!

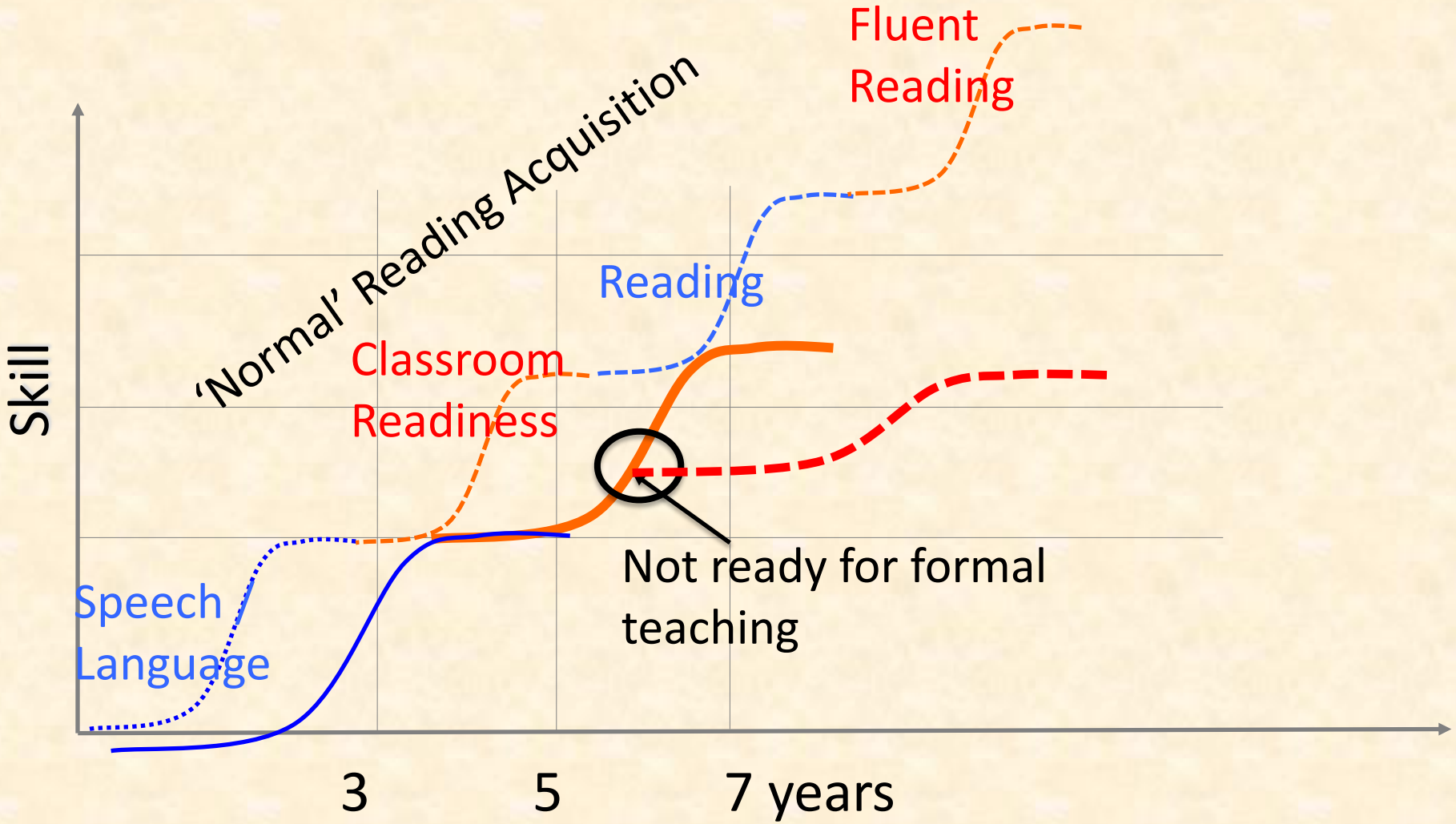
Dyslexic children learn like adults!

