

III Parte: 3 Dicembre 2015

SEDE DEL CORSO

CTS.CENTRODARI

PRESSO LA SCUOLA MEDIA STATALE "PACINOTTI"

via C. De Cristoforis, 2

VII Istituto Comprensivo – PADOVA

I MECCANISMI ATTENZIONALI NEI DSA: DALLE NEUROSCIENZE ALLA SCUOLA

26 Novembre 2015
ore 16:30 – 19:30

STUDI LONGITUDINALI

- Alla ricerca delle cause dei DSA 1

Relatore: **Andrea Facoetti**

Assistant Professor - Department of General Psychology - University of Padova

SEGRETERIA (PROGETTAZIONE, ORGANIZZAZIONE E GESTIONE)

AURELIO MICELLI

CENTRO **T**ERRITORIALE DI **S**UPPORTO PER LE TECNOLOGIE E LA DISABILITÀ

Referente CTS.centroDARI di Padova

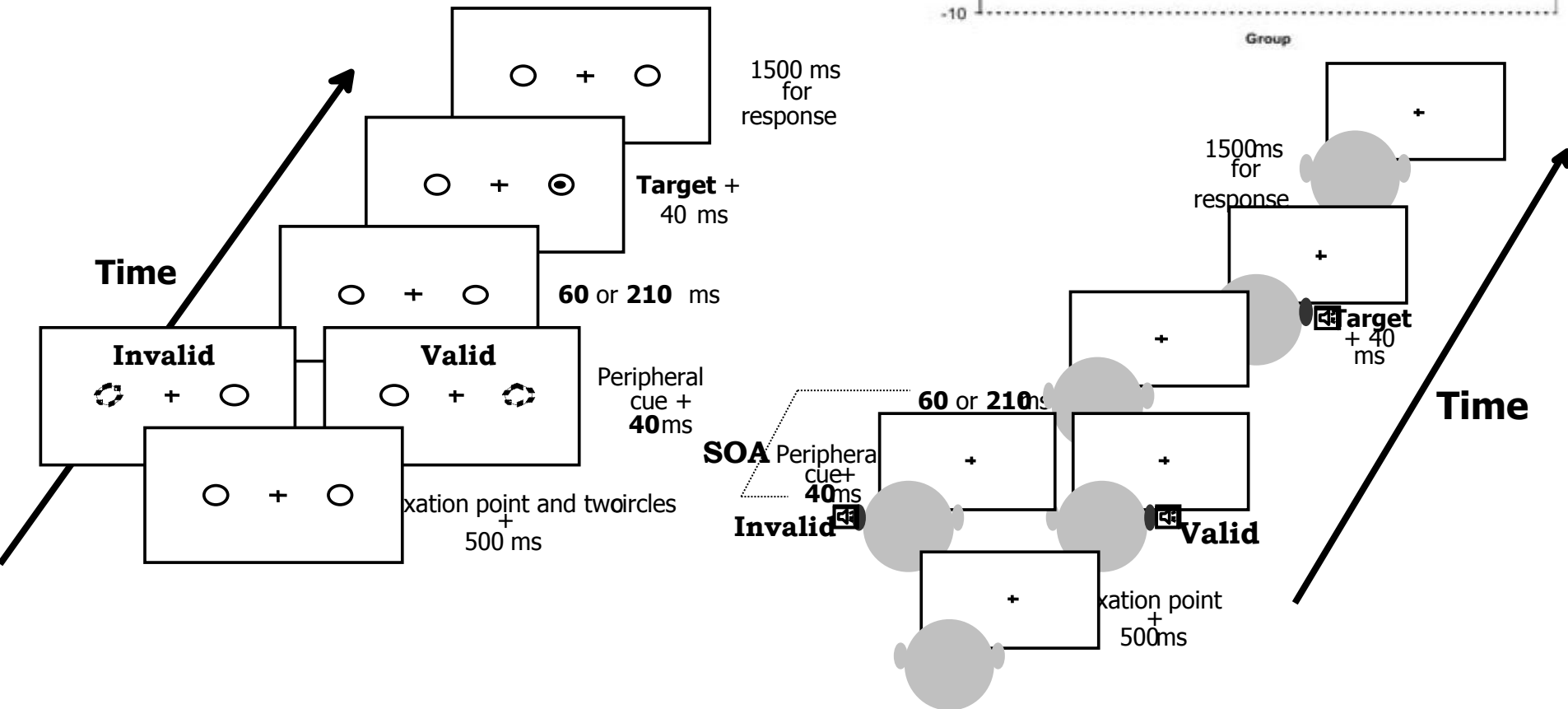
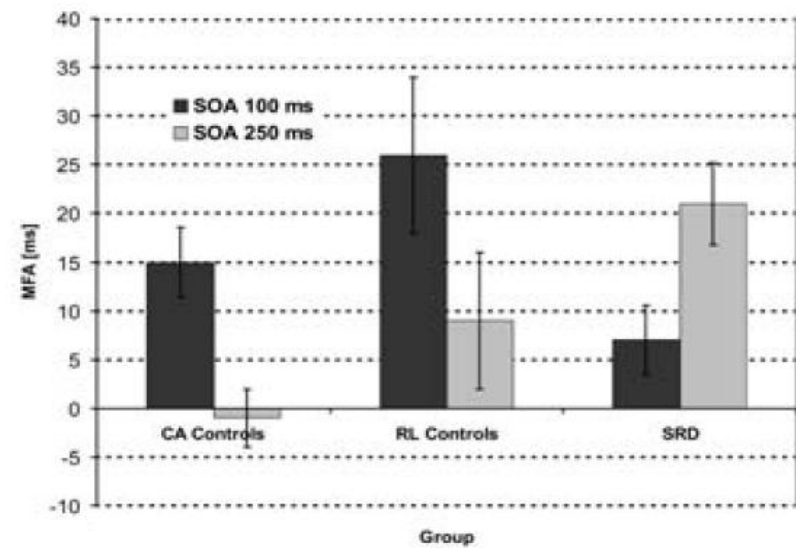
Tel.: 049.8073100

