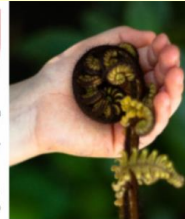


*RTlit 2018 conference
September 2018*



**Child Well-being Research
Institute**
Whiriwhiria, kia ora ai te tamaiti

What is dyslexia?

John Everatt

School of Teacher Education

College of Education, Health and Human Development

John.Everatt@canterbury.ac.nz

Working definition in NZ

Ministry of Education, NZ (2007)

‘is evident when accurate and/or fluent reading and writing skills, particularly phonological awareness, develop incompletely or with great difficulty ... These difficulties are **persistent despite access to learning opportunities** that are effective and appropriate for most other children’

Phonology – literacy

- **Associating written letters with sounds in language supports literacy acquisition**
- **Processing sounds within words enables the child to decode novel letter strings: **SPLOOB****
(good strategy to support learning and as part of acquiring a sight vocabulary)

Phonology – literacy

- Phonological awareness and decoding are good **predictors** of English literacy levels
- Phonological processing measures are often included in dyslexia **assessments**
- Many successful **intervention** procedures include phonological awareness training
(**though need to link to literacy**)

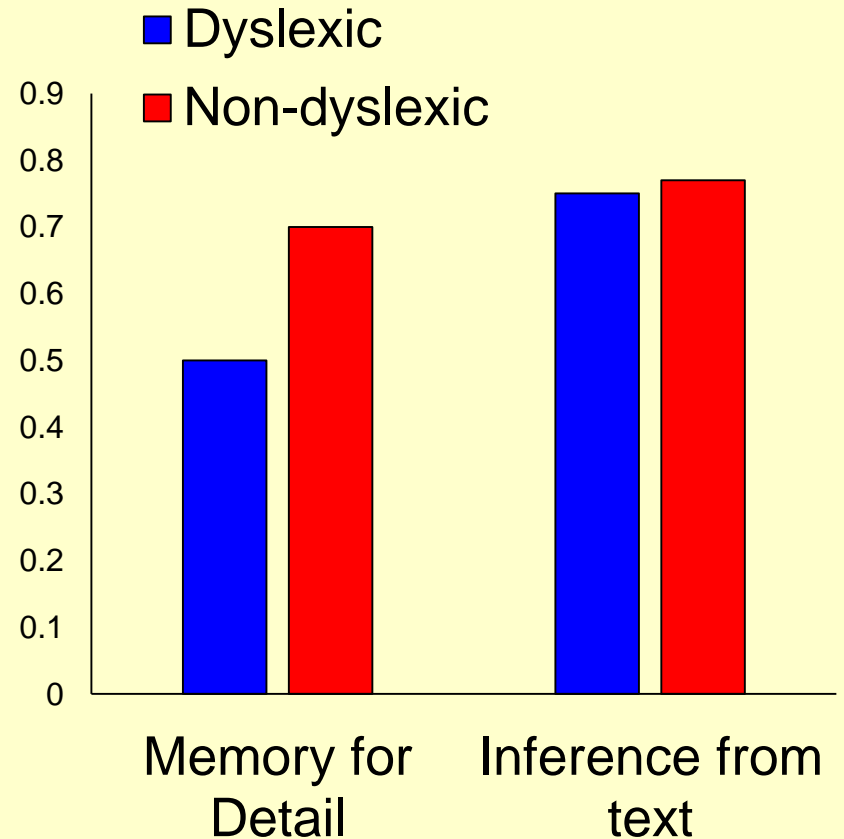
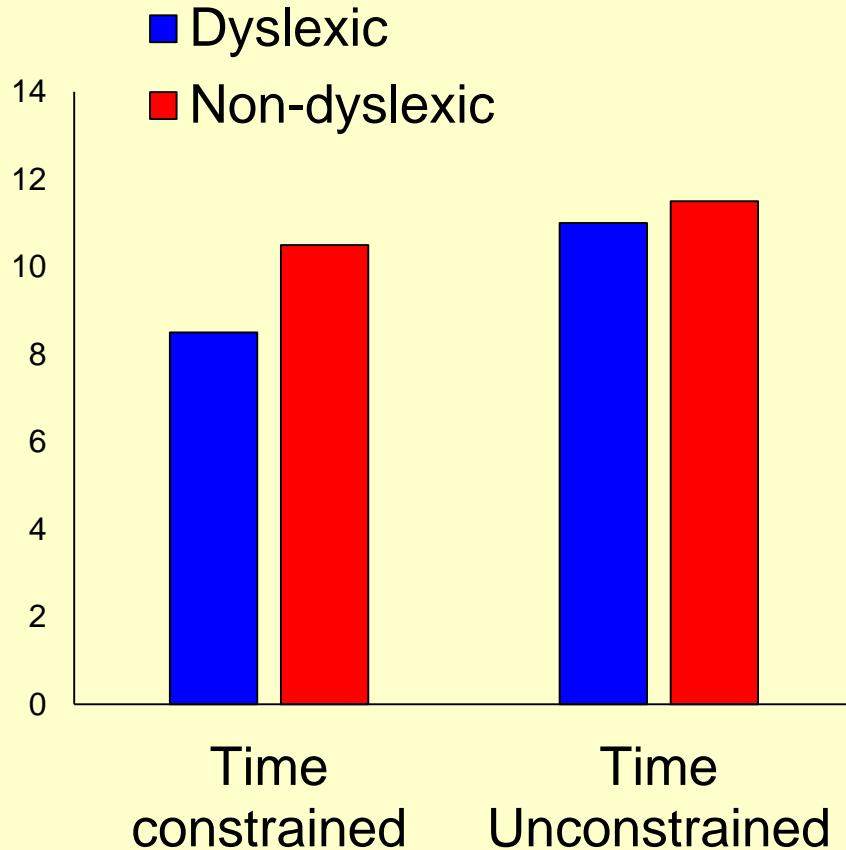
Primary characteristic

Weak word-level reading and spelling
(Poor phonological awareness)