- If it wouldn't work for you, it won't work for them
- If it would work for you, it will work for them!
- Mrs. DoAsYouWouldBeDoneBy (Kingsley)

- The Positive side of this led me to Positive Dyslexia – find and follow your star
- But the negative side is more powerful than the positive side
- Shame dispels Hope

Part 2:
Why do dyslexic children fail?
The Affective Dimension

Not Ready to Read



State-dependent Memory and Context-dependent Memory

- The purpose of memory is to ‘remind’ you of what to expect (and what to do) in a given situation
- Our memories are stored together with the external context and also the internal context (state) in which they occur, and when (parts of) those contexts occur in future, they automatically ‘trigger’ the memories relevant to that context
- Also relevant to music, smoking, drink, illness, stress, depression…
- Triggering by state plus context is particularly powerful
- It’s the dark side that we need to worry about. The way that a context can trigger negative memories – aversive emotions.

Maths Anxiety

- More girls than boys show a maths anxiety trait. Goetz et al. (2013)
- "When anticipating an upcoming math-task, the higher one's math anxiety, the more one increases activity in regions associated with visceral threat detection, and often the experience of pain itself (bilateral dorso-posterior insula). Interestingly, this relation was not seen during math performance, suggesting that it is not that math itself hurts; rather, the anticipation of math is painful."

… "math anxiety [is] present at the beginning of formal schooling, which is much younger than was previously assumed … Perhaps most striking, many of the techniques employed to reduce or eliminate the link between math anxiety and poor math performance involve addressing the anxiety rather than training math itself". Maloney & Beilock (2012)

- "It is remarkable that cognitive information-processing deficits arising from math anxiety can be traced to brain regions and circuits that have been consistently implicated in specific phobias and generalized anxiety disorders in adults". Young, Wu & Menon (2012 p.500)

Stress and Learning

- Our brains work by a combination of two major systems, sometimes working together, sometimes in competition
  - Declarative system – knowing, facts, language-based, available to consciousness, thinking
  - Procedural system – doing, habits, 'automatic' processes
- Stress shifts processing to the procedural system – fight, flight or freeze – and indeed reduces blood supply to the declarative circuitry (Schwabe, 2013)
- So even relatively mild stress causes all of us to 'batten down the hatches' and blights any ongoing declarative learning processes
- This could lead to particularly adverse consequences for dyslexic people because it shifts them from their stronger to their weaker learning system

Repeated failure and Learned Helplessness

- Shuttle box avoidance (dogs):
  - Tone 20s, shock 20s, escape shock by jumping barrier
  - Soonlearn to jump after tone starts but before shock – changes from escape to avoidance

But:

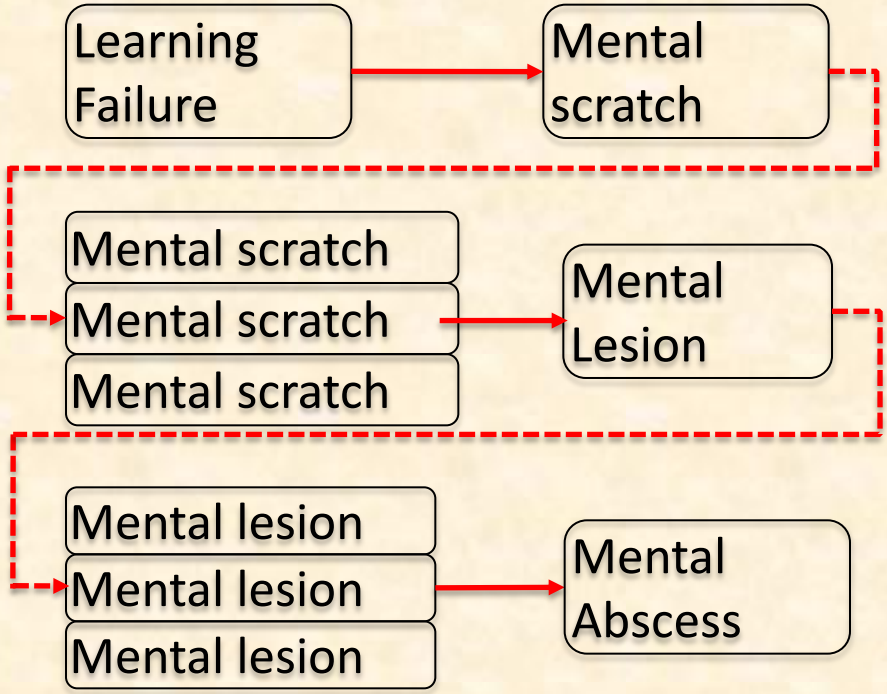
Some dogs just lay down and didn't escape. Why?

