

Dyslexia in children and adults: How research might inform practice

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Working definition of dyslexia

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'

Another working definition

dyslexia is evident when ‘accurate and fluent word reading and/or spelling develops very incompletely or with great difficulty ...

focuses on literacy learning at the ‘word level’ and implies that the problem is severe and persistent despite appropriate learning opportunities’

British Psychological Society (1999)

Common aspects of definitions

ü accurate and/or fluent reading and writing/spelling develop incompletely or with great difficulty

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But are all children with problems in reading and writing dyslexic?

Causes of literacy difficulties

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

Need to reject alternative explanations of the literacy learning problems

Common aspects of definitions

- ü **accurate and/or fluent reading and writing/spelling develop incompletely or with great difficulty**
- ü **persistent despite access to learning opportunities that are effective with most individuals**

Identification – Intervention

identifying cause may lead to more effective intervention

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

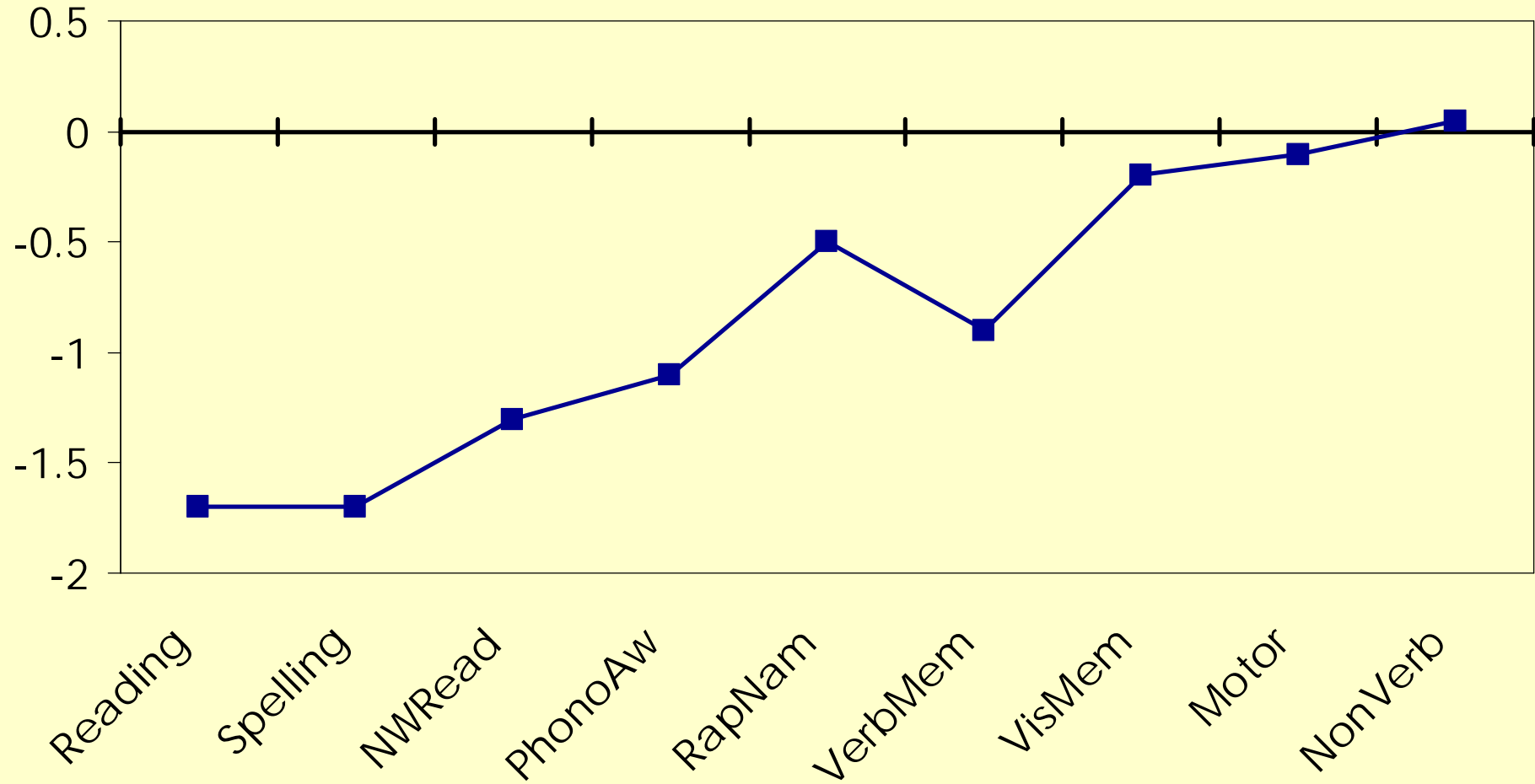
Phonology – literacy

- **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**

Phonology – literacy

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

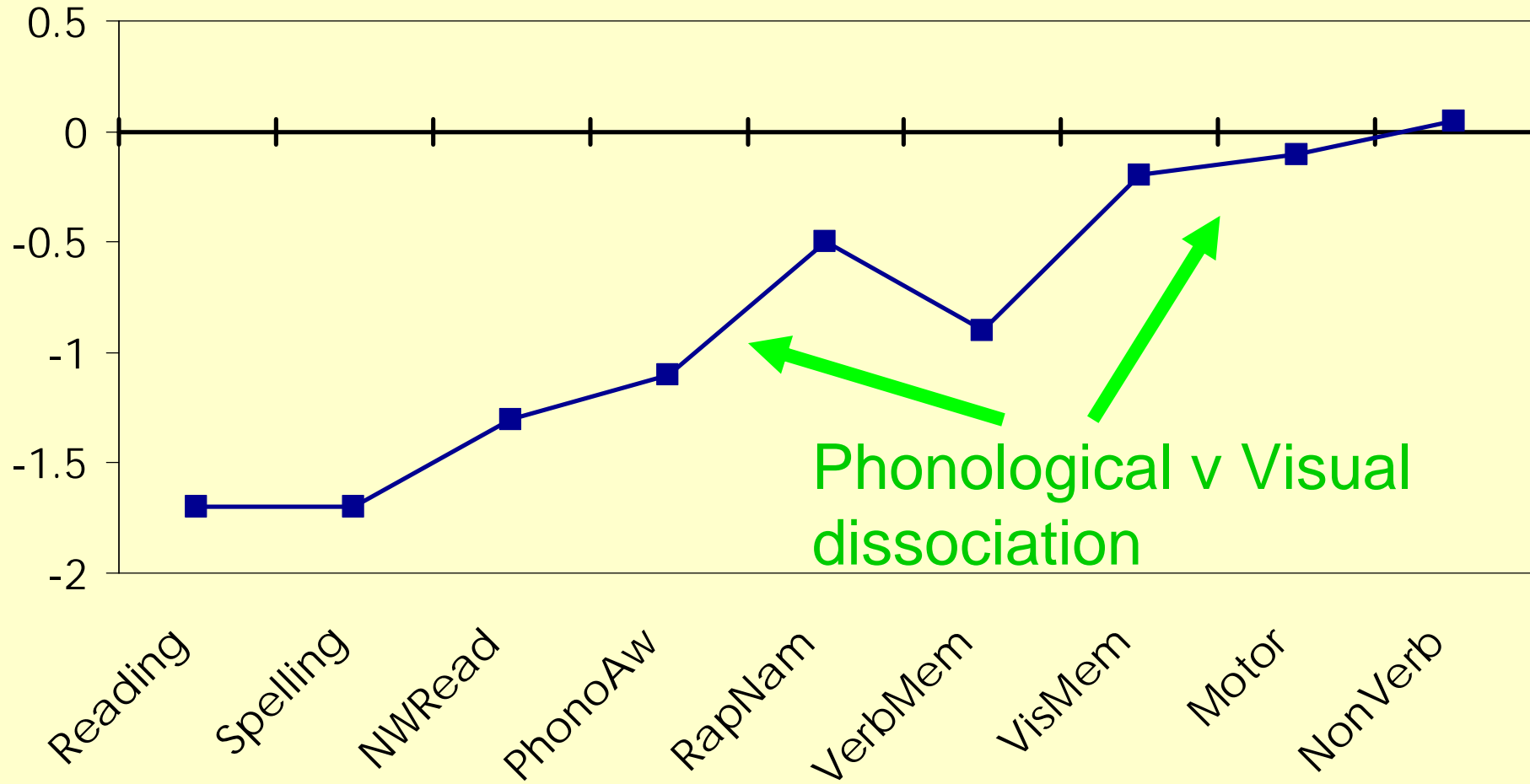
UK Dyslexic children early primary



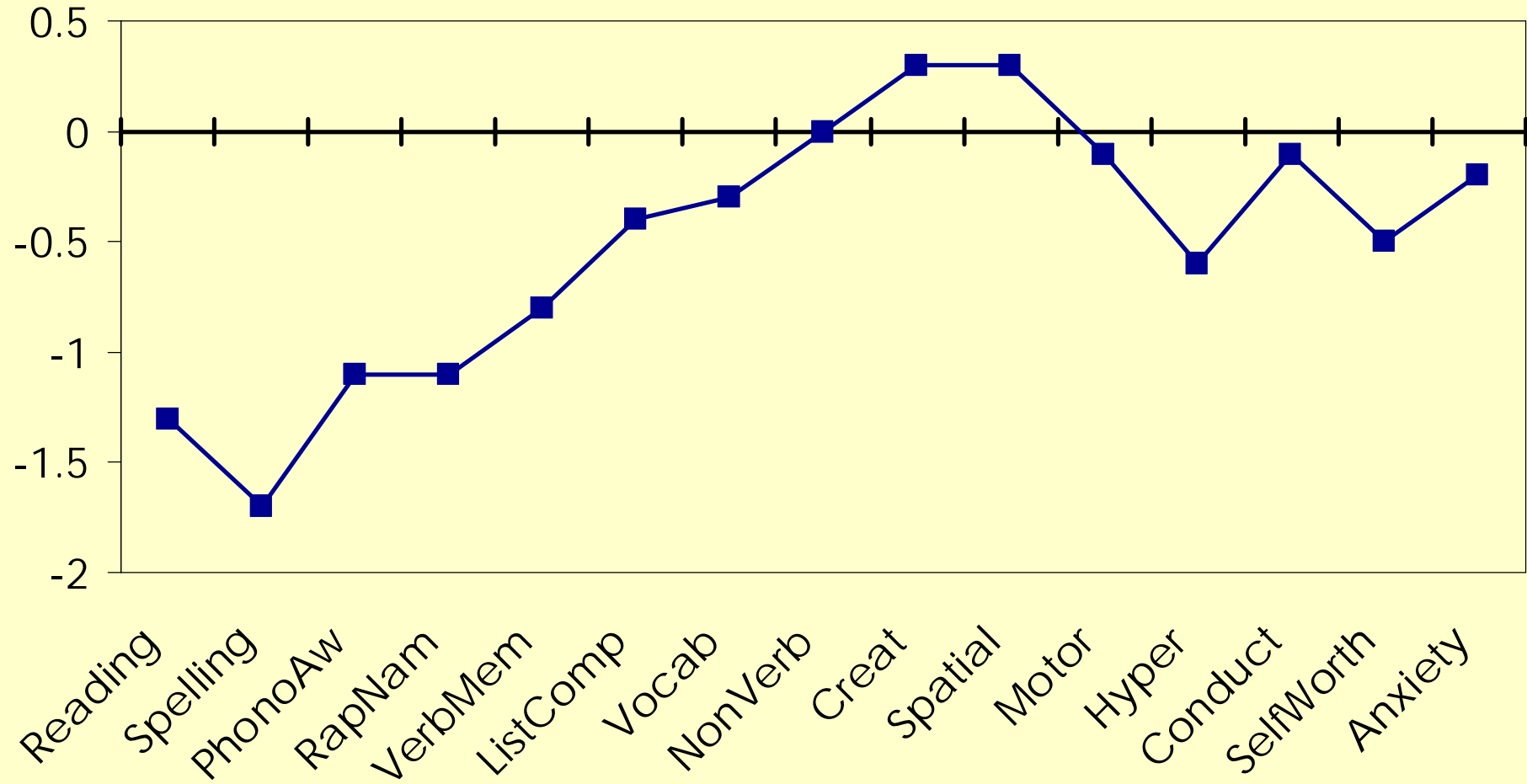
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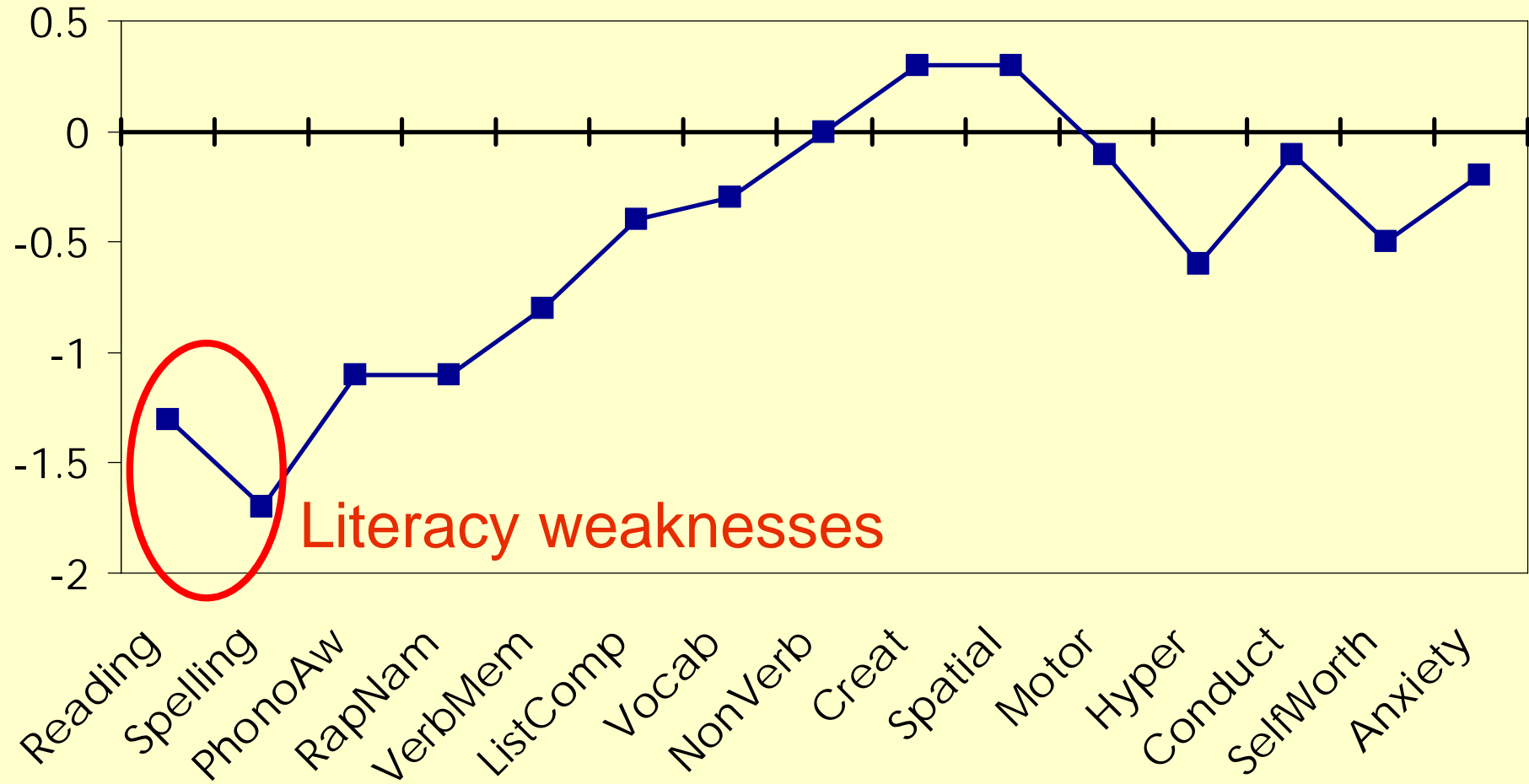
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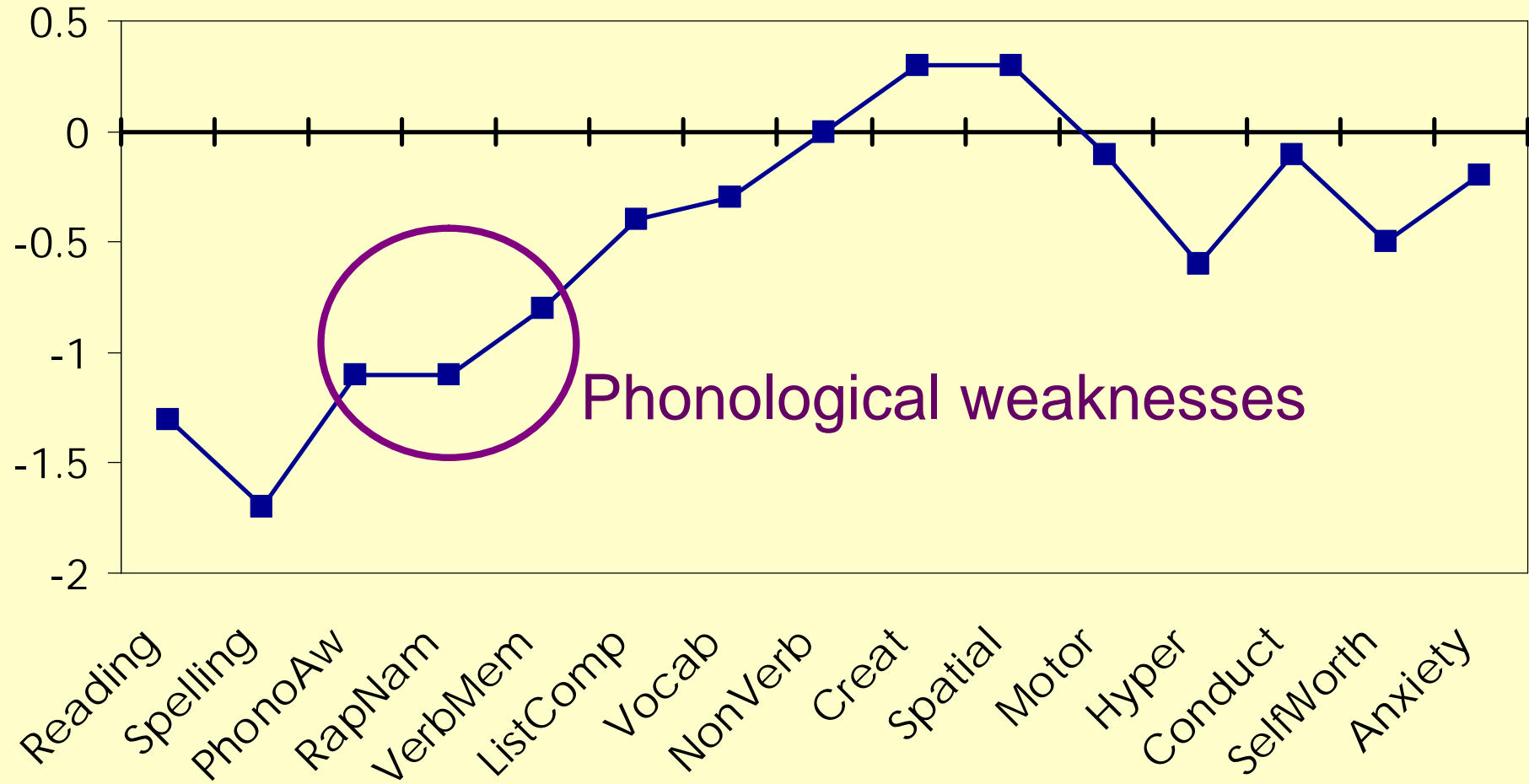
UK Dyslexic children late primary