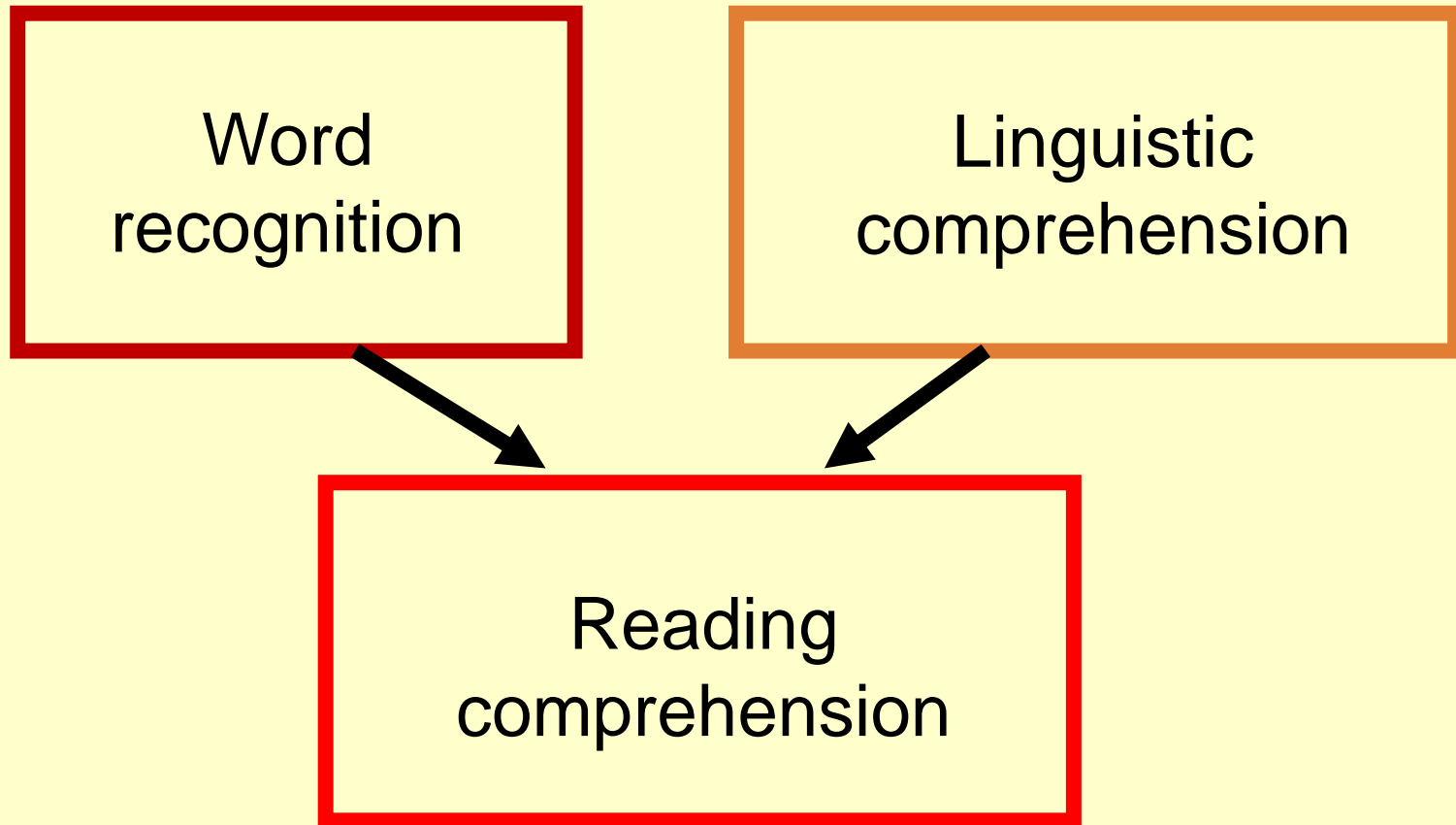
**Despite word-level weaknesses,
understanding of text may not be as bad
as expected**