- Turned out they'd been inescapably shocked and had just 'learned to be helpless'
- Probably associated with a 'freezing' response to threat

Seligman (1972)

Now established as part of the primitive 'Fight, flight or freeze' response to threat, and with major physiological effects

Creating a ‘Mental Abscess’: The Toxic Cycle



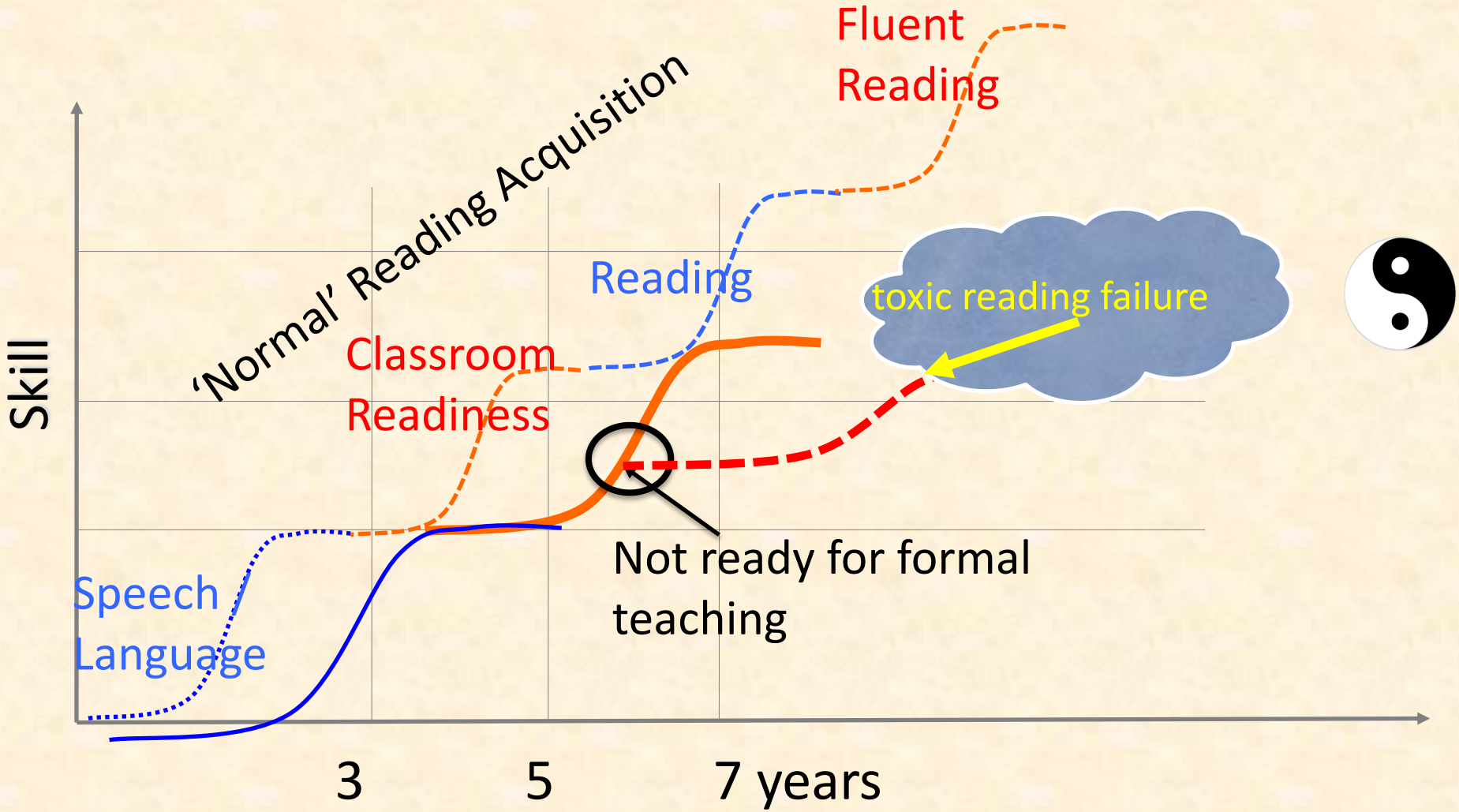
Probable learning failure
Linked to specific context