Email: cts.padova@gmail.com

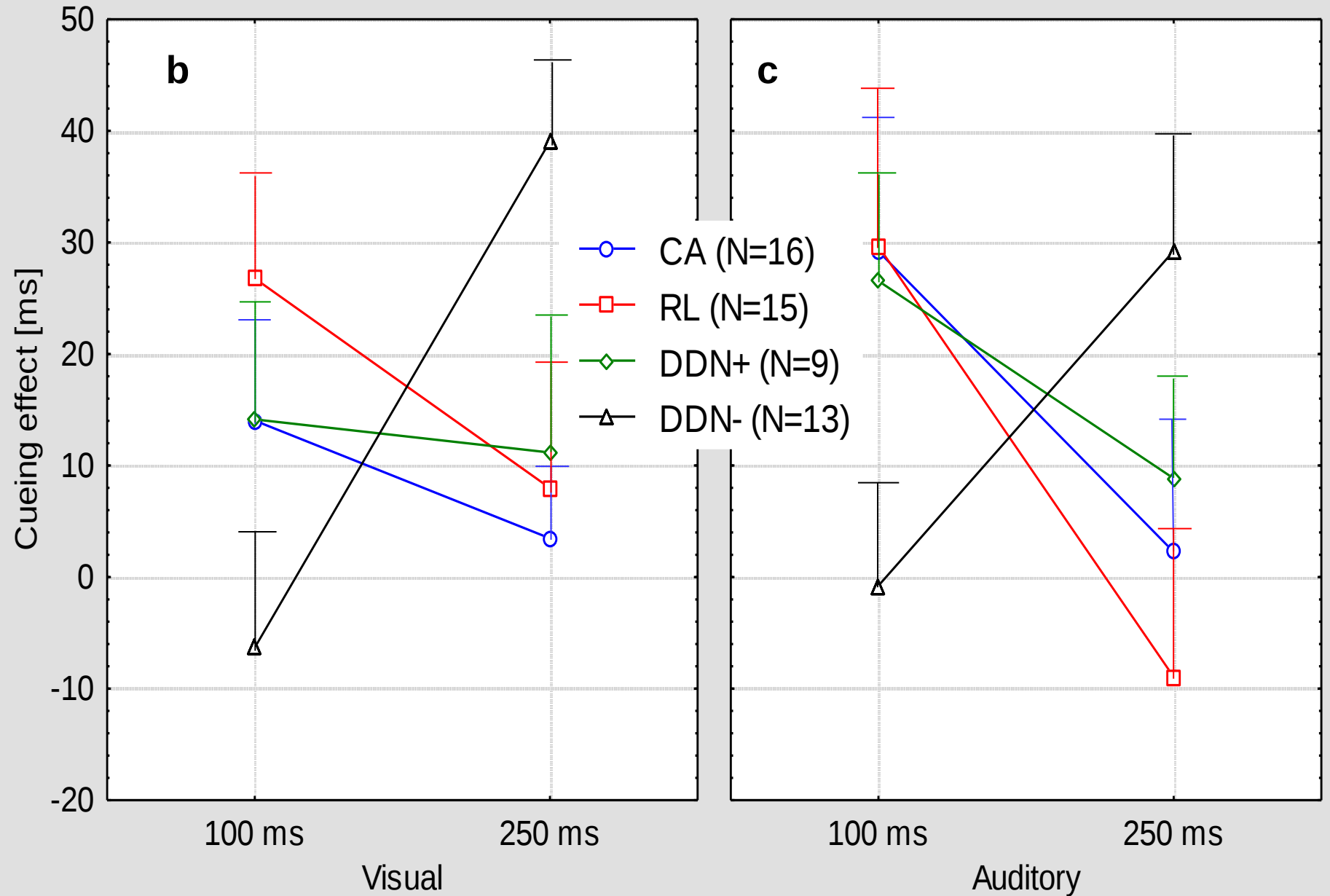
Multisensory Spatial and Non- spatial Attention Disorders in Dyslexia and SLI

Visual and auditory attentional capture are both sluggish in children with developmental dyslexia

Andrea Facoetti^{1,2,3}, Maria Luisa Lorusso¹, Carmen Cattaneo¹, Raffaella Galli¹ and Massimo Molteni¹



Multi-sensory spatial attention



Impaired filtering of behaviourally irrelevant visual information in dyslexia

Neil W. Roach^{1,2} and John H. Hogben²

¹Visual Neuroscience Group, School of Psychology, The University of Nottingham, Nottingham, UK and ²School of Psychology, The University of Western Australia, Perth, Australia

Correspondence to: N. W. Roach, Visual Neuroscience Group, School of Psychology, The University of Nottingham, University Park, Nottingham NG7 2RD, UK