Reading comprehension

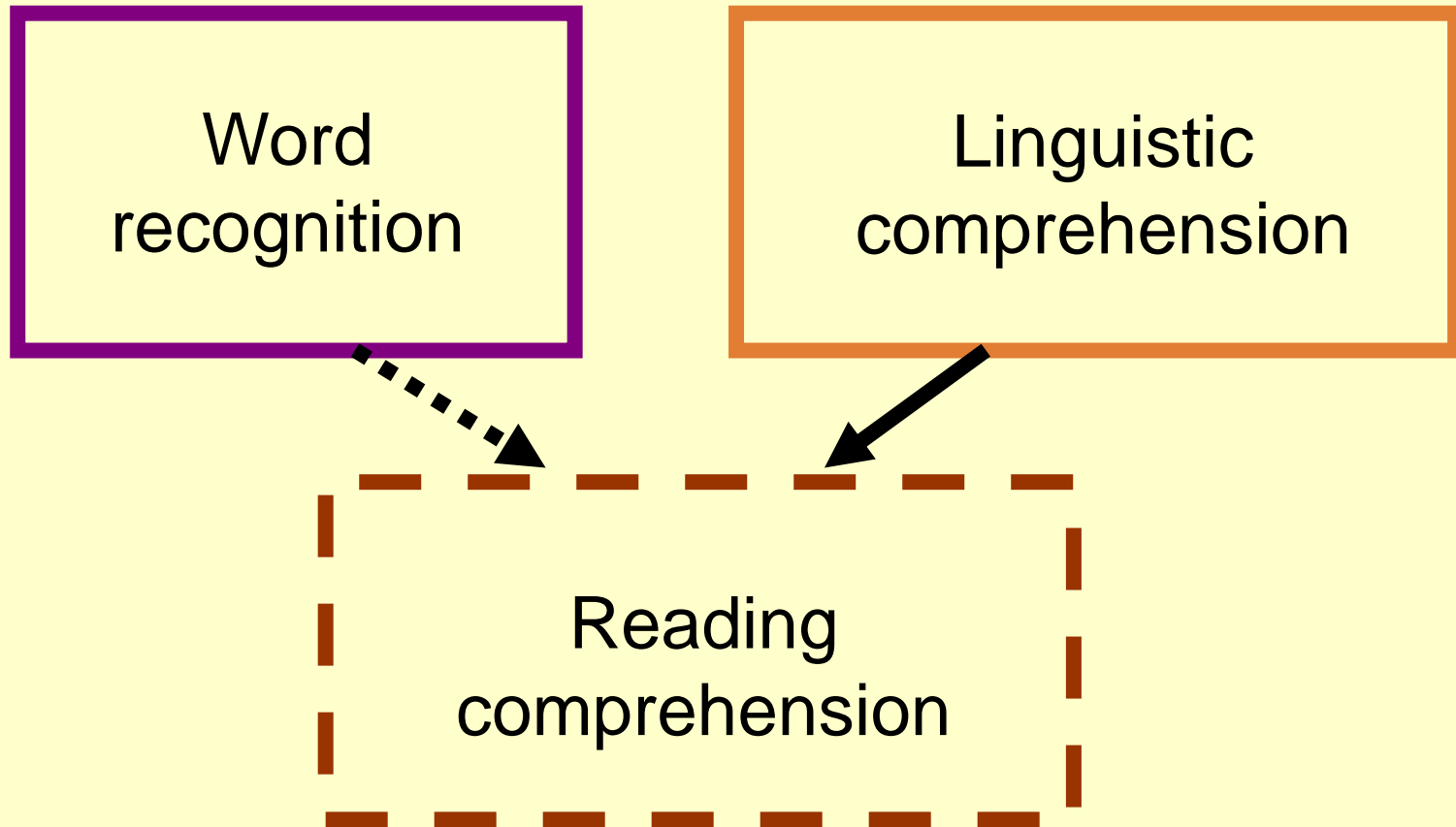
Adults in higher education



Reading comprehension



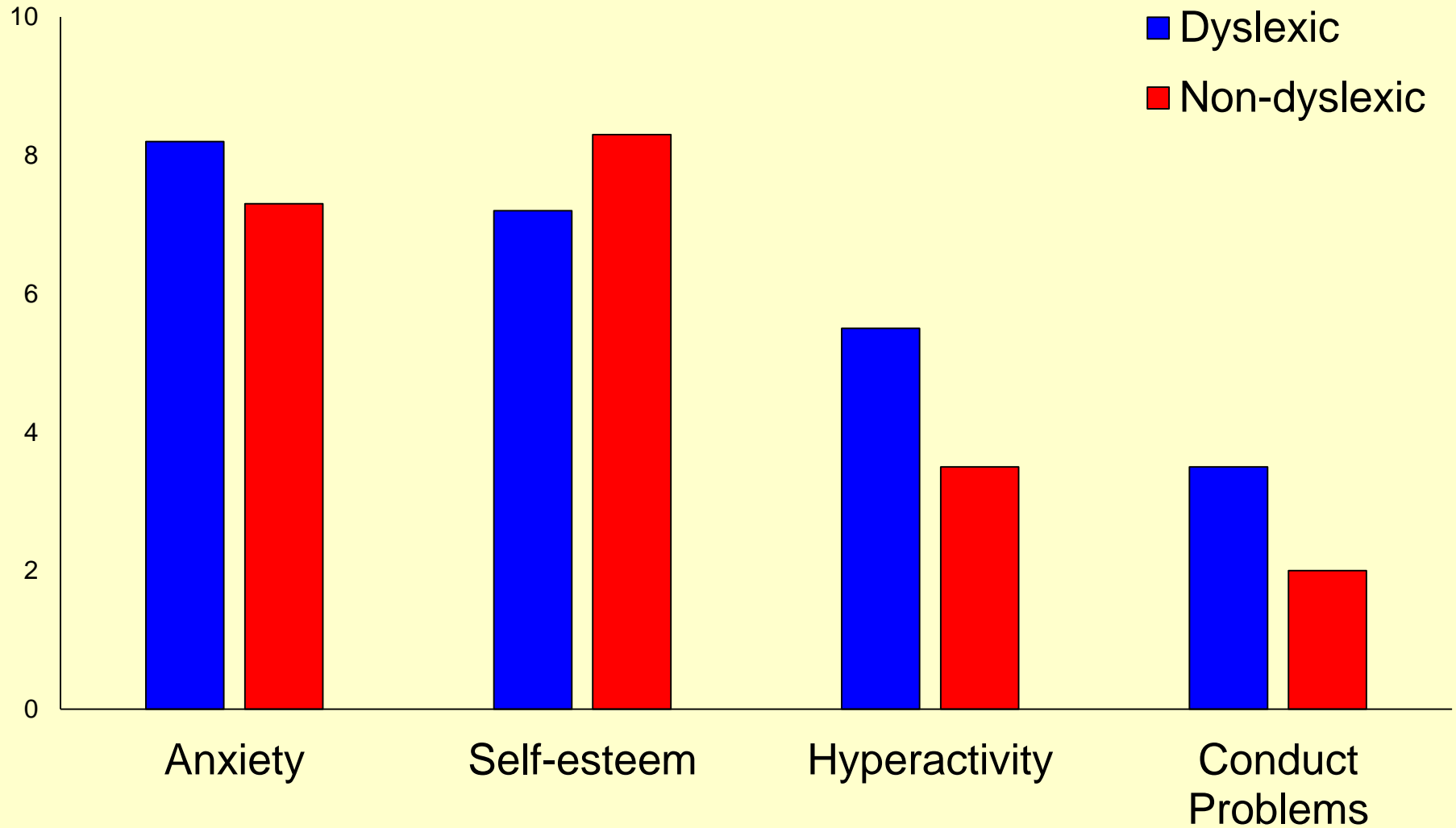
Reading comprehension



Consequences

- ❖ **Word-level problems can lead to text level weaknesses which may lead to problems across school subjects and hence to poor educational qualifications**
- ❖ **Literacy weaknesses can lead to low verbal skills: poor word knowledge**
- ❖ **Poor school experiences may lead to poor behaviour – and negative affect**

Emotion/Behaviour consequences



Not ALL negatives Positives

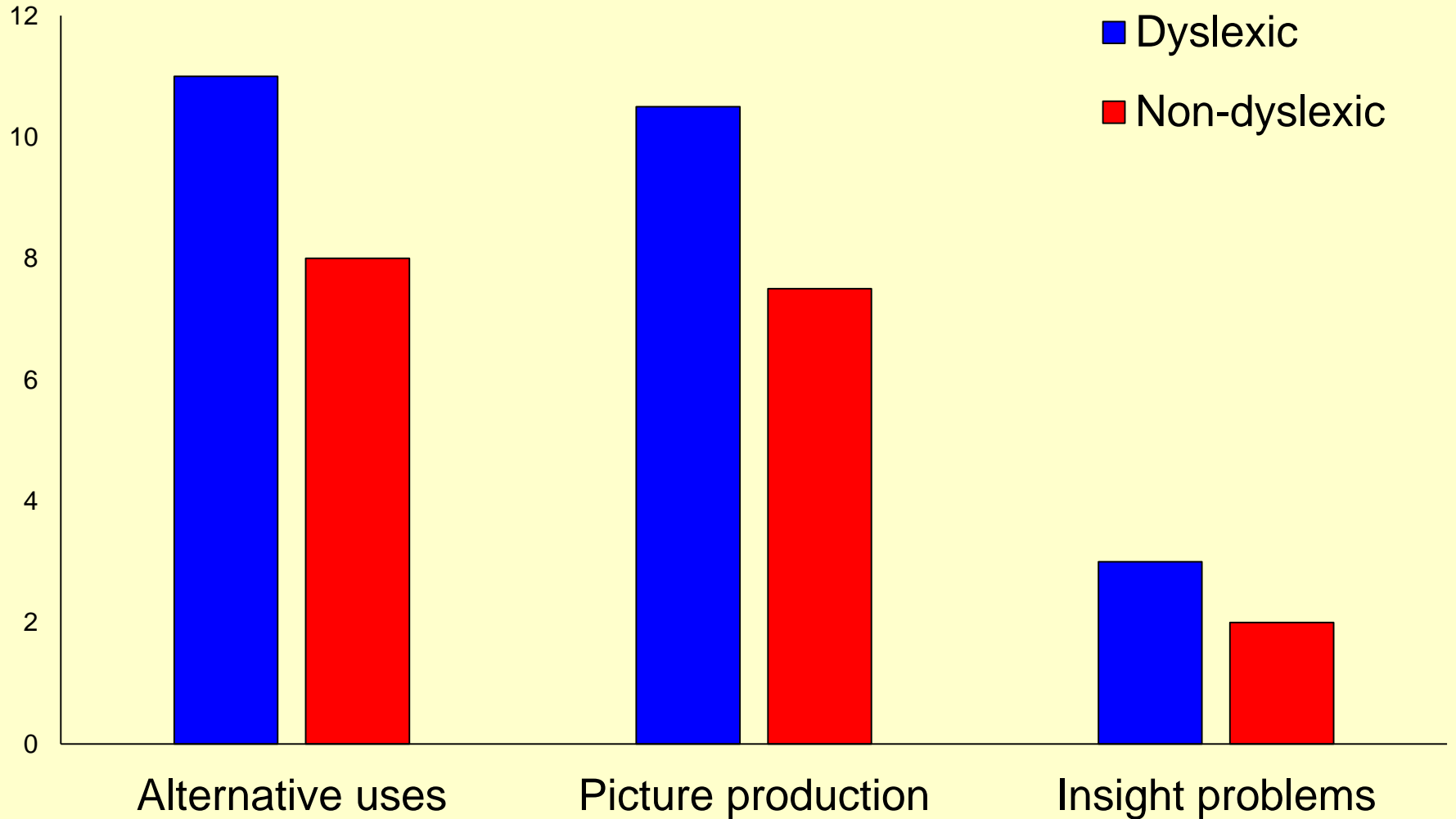
Specific deficits found in those with
dyslexia