Leads to extended learning failure
Linked to sum of contexts, trigger
Don’t scratch a lesion…

Leads to pervasive learning failure and affective trauma
Linked to broad context

- There is a terrible danger that this learned helplessness will not only persist as a ‘mental abscess’, inhibiting learning, but will also ‘fester’, generalizing to other aspects of the school environment, so that the very thought of school will trigger feelings of learned helplessness and/or helpless rage, for which the only solution is either ‘freezing’ or actions such as disruption or truancy
- The danger is that a dyslexic child is ‘conditioned’ (akin to aversion therapy) such that the printed word triggers a feeling of learned helplessness or rage, from which there is no escape…

Creating the Reading Disability!?



Conclusions on Reading Disability

- Fluent reading requires substantial 'invisible' learning, including the development of the necessary underlying neural circuitry
- Dyslexic children – and children with other risk factors - are delayed in creating and consolidating the necessary circuits, and therefore have to make impossible demands upon their cognitive resources.
- The resulting repeated. Inescapable, shaming failures will result in 'mental abscesses' that prevent learning in formal instructional environments and may be associated with 'helpless anger'
- In some individuals this helpless anger will lead to truancy, delinquency, offending, in others a range of displacement activities, in others attentional difficulties, in others complete disengagement.
- In these cases, the children have learned to fail, and we have, in effect, created the learning disability