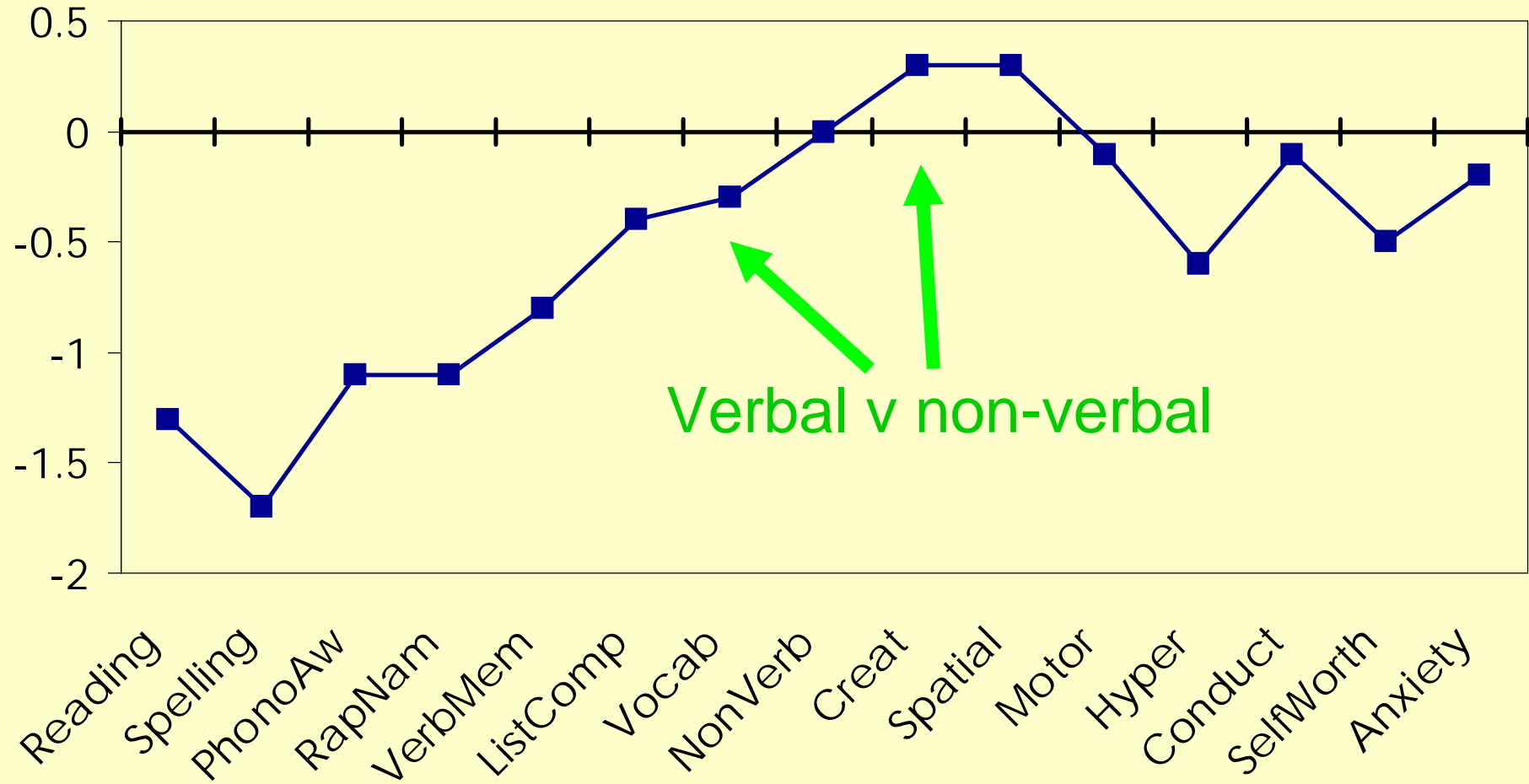
UK Dyslexic children late primary



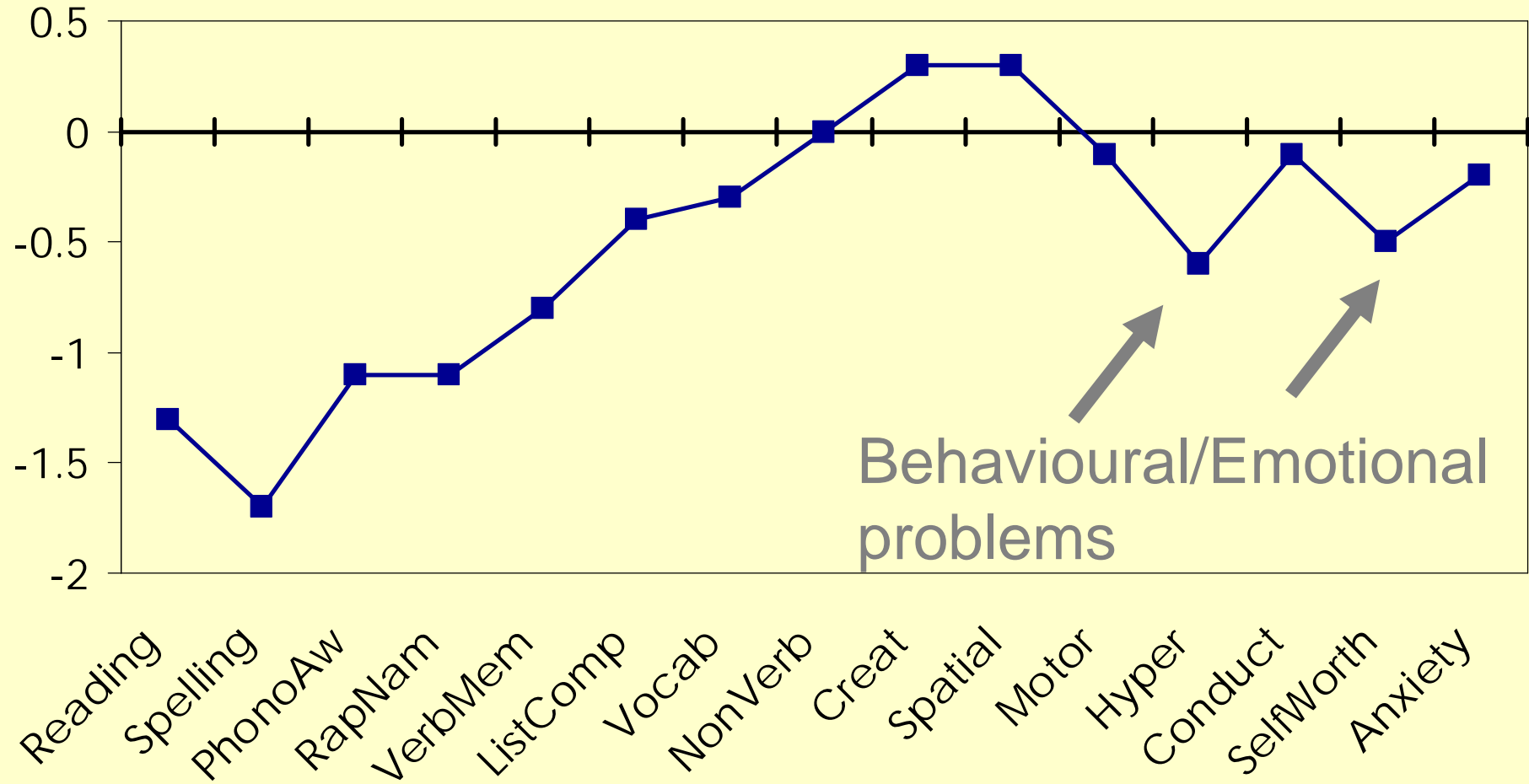
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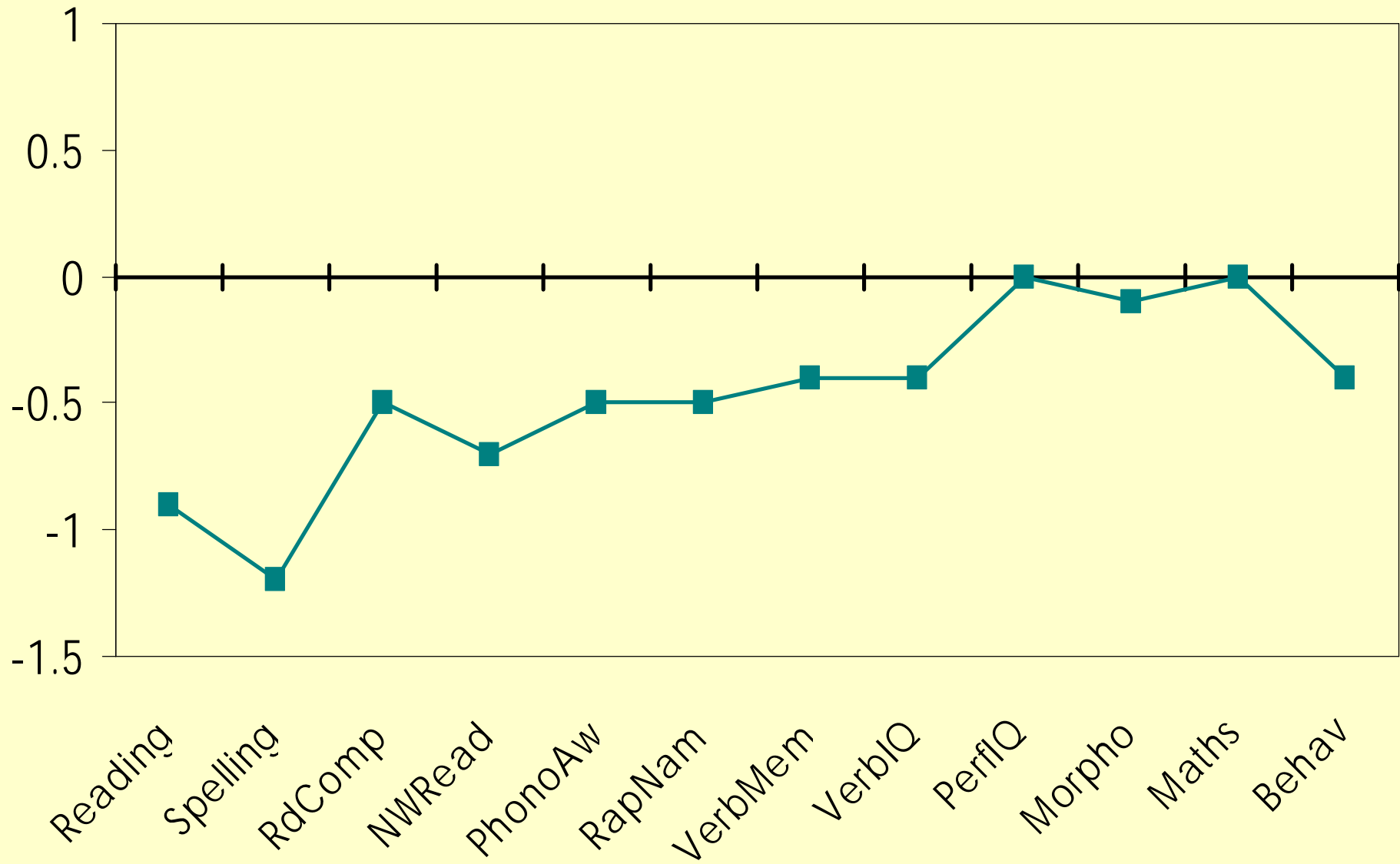