**some skills can show a typical range of
abilities found in any group**

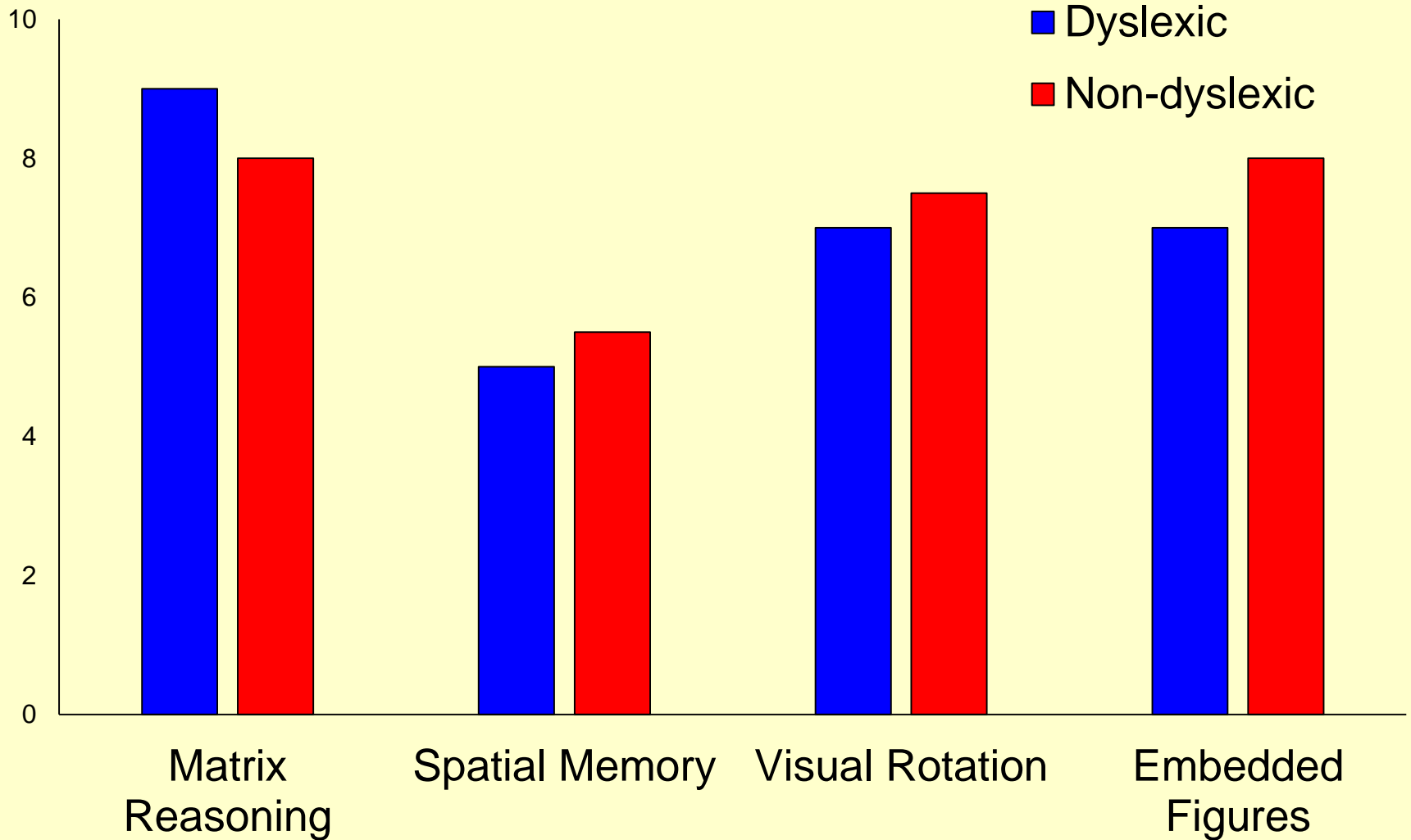
**and some skills can be developed to high
levels**