Part 3:
Answers and Actions

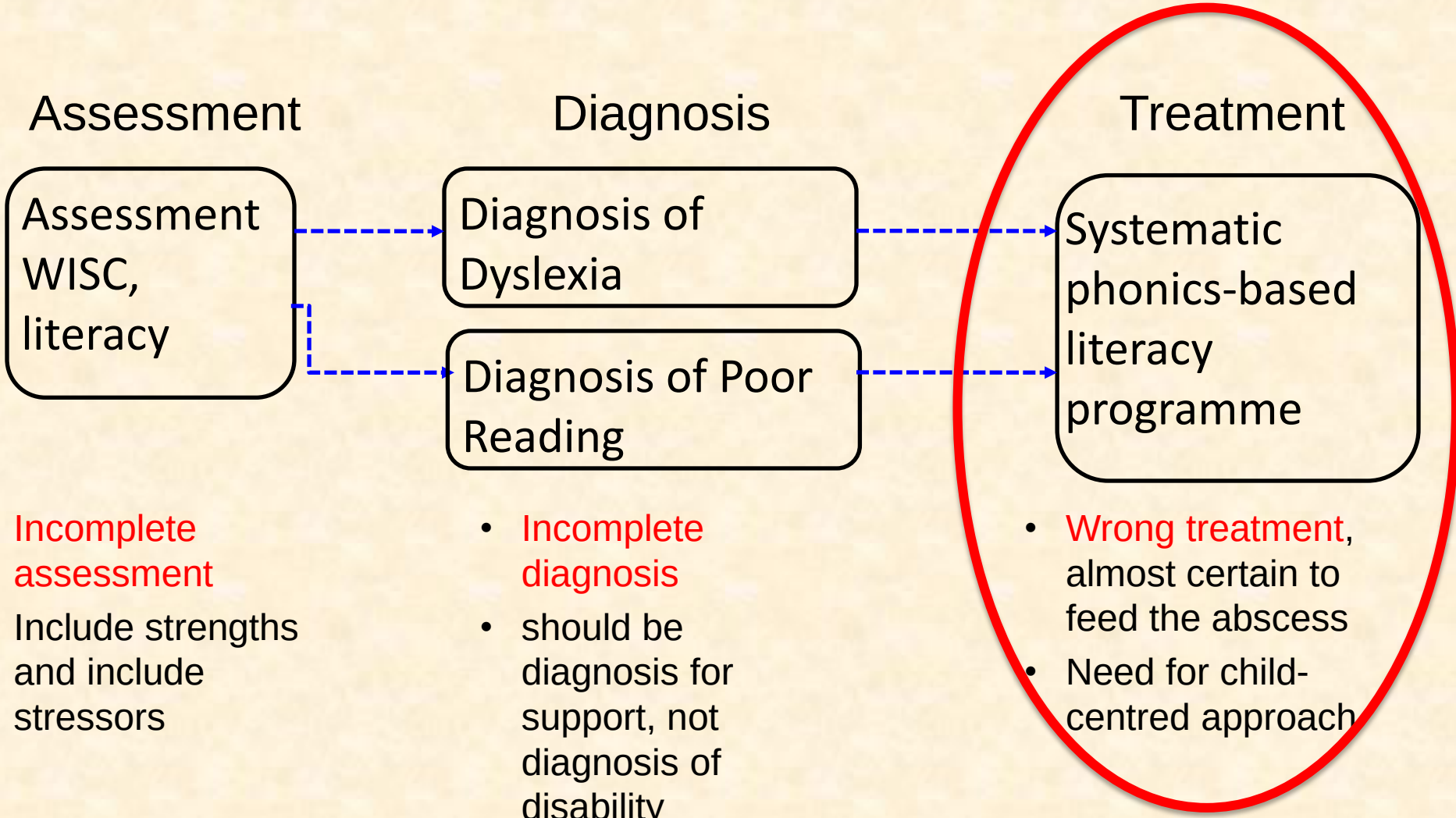
The anecdotes

- 21% time on task
  - Mental abscess prevents concentration
- Child E
  - Mental abscess causes freeze response
- Vellutino
  - Actually more than one type of learning – declarative vs procedural
  - The DISability is caused by the affective not the cognitive dimension
- Sometimes they know it, sometimes they don't!?
  - Sometimes can't access declarative circuits, depending on their mental state and the context
- Why so many 'crazy' interventions!?
  - They change the state and/or context..
- Why so much comorbidity? ADHD, Dyslexia, SLI, DCD, Disruption
  - Generalises from one situation to another
  - 'Fight, flight or freeze' also affects executive skills

Catch-22

- Catch-22 - the reading situation triggers the abscess….
- Therefore, however well you support the child
  i. The abscess is triggered, the blood goes to the ‘fight, flight or freeze’ circuitry, the child is ‘Not Listening’. They are at 10% learning capacity
  ii. Even if there are some early successes, any learning failure will trigger the abscess
  iii. This results in extending the trigger context to support context, the ‘abscess’ grows and grows, the dislacement activities become more entrenched….