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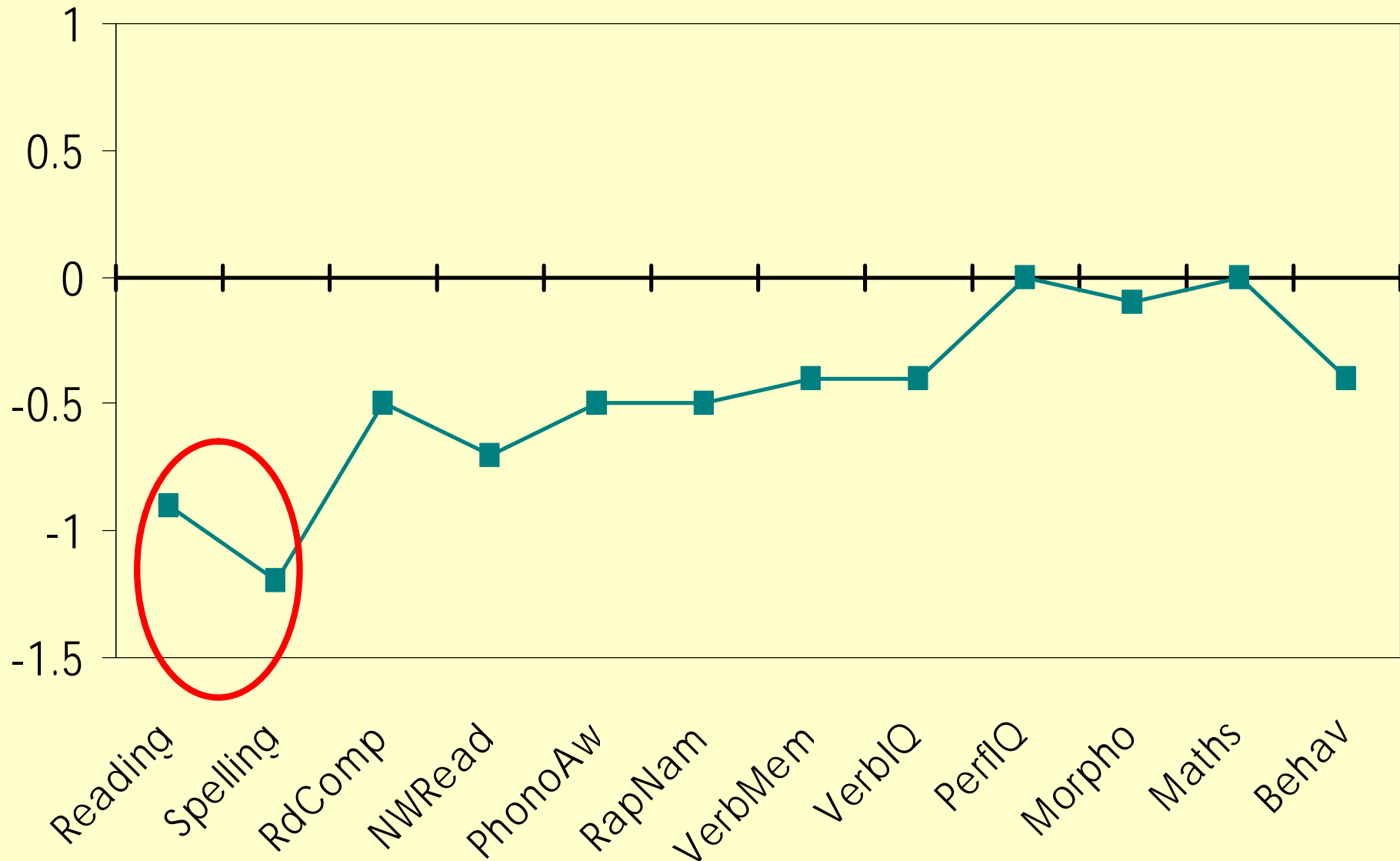
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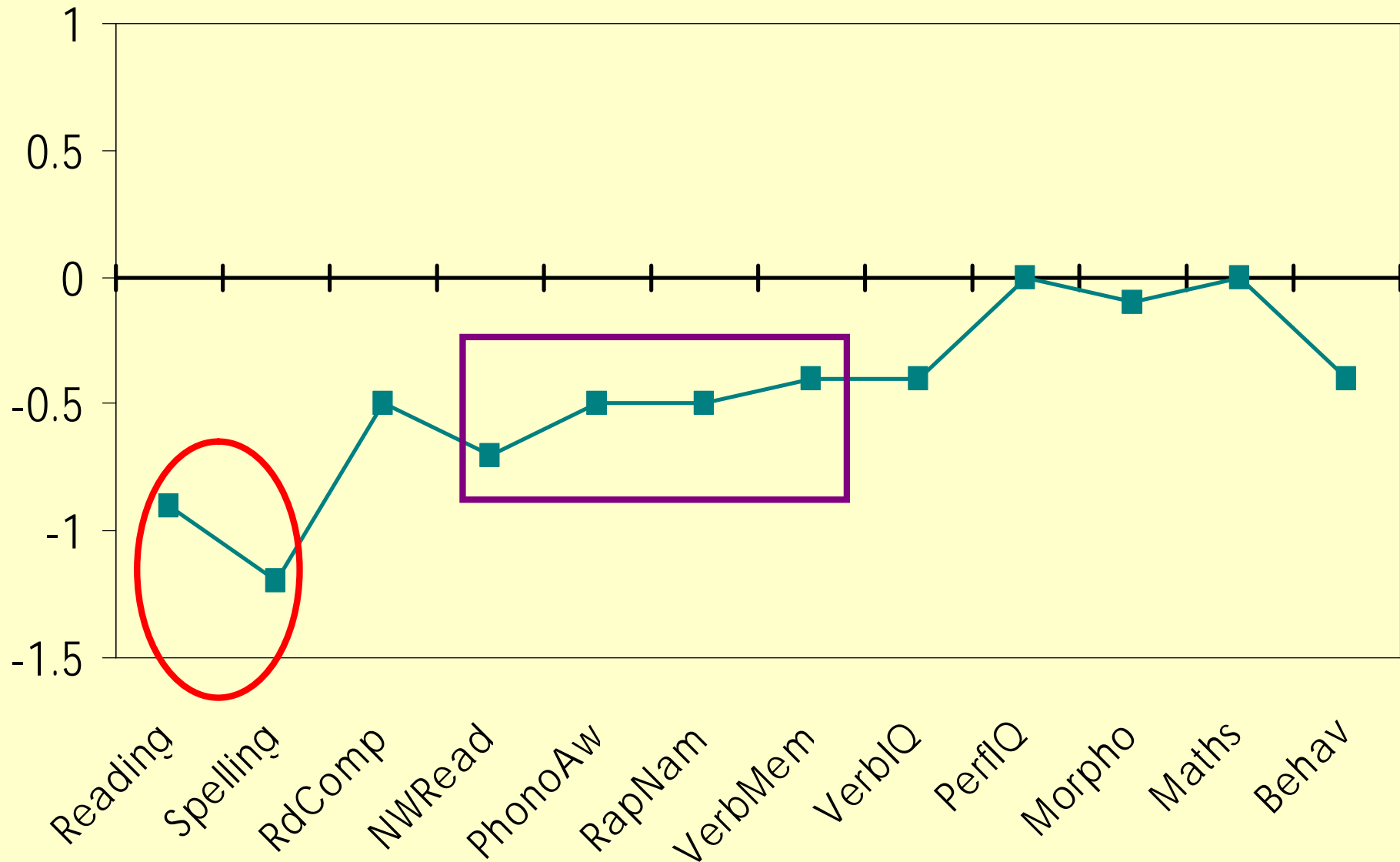
Arabic Learning Disabled children