Measures of creativity

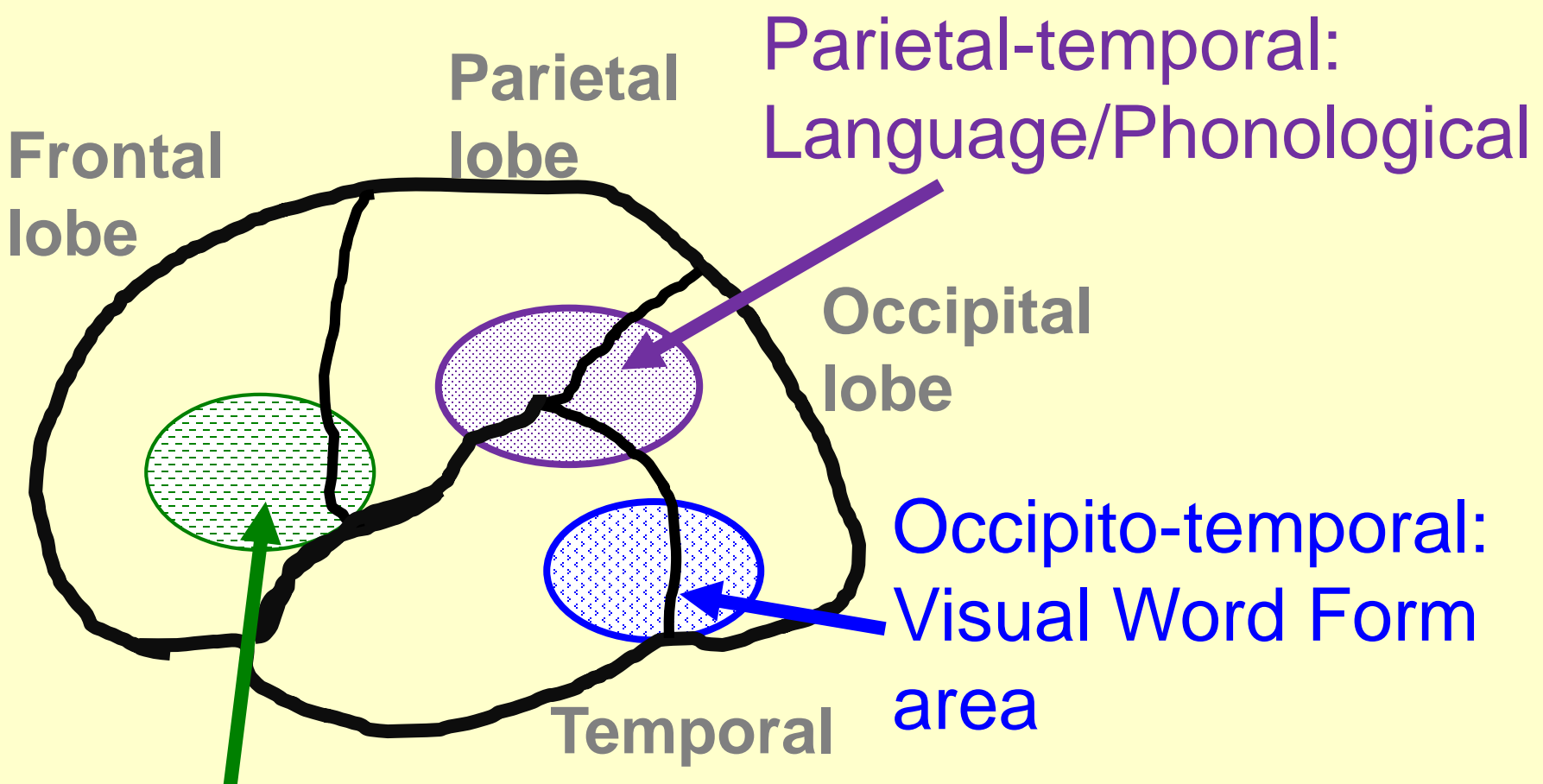
University students



Visual tasks



Démonet, Taylor & Chaix (2004)



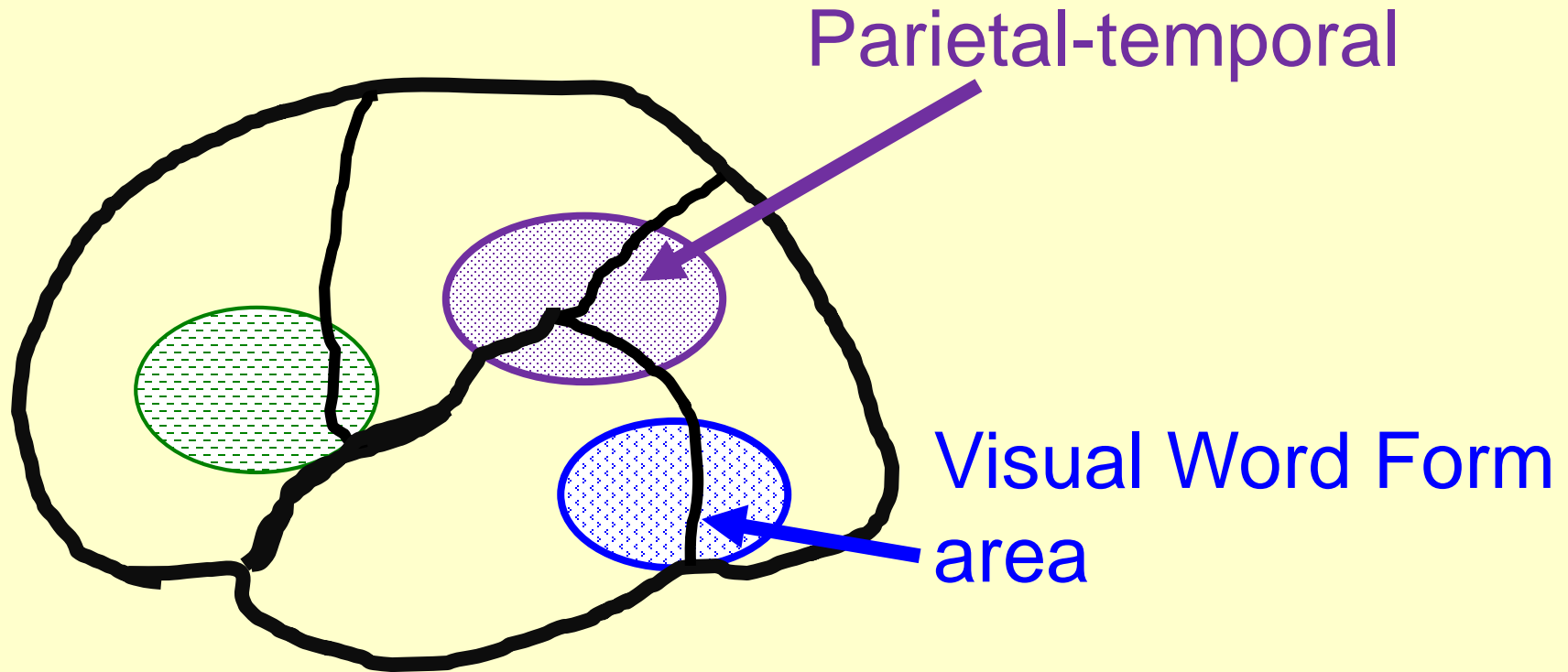
Inferior-frontal:
Articulation or
Analysis

Parietal-temporal:
Language/Phonological

Occipito-temporal:
Visual Word Form
area

Shaywitz (2003)
Dehaene et al. (2005)

Potential weaknesses (under-activation) have been identified with both these areas.



But does not mean a visual deficit in tasks other than processing orthographic forms or connecting these with language.