E-mail: nwr@psychology.nottingham.ac.uk

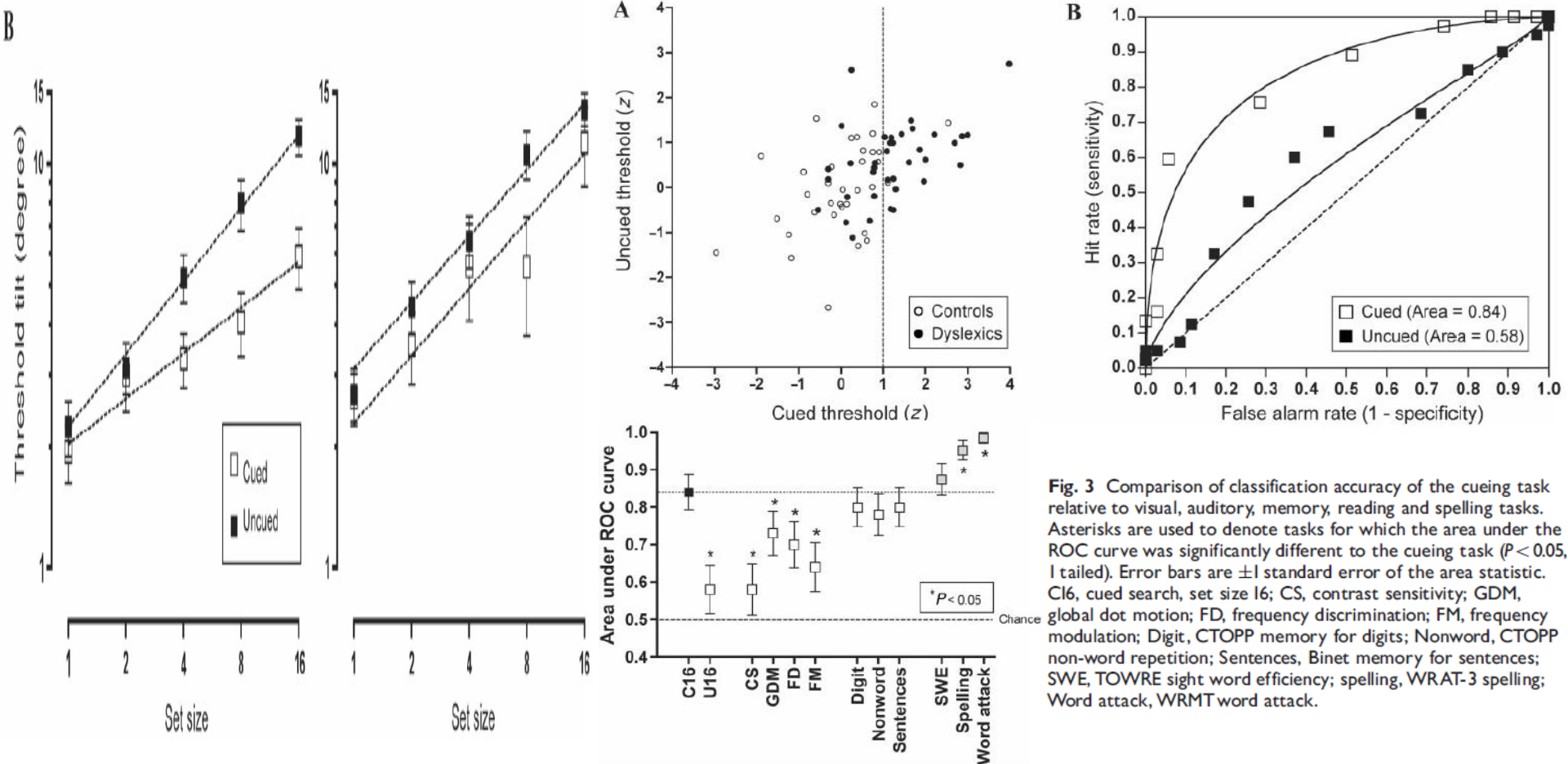


Fig. 3 Comparison of classification accuracy of the cueing task relative to visual, auditory, memory, reading and spelling tasks. Asterisks are used to denote tasks for which the area under the ROC curve was significantly different to the cueing task ($P < 0.05$, 1 tailed). Error bars are ± 1 standard error of the area statistic. C16, cued search, set size 16; CS, contrast sensitivity; GDM, global dot motion; FD, frequency discrimination; FM, frequency modulation; Digit, CTOPP memory for digits; Nonword, CTOPP non-word repetition; Sentences, Binet memory for sentences; SWE, TOWRE sight word efficiency; spelling, WRAT-3 spelling; Word attack, WRMT word attack.