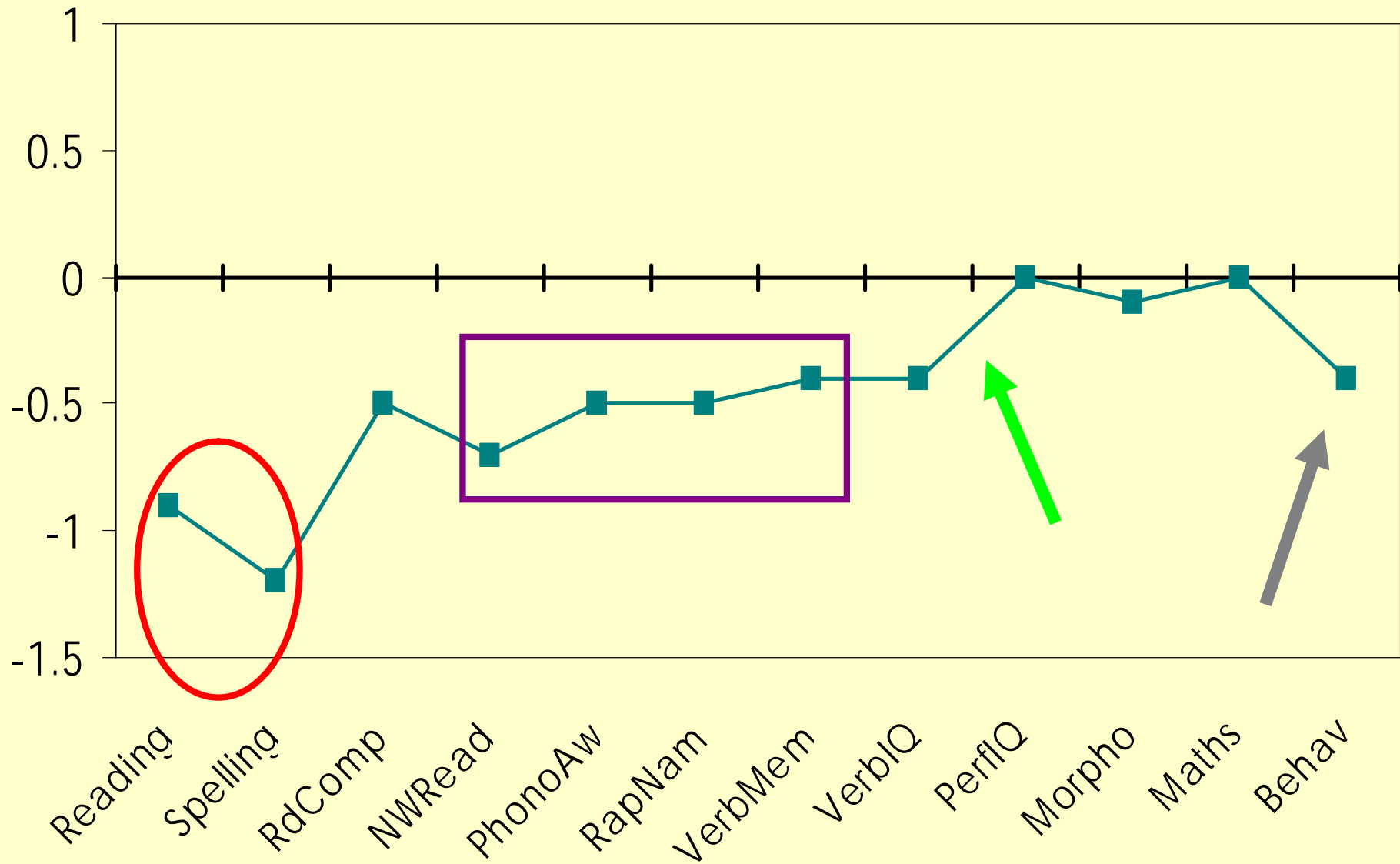
Arabic Learning Disabled children



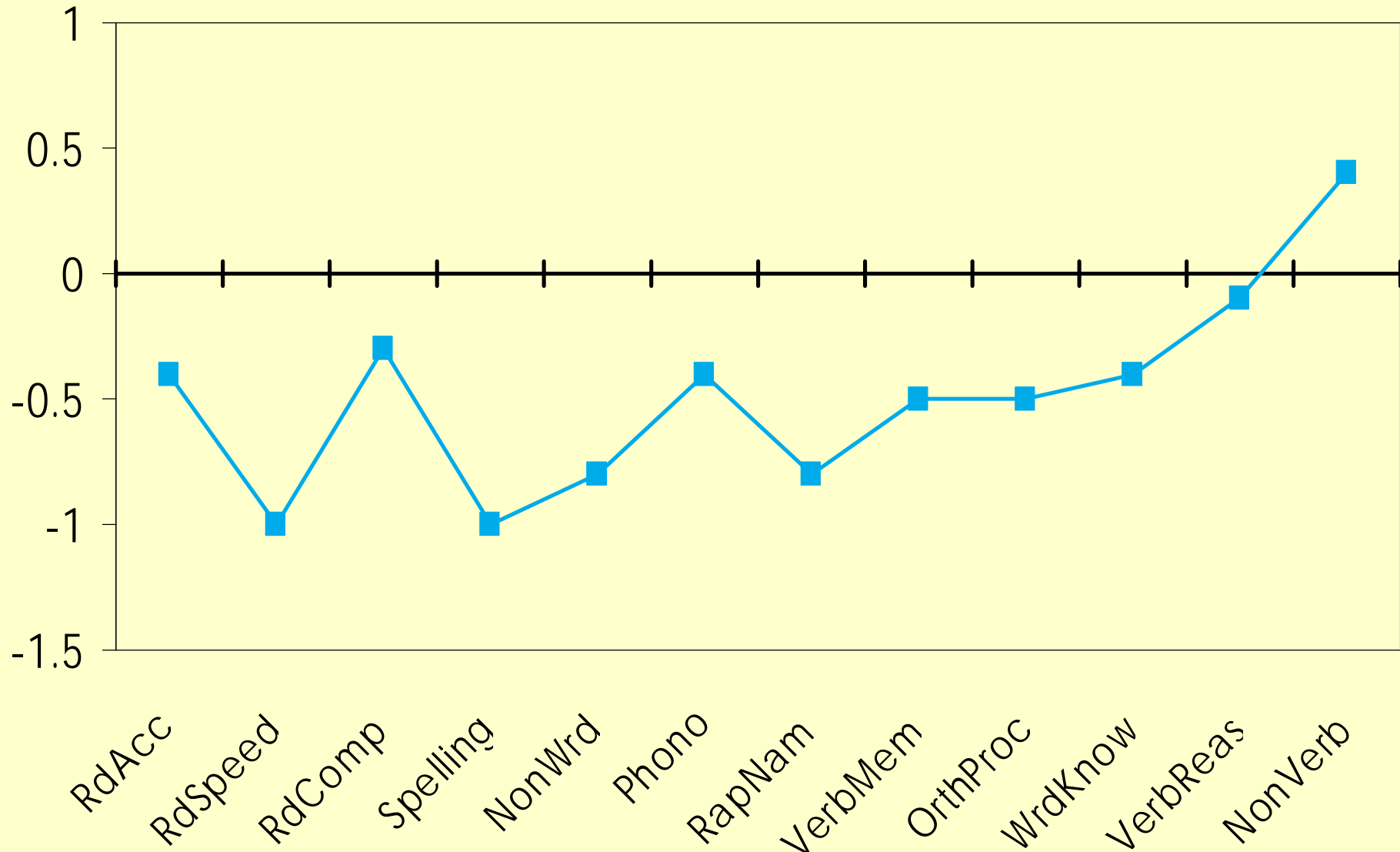
Arabic Learning Disabled children



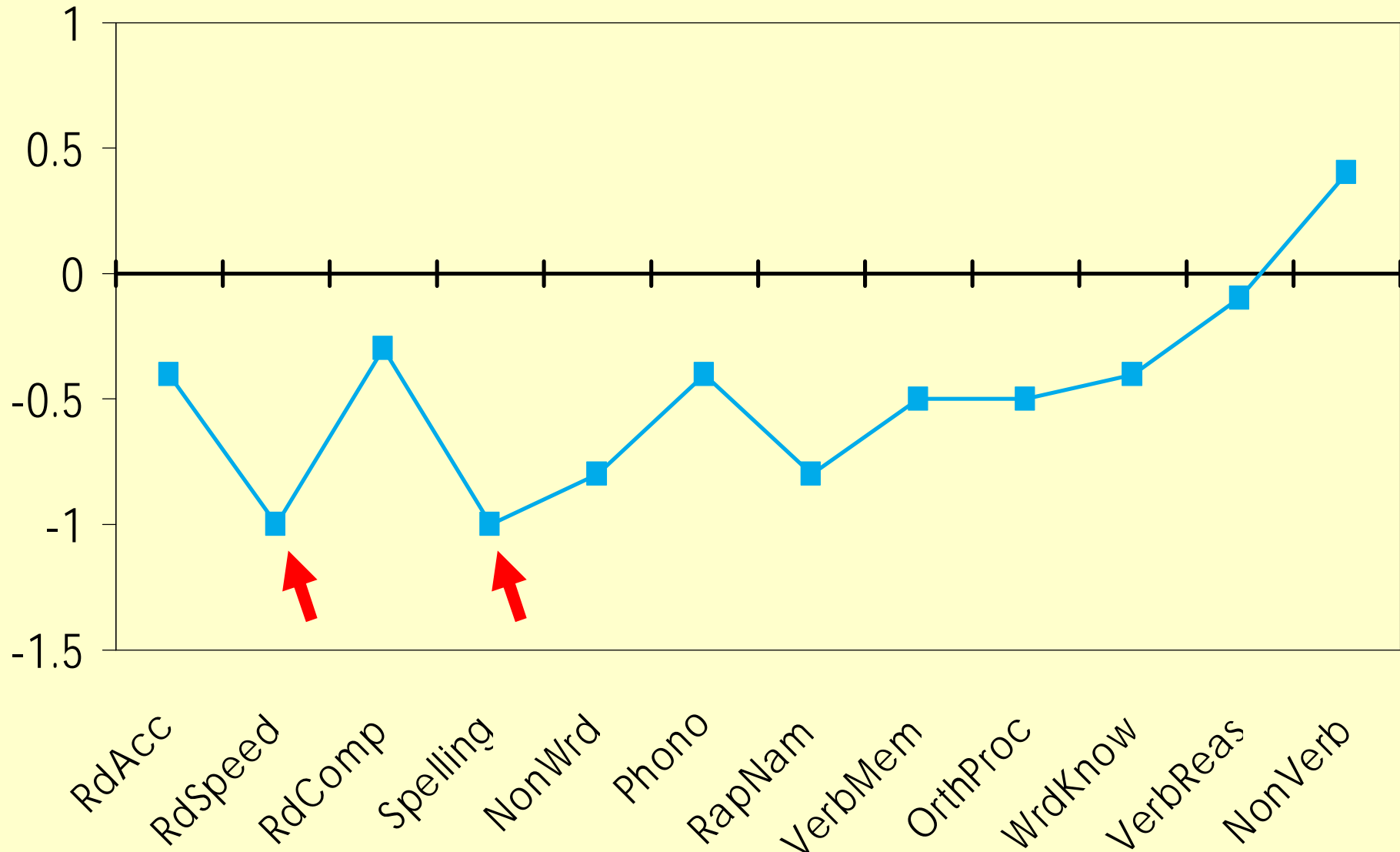
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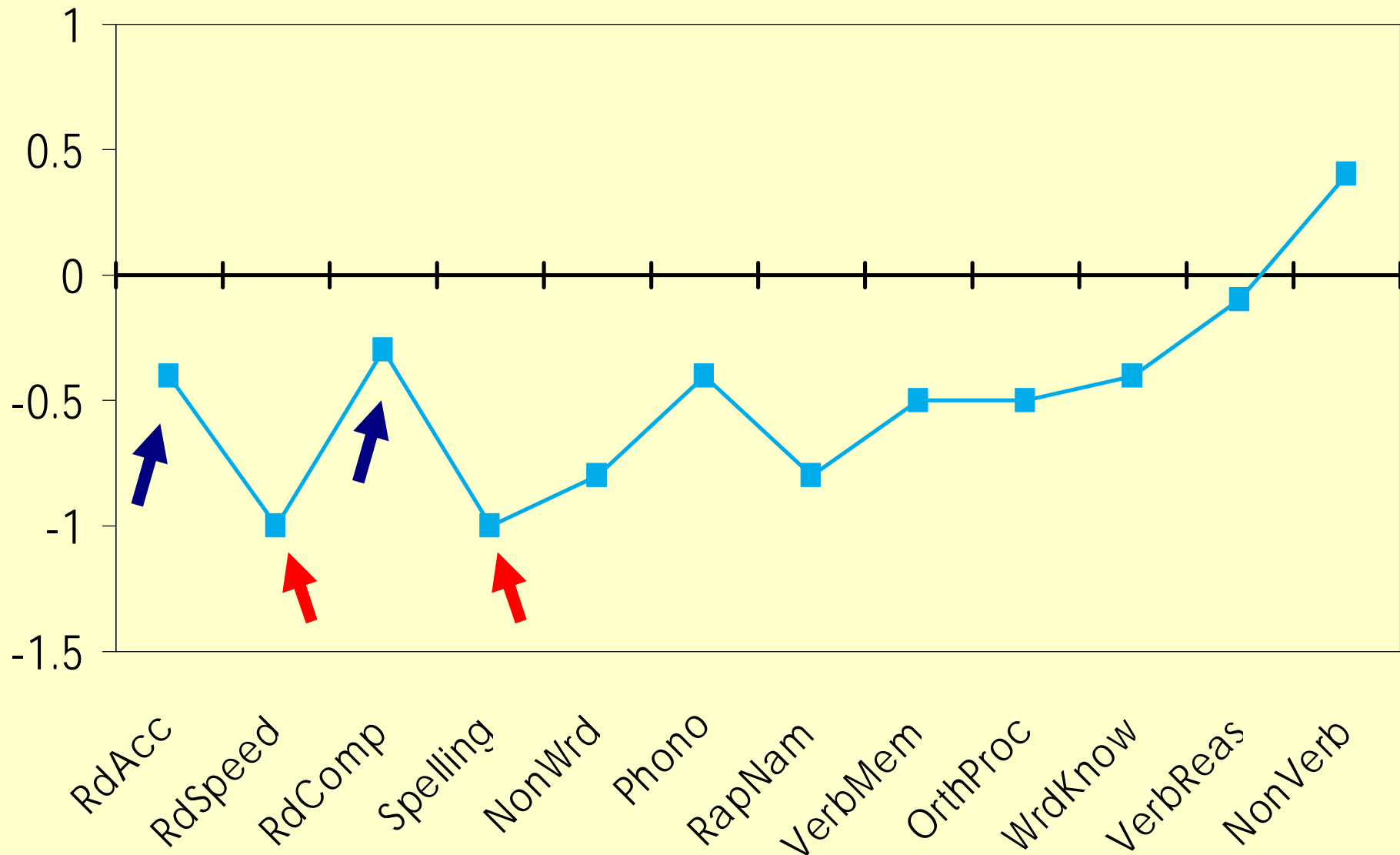
UK Adult dyslexics