Features of dyslexia

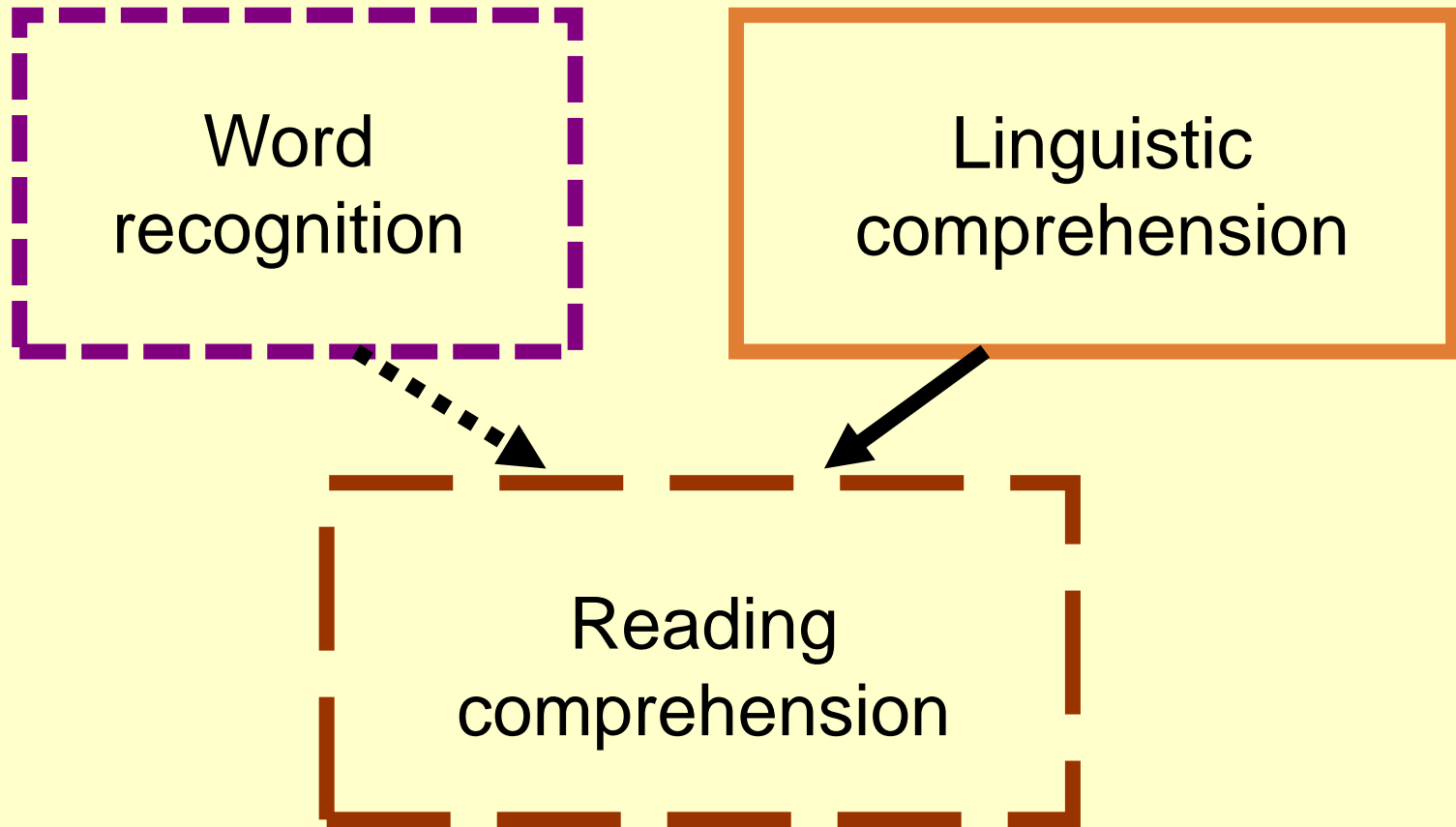
Weak word-level reading and spelling

**Poor phonological awareness/decoding
(linking written symbols and sounds)**

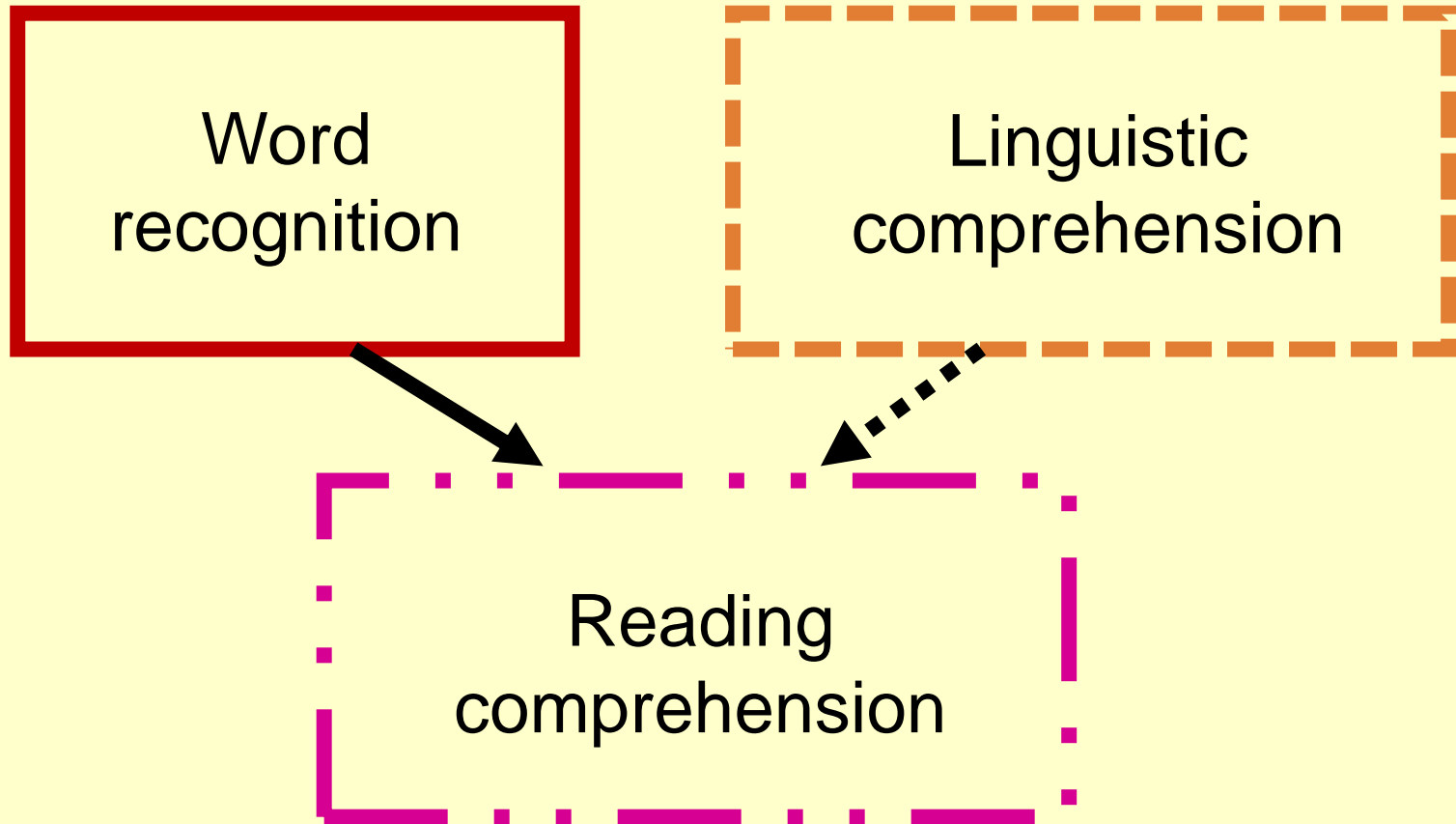
**Wider language problems also increase
risk of literacy difficulties**