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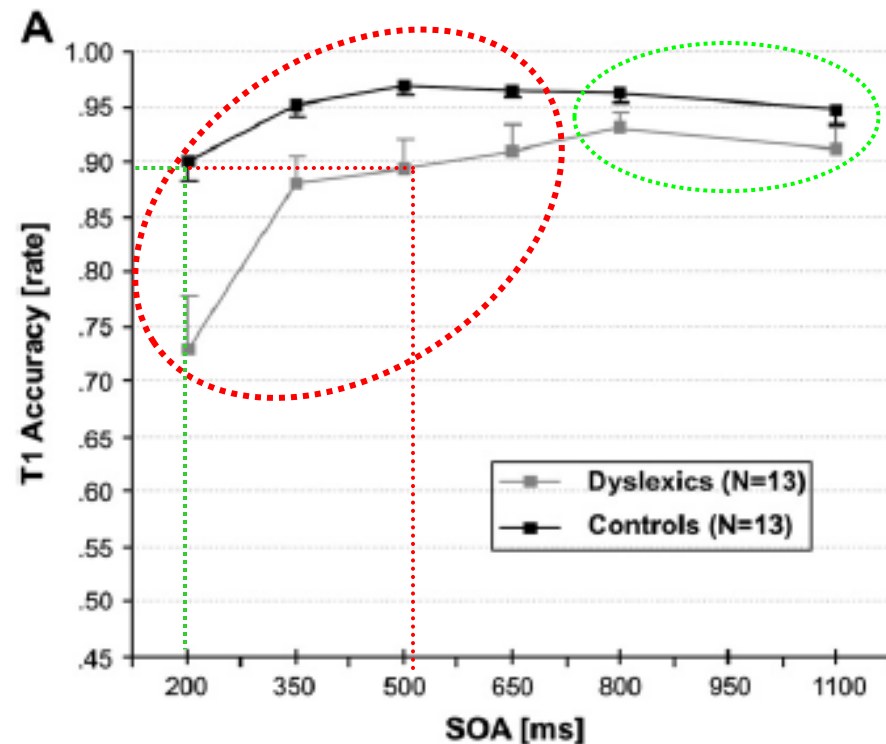
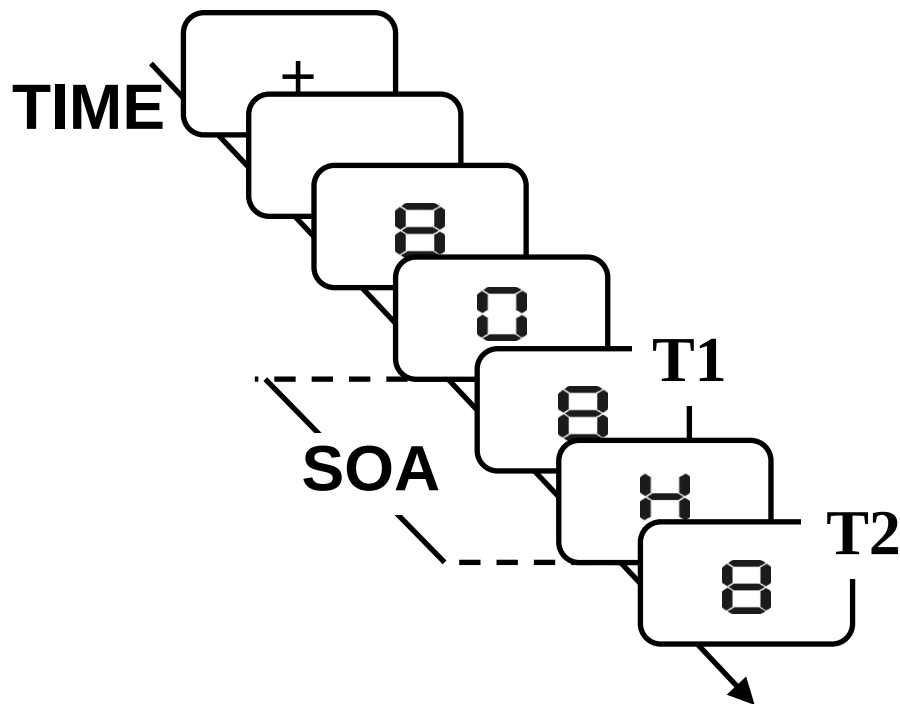
journal homepage: www.elsevier.com/locate/cortex



Research report

Sluggish engagement and disengagement of non-spatial attention in dyslexic children

Andrea Facoetti^{a,b,c,*}, Milena Ruffino^{c,d}, Andrea Peru^{c,e},
Pierluigi Paganoni^f and Leonardo Chelazzi^{c,g}



Others and Independent Lab Demonstrated “Sluggish attentional Shifting”: see Marie’s Studies