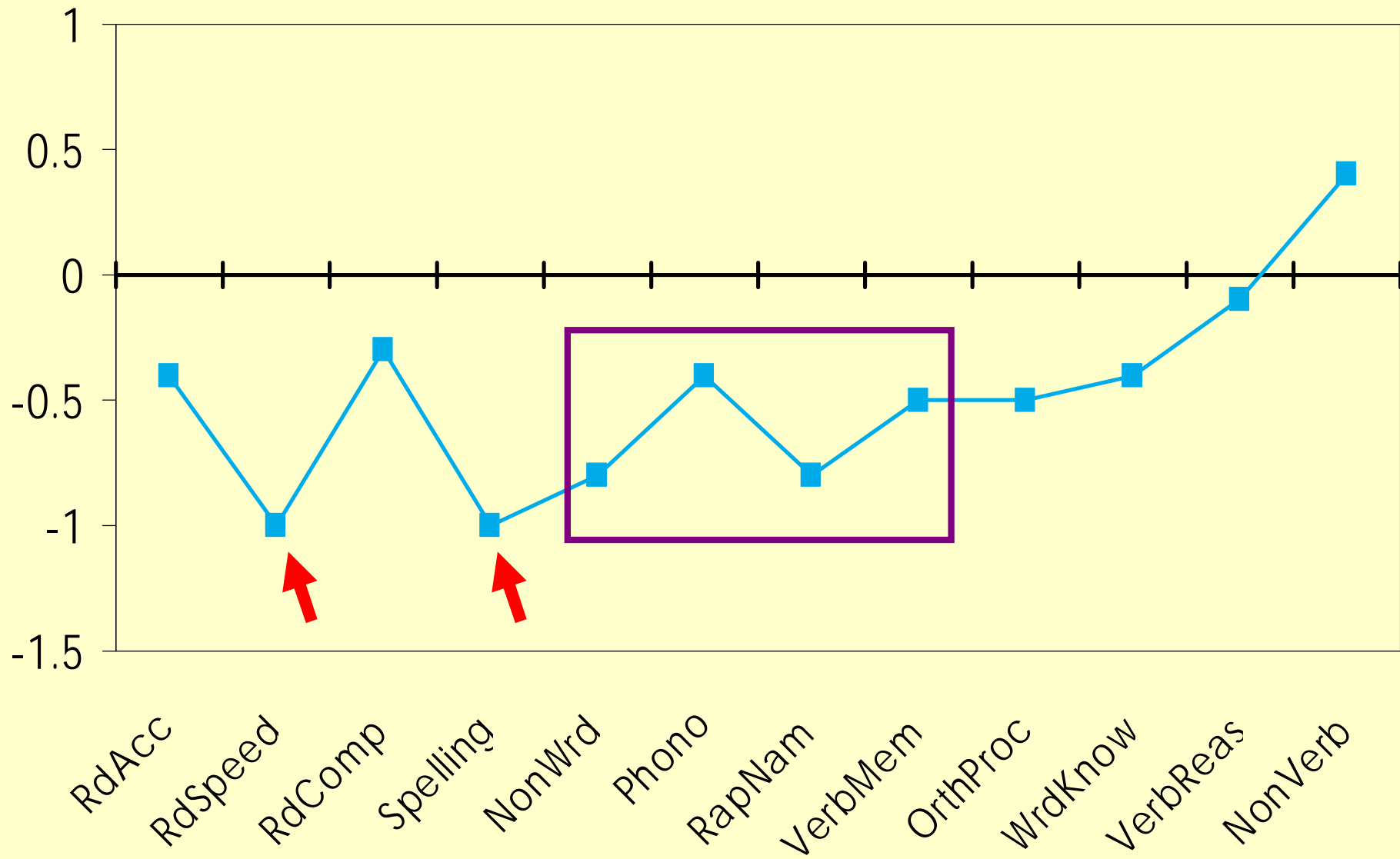
UK Adult dyslexics



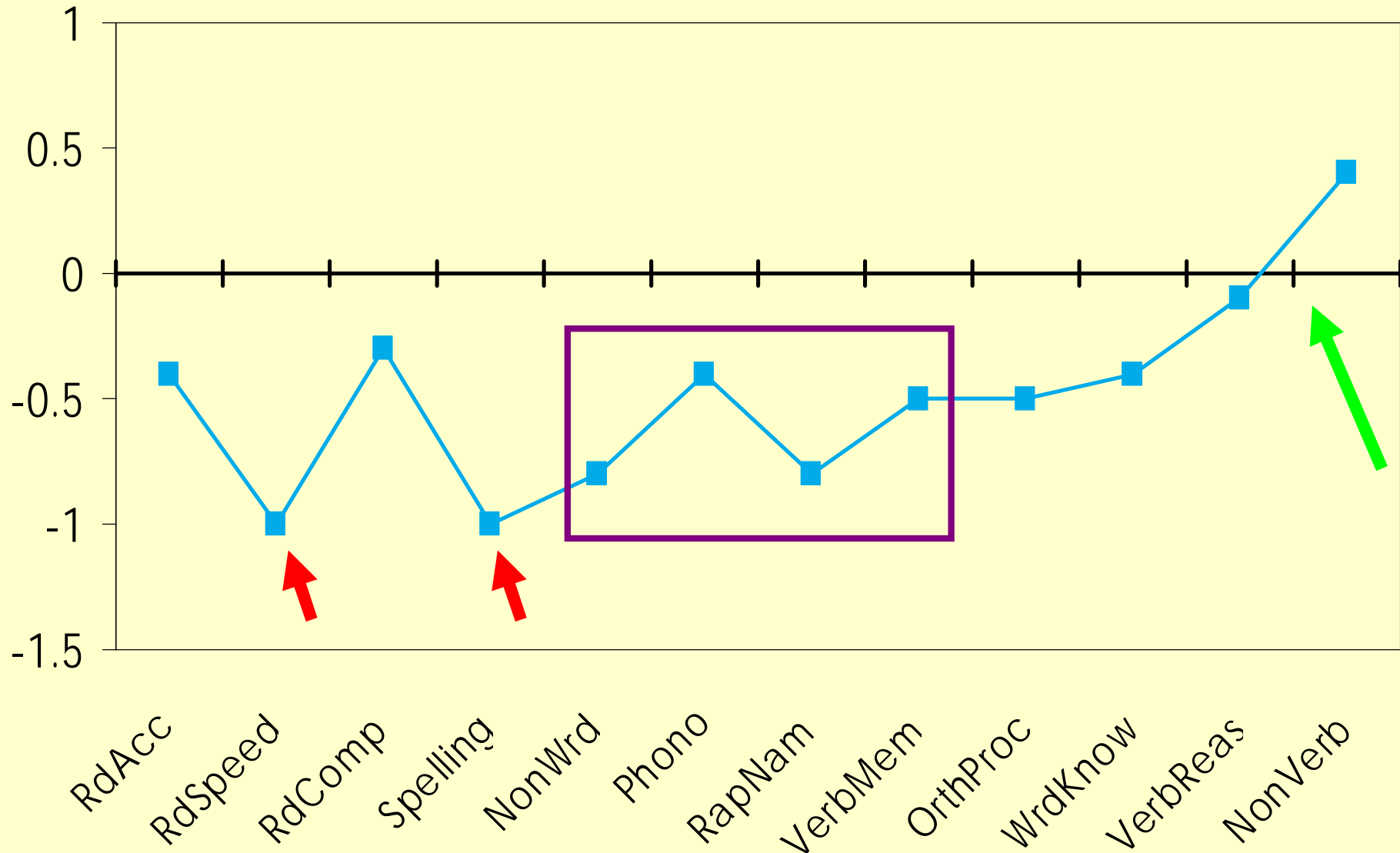
UK Adult dyslexics



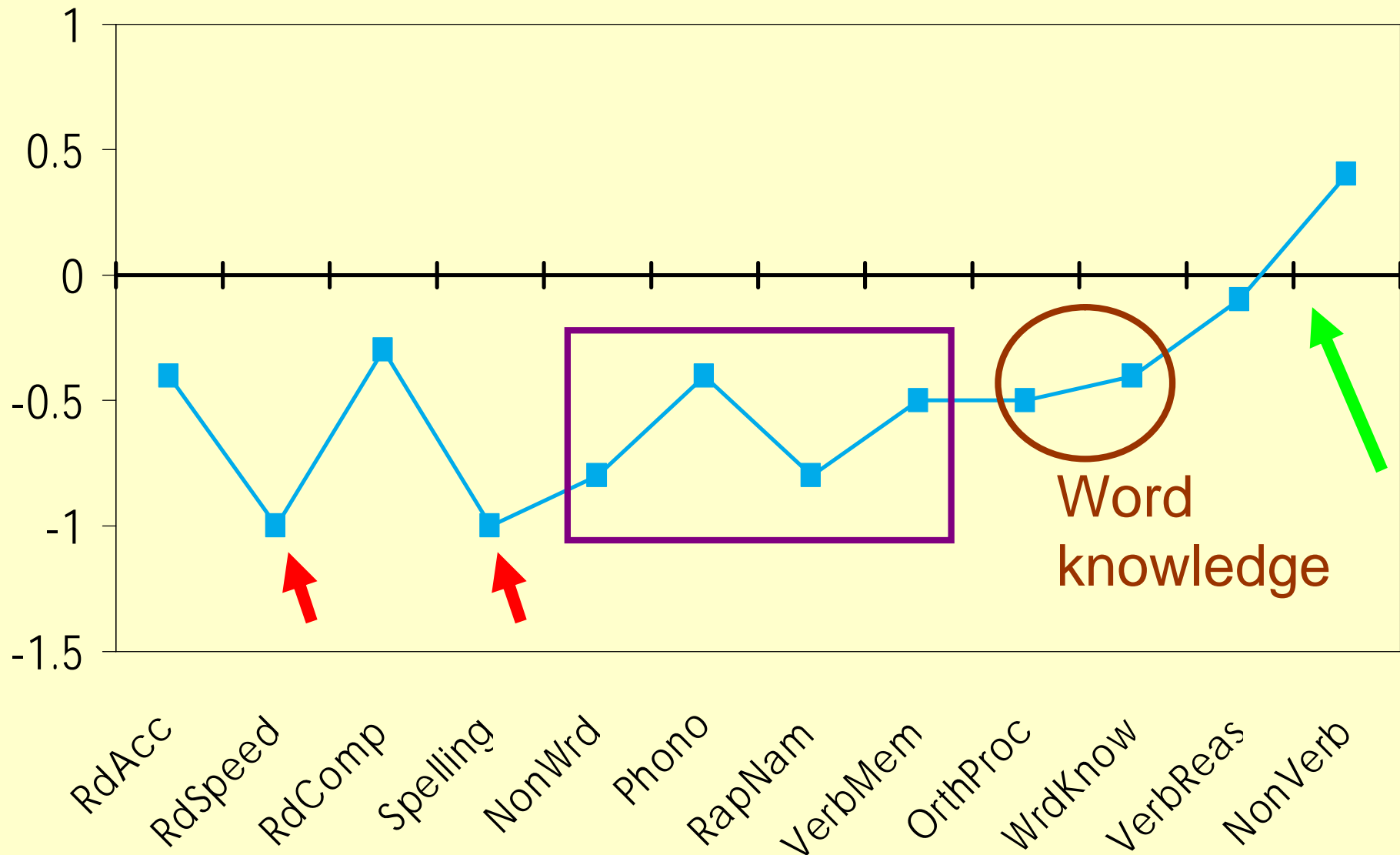
UK Adult dyslexics



UK Adult dyslexics



UK Adult dyslexics



Common aspects of definitions

- ü accurate and/or fluent reading and writing/spelling develop incompletely or with great difficulty
- ü persistent despite access to learning opportunities that are effective with most individuals
- ü problems related to language, particularly phonological processing
(dominant causal hypothesis = phonological deficit viewpoint)

Consequences

- ✓ **Word-level problems can lead to text level weaknesses which may lead to problems across school subjects – 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**

Intervention

- **If phonological processing is the cause, then focus intervention on this area**
- **The majority of evidence argues for the use of interventions that incorporate phonological awareness**

Evidence from pre-reading instruction

- **Children taught phonological awareness skills prior to formal teaching of reading seem at less risk of specific reading problems (dyslexia)**

(Elbro & Petersen, 2004)

Early phonological awareness instruction

- **Early literacy development seems to be supported by phonological awareness skills**

Teach basic sounds within words and the relationship between sounds and letters early in acquisition