- **Compensatory strategies – eg, in text comprehension**
- ❑ **Negative consequences: emotional and behavioural problems**
- ❖ **Does not need to impact on all skills and is influenced by good teaching**

Simple View of Reading Dyslexic

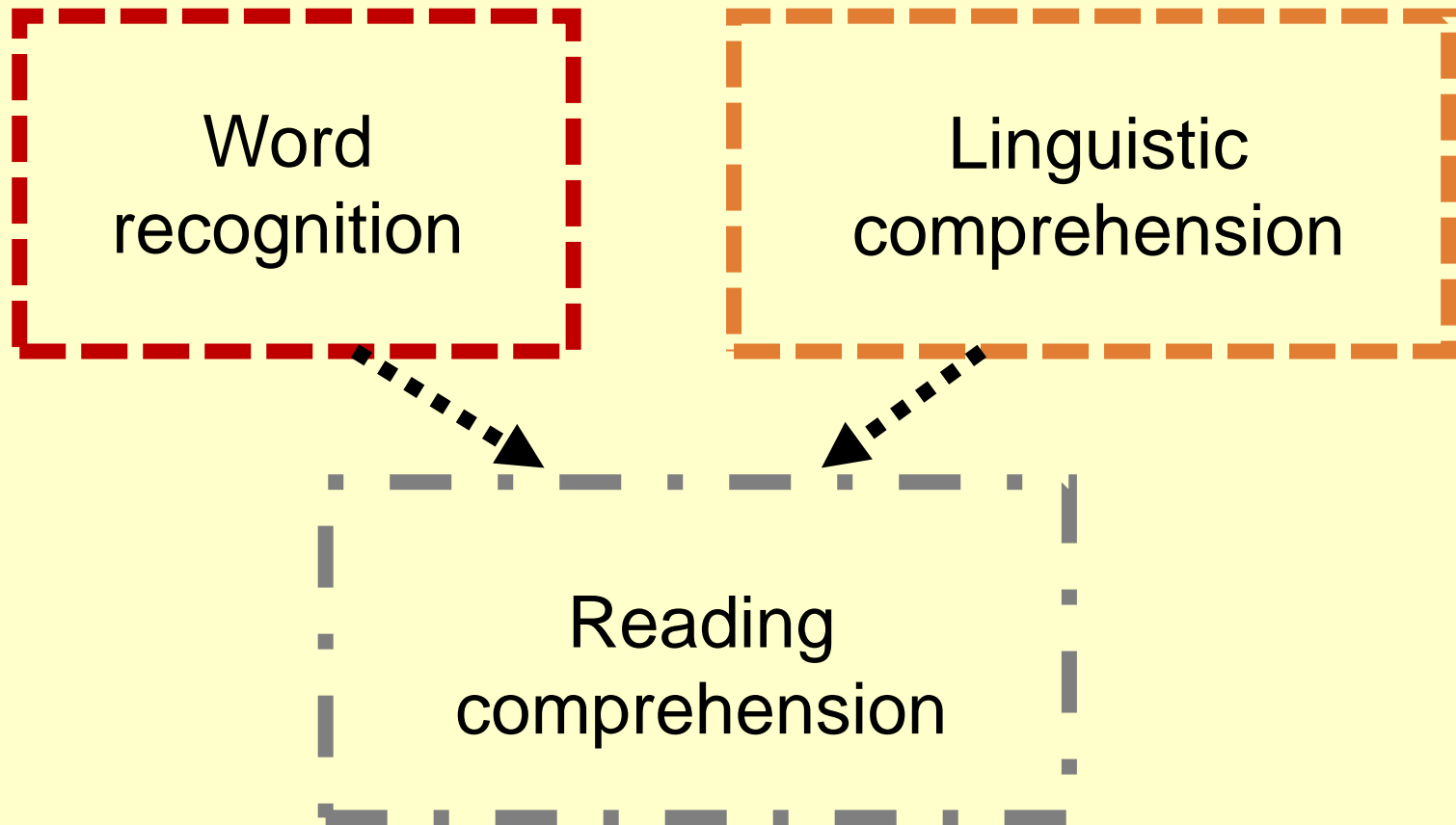


Simple View of Reading Poor Comprehenders



Simple View of Reading

Mixed poor reader profile



Other causes of literacy difficulties

- **Learning experience**
- **Language background**
- **Gross sensory deficits**
- **These causes of literacy learning problems are not typically recognised as dyslexia**

Identification – Intervention

identifying cause may lead to more effective intervention

- **Learning experience**
 - **More/better schooling**
- **Language background**
 - **Increase language exposure**
- **Gross sensory deficits**
 - **Prescribe adjustment device**

Main causal viewpoint

- **Dyslexia is caused by phonological processing deficits**

Gillon (2004); Goswami (2000); Lieberman et al (1974); Lundberg (1989); Snowling (2000); Stanovich (1988); Vellutino (1987); etc

ie, problems processing sounds within words lead to difficulties in processing and/or learning written words

Method of support

Dyslexia is a difficulty with learning to read/spell

therefore support should be linked to literacy learning

**Individuals with dyslexia vary just as much as individuals without dyslexia
one method may not work with all dyslexics – may need range of methods**

**Is there a simple ‘cure’ for dyslexia?
most likely not – literacy learning will take time: difficult but not impossible**

Phonological interventions

- **Type of intervention most likely to work – child is taught to use skills considered to be involved in literacy acquisition**
- **Work with sounds within words:**
 - rhyme detection**
 - identifying sounds (phonemes) in words**
- **More successful if placed within literacy:**
 - changing letters in words to observe the effects on the sound of the word**
 - reading out text**
 - manipulating words within the text**

Factors related to the success of phonological interventions

- **When intervention occurs:**
the later it is left, the harder it is for such methods to be successful
intervention at the start of learning literacy leads to best chance of success
- **Characteristics of individual:**
those with a range of language problems or more severe problems may show less benefit or need more intensive support
more severe the deficit, the harder it is to remediate