Response to Elliott's Critique

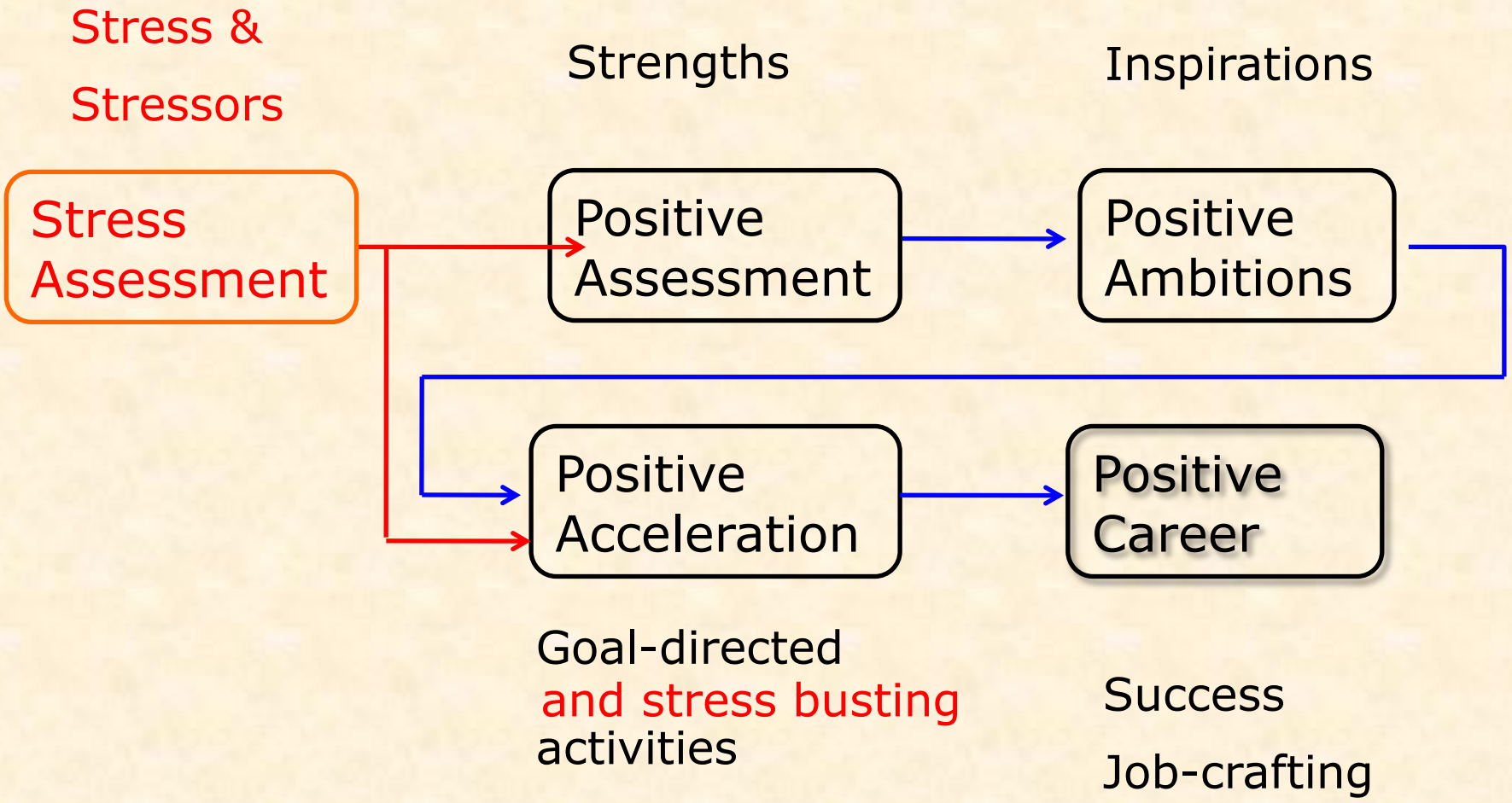


- Incomplete assessment
- Include strengths and include stressors

- Incomplete diagnosis
- should be diagnosis for support, not diagnosis of disability

- Wrong treatment, almost certain to feed the abscess
- Need for child-centred approach

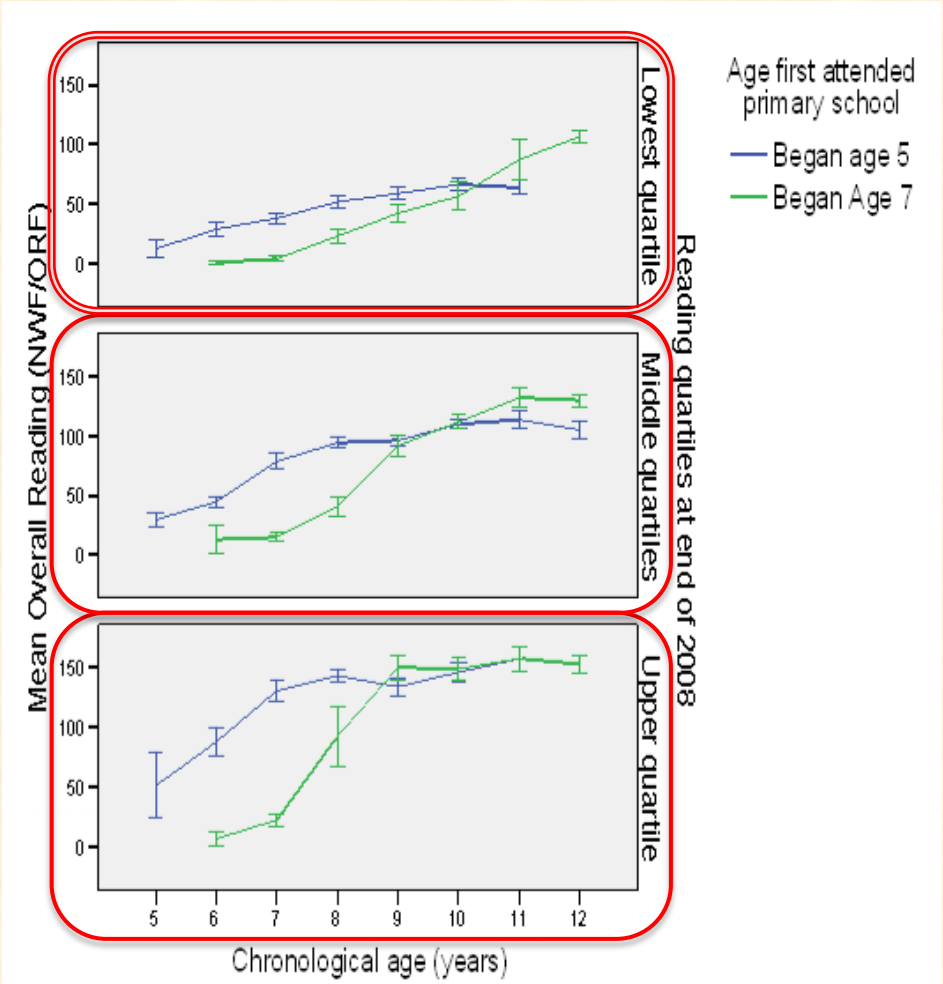
Positive and Negative Dyslexia: The Blueprint