Need to ensure that phonological skills are linked to literacy

(see evidence in Gillon, 2007)

Response to Intervention

- **Intervention work in the classroom**

Vellutino et al (1996):

- **Specific reading disability = 9%**
- **Following short school-based intervention, this reduced to 1.5%**
- **Response to Intervention methods use increasing levels of intervention that should support learning across different groups**

Treatment resisters

- **Between 5% and 25% of children in intervention studies do not show reliable gains in literacy**
(Torgesen, 2002/2004/2005)
these children are sometimes referred to as treatment resisters
and some have argued that these are the 'true' dyslexics

Factors influencing intervention outcome

- **When intervention occurs:**
the later it is left, the harder it is for such methods to be successful –
instruction early in learning literacy leads to best chance of success
- **Characteristics of the dyslexic:**
those with very poor phonological skills seem to show least benefits from phonological interventions
more severe the deficit, the hard to remediate

Reading in context

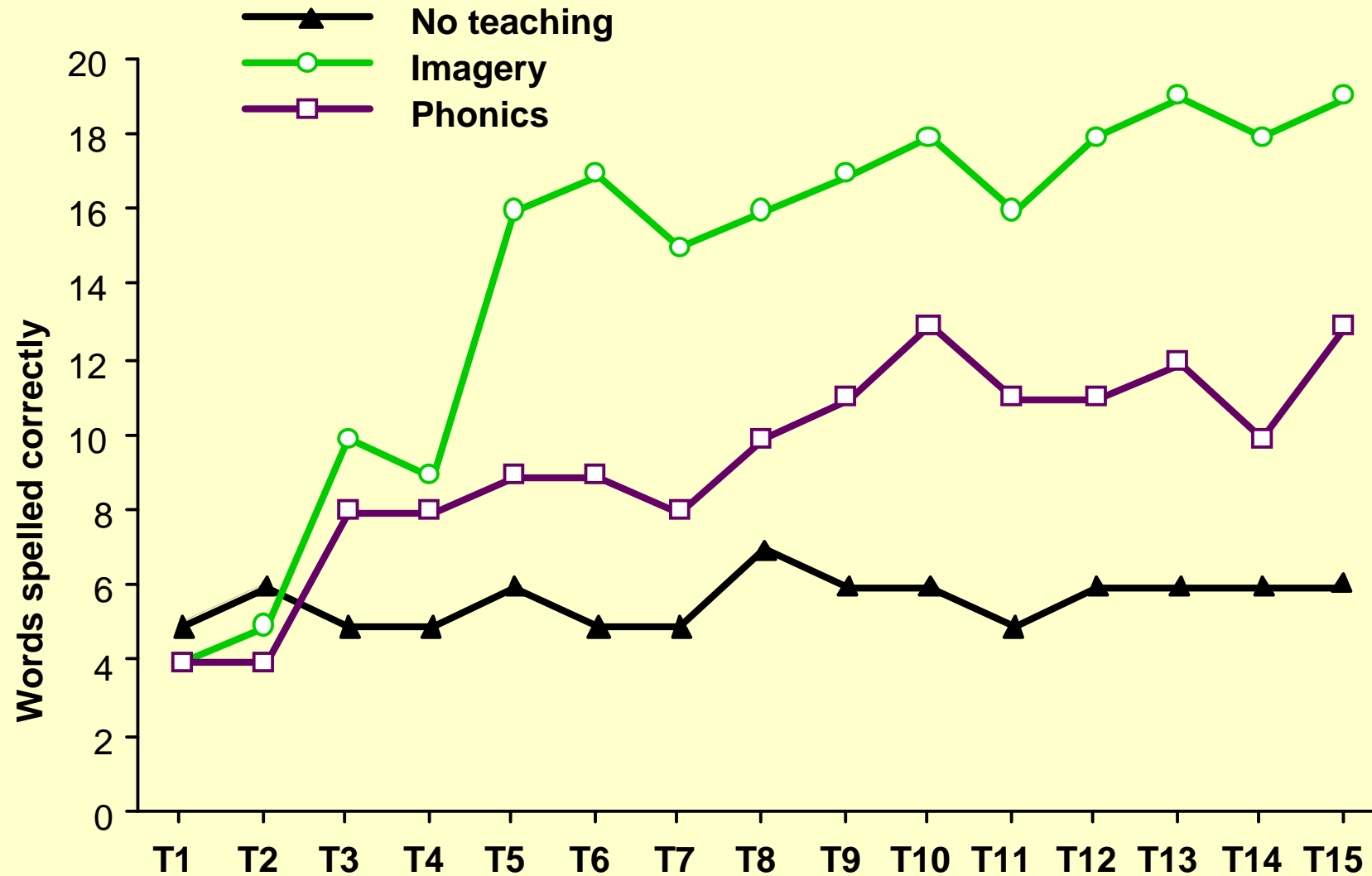
- **Reading in context should support the use of phonics in reading and spelling,
and also build up interest and understanding.**
- **May also be useful with older learners**