Evidence from pre-reading

- **Pre-reading phonological and language skills can predict later reading difficulties**
- **Children taught phonological awareness skills prior to formal teaching of reading seem at less risk of specific reading problems**

(Puolakanaho et al, 2007)

(Elbro & Petersen, 2004)

Range of strategies

- **May need a range of strategies to support the range of needs presented by children with literacy learning difficulties**

Worth of assessment should be in providing a way to identify the best method for the individual:

- **assess to identify areas of weakness to suggest appropriate intervention**
- **assessment may also inform strategies to support learning**

Different types of reading weaknesses

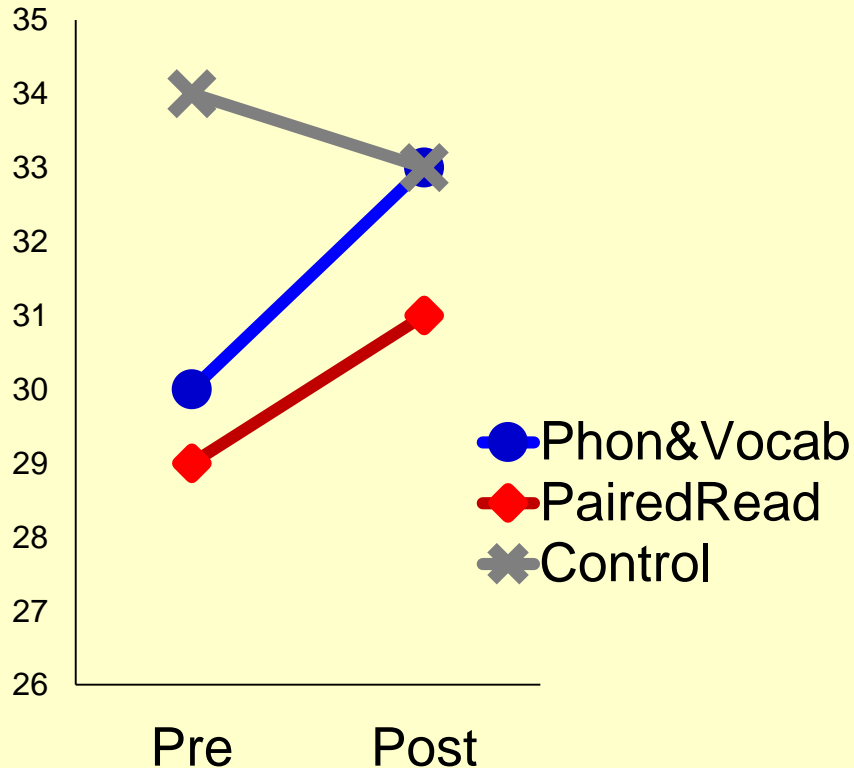
- **Dyslexia = word-level weaknesses and these seem to respond best with early intervention relating phonology and literacy**
- **Poor reading comprehenders = weaknesses with understanding text and may respond best with early intervention related to vocabulary and strategies to relate text and meaning**

English Additional Language + literacy learning difficulties

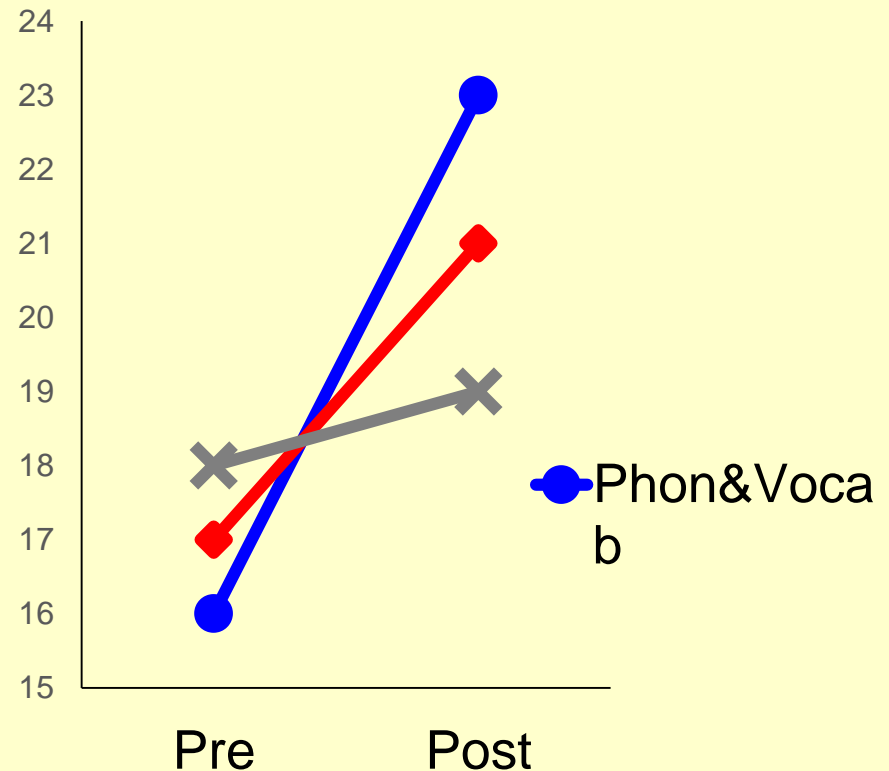
- **Phonological (linked to text)**
 - ❖ saying sounds within words
 - ❖ breaking up words into sounds
 - ❖ changing sounds within words
 - ❖ spelling words via sounds
- **Vocabulary/Morphology**
 - ❖ discussing meaning of word in text
 - ❖ change words/word-parts – new meaning
 - ❖ emphasis on frequent re-occurring word-parts

English Additional Language + literacy learning difficulties

Word Reading



Non-word Reading



Intervention strategies for those with experience of repeated failure

- Strategies that focus on relative strengths as well as overcoming weaknesses – the strengths should lead to more positive feelings of success
- Strategies that combine intervention with procedures for self control and/or self-regulation of difficulties
- Procedures that are motivating and incorporate challenge at the same time as teaching successful strategies

Interventions: general ideas

- **Response to Intervention** – assess to identify need and make support relevant & monitor intervention to make such it is working
- **Structured** – logical steps to build on learning and help reinforcement
- **Explicit** – teach ideas/strategies and generalisations
- **Real examples** – making problems real can support understanding (**Cultural examples** – will relate to what child brings with them)
- **Repetition** – use to ensure fact/symbol learning and recall (**Multisensory**)
- **Interest** – helps learning and increases motivation to learn

Overall

- **Reading/Writing develop incompletely or with great difficulty (BUT not impossible)**
- **Language problems increase risk – type may lead to varying reading problems**
- **Phonological (phoneme) linked to literacy most likely to show benefits**
- **Range of strategies useful: age/individual differences OR additional problems**
- **Consequences need to be dealt with**
- **But does not mean bad at everything – distribution will be normal in many skills**