Concluding:
What role for the Dyslexia Guild!?

New Zealand Study:
Suggate, Schaughency & Reece, 2013

- Compared 283 children in Steiner schools (RIA 7 years) with those in state schools (RIA 5 years).
- The Steiner children lagged behind in reading at 8 years (of course), but by 11 years had caught up in reading and were slightly ahead in comprehension.
- Personal Communication, thanks to Sebastian Suggate …
- Unlike most studies where those who are already doing well get further ahead, the effect was beneficial primarily for the lower achievers!
- More haste, less speed



Role for Dyslexia Guild Members

- With the current '+ve and -ve' framework, there is a real need for 'wisdom', that is, to be able to relate to a particular individual child, and find a way of helping them to learn without triggering the abscess. This requires
  i. absence from the trigger (generally the school itself)
  ii. a means of changing the context to a positive or neutral one by finding an area of positive interest for the child
  iii. Making progress
  iv. 'inoculating' the child against toxic failure when they go back to school – this is more like helping them cope with PTSD
- Guild members are particularly well placed to provide the individual support and the wisdom needed for this challenging undertaking. It just cannot be done in school, because the school has become the trigger.
- The Dyslexia Support organisations can take the lead in
  i. explaining to the government why 'one size fits all' and 'the sooner the teaching the better' are both precisely the wrong strategy, costing very much more money and leading to very much worse outcomes than delaying the onset of formal teaching.
  ii. Developing an approach to support that takes account of the educational, cognitive and emotional aspects of the situation, and the evidence needed of its effectiveness

In Conclusion

- I have described a two factor explanation for reading disability
  - The teaching of reading requires both classroom readiness (for learning by being told) and reading readiness (phonology, letters etc)
  - The cognitive factor, slower automatisation, leads to a developmental delay in acquisition of many skills, not just reading readiness but also classroom readiness
  - The affective factor, similar to PTSD, causes a stress-related shutdown of the cognitive circuitry, leading to much reduced learning ability and triggering primitive 'fight, flight or freeze' responses. These are at the heart of the reading disability
  - The most cost-effective (and most child-friendly) approach is to delay the onset of the formal reading instruction
  - For older children, it is crucial to develop means of supporting reading that do not trigger the stress response. Positive activities are my suggested approach
  - Even when the reading process is apparently recovering, it is still fragile, and any school failure is likely to re-trigger the response
- This analysis is consistent the major theoretical and applied approaches to dyslexia, but extends them all very significantly by including the affective dimension
- Members of the Dyslexia Guild are particularly well placed to develop and introduce the appropriate support techniques

Key References

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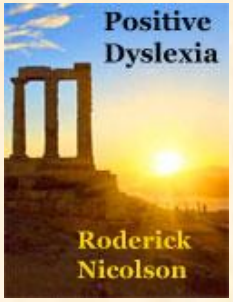
See www.rodnicolson.org



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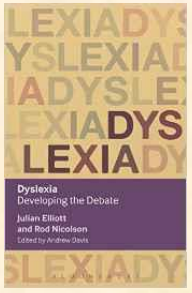

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