Additional strategies

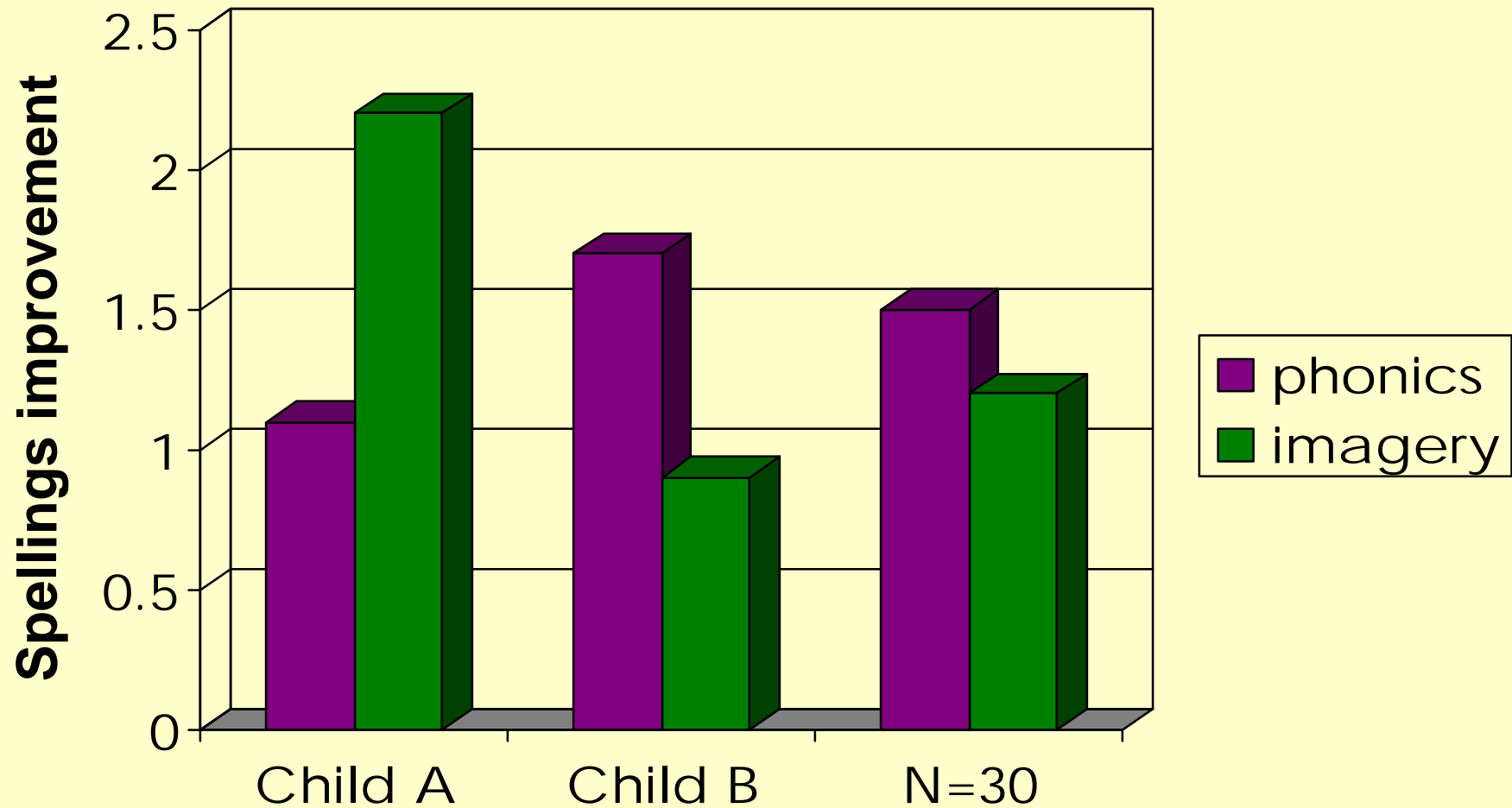
- **With older dyslexics, strategies that lead to experience of success may be useful to develop motivation and overcome negative consequences**

Therefore, develop a range of strategies for the child to use to support the development of a sight vocabulary

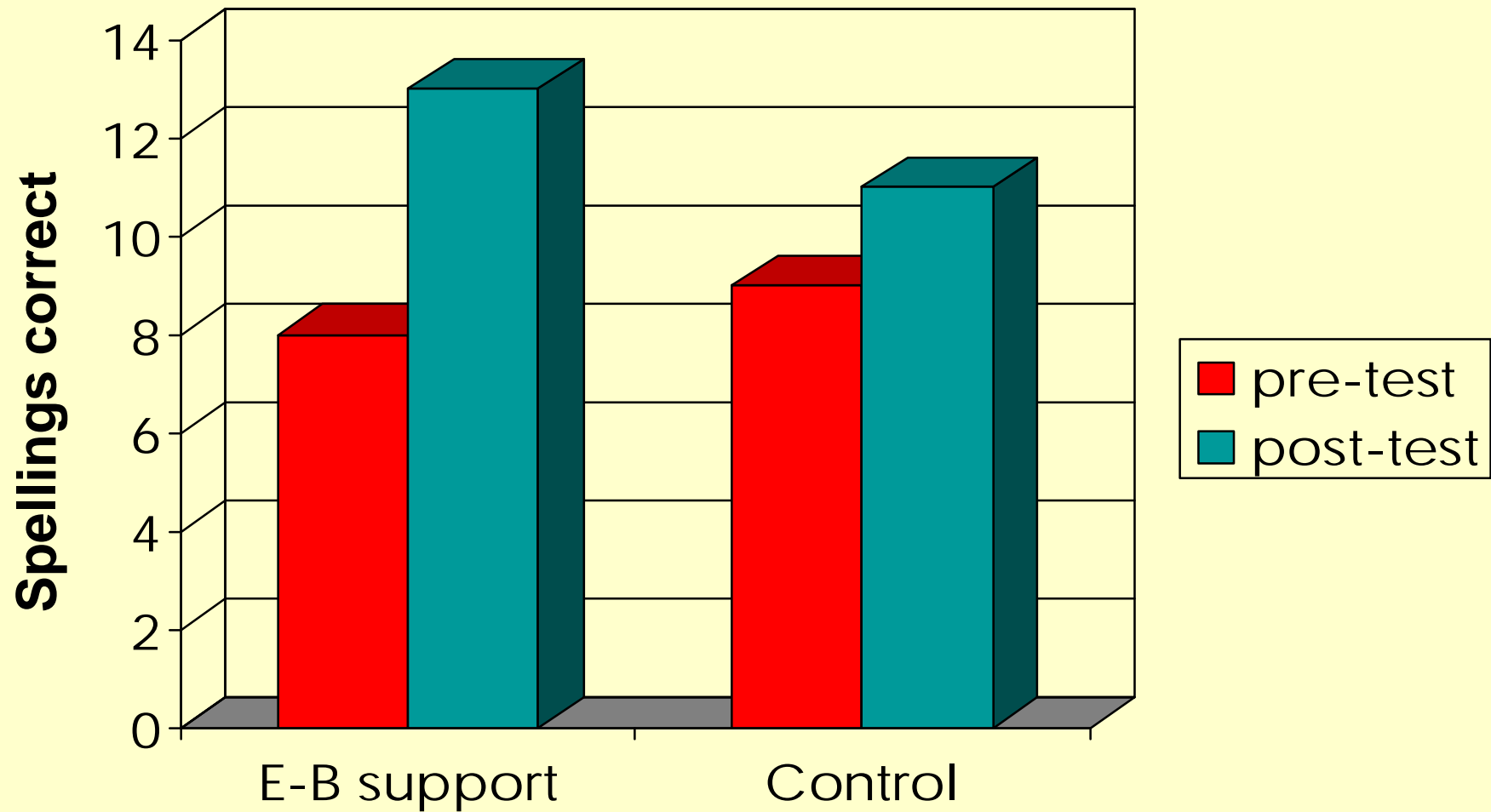
Dyslexia and strategies



Dyslexia and strategies



Emotional-behavioural intervention



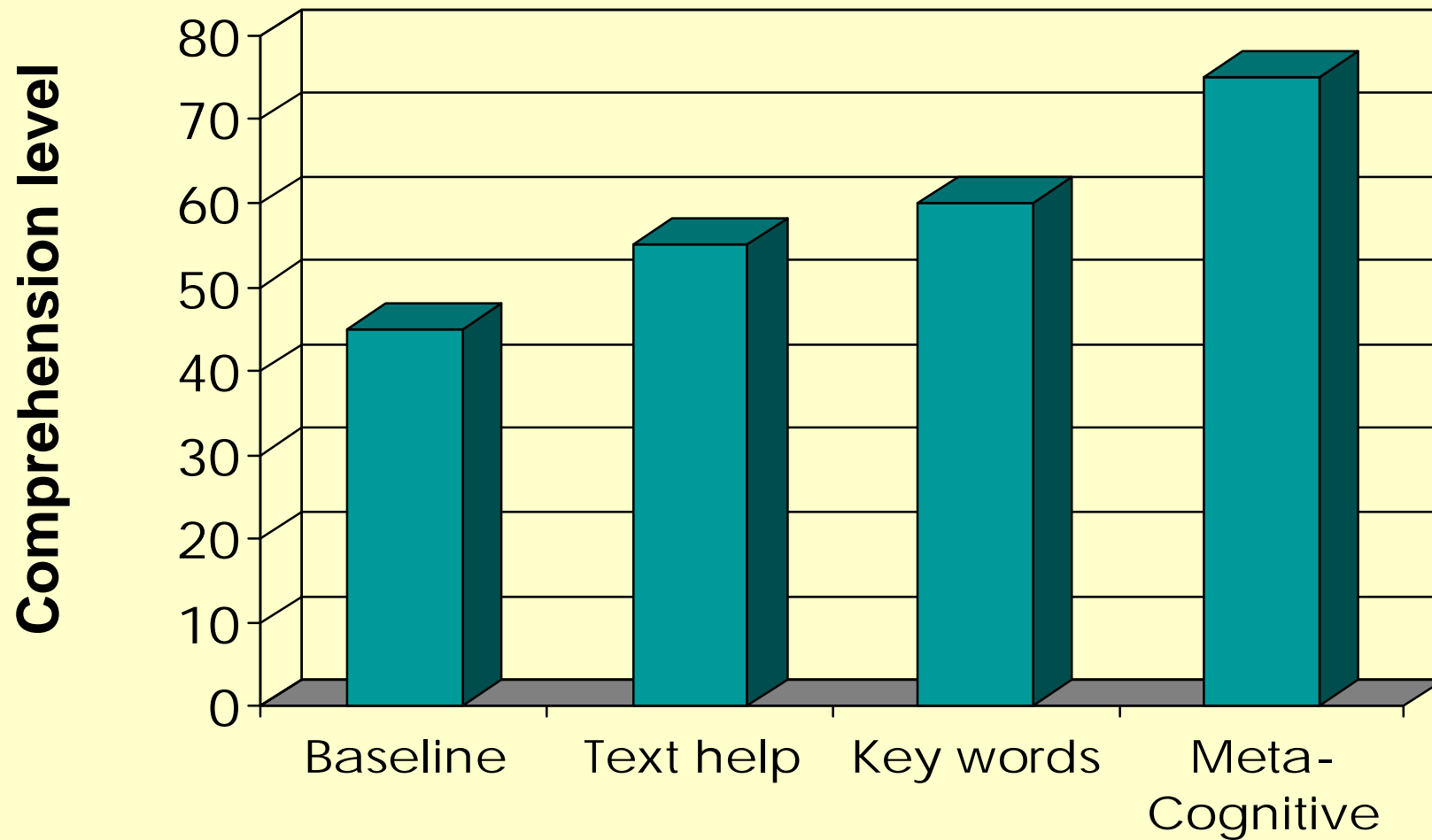
Interventions for adult students

- **Technology may be best method for adult dyslexics: text-to-speech & voice-activated software**

Although teaching support will still be needed to overcome weaknesses

- **Phonological awareness/decoding methods can still be supportive**
- **Although focus on comprehension may be essential depending on (learning) context**

Comprehension interventions



Research to practice

- **Inform assessment and identification**
 - ∅ can they be used to determine the best method of support?
 - ∅ are they the same across languages?
- **Measure effectiveness of interventions**
 - ∅ fluency remains difficult to remediate
 - ∅ does language influence best intervention?
- **Indicate barriers to intervention**
 - ∅ avoid negative consequences
 - ∅ inclusive across all levels of education