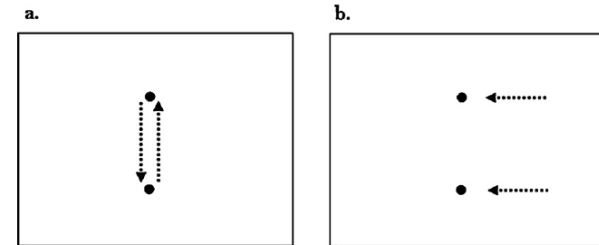
Neuropsychologia 48 (2010) 4125–4135



Contents lists available at ScienceDirect

Neuropsychologia

journal homepage: www.elsevier.com/locate/neuropsychologia



Behavioral and ERP evidence for amodal sluggish attentional shifting in developmental dyslexia

Marie Lallier^{a,b,c,f,*}, Marie-Josèphe Tainturier^c, Benjamin Dering^c, Sophie Donnadieu^{a,e}, Sylviane Valdois^{a,d}, Guillaume Thierry^c

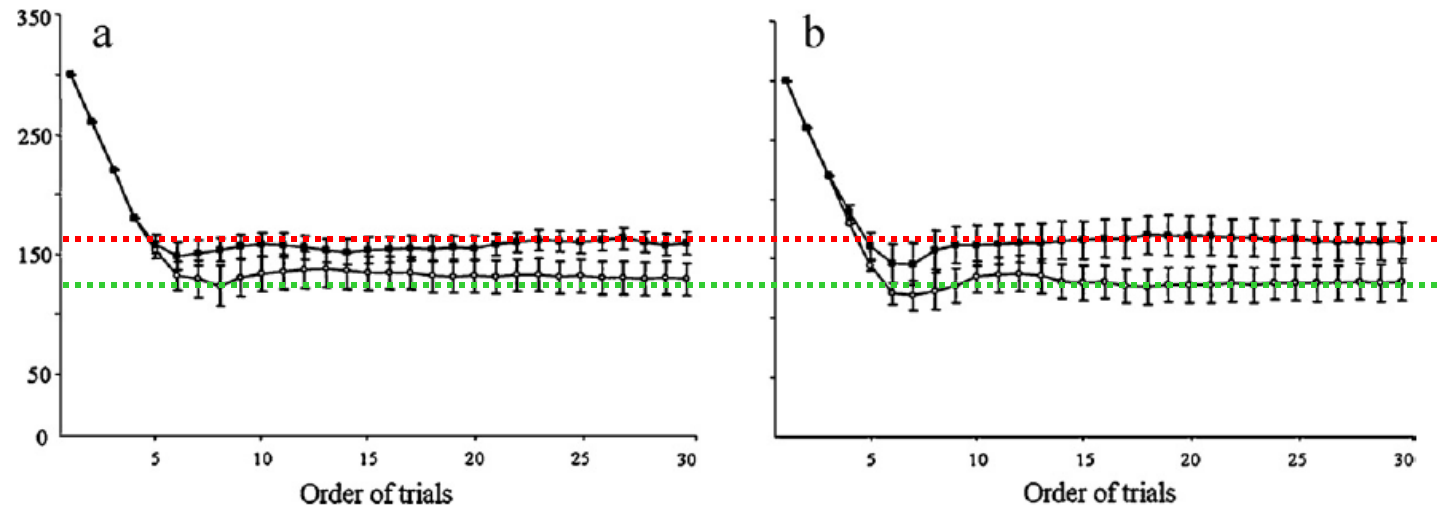


Fig. 2. Mean auditory (a) and visual (b) stream segregation thresholds (and standard error bars) for the dyslexic (black squares; $N=13$) and control (white dots; $N=13$) groups; statistical analyses were performed on the average of the last 10 trials.



Research report

Visual attentional engagement deficits in children with Specific Language Impairment and their role in real-time language processing

Marco Dispaladro^{a,*}, Laurence B. Leonard^b, Nicola Corradi^c, Milena Ruffino^d,
Tiziana Bronte^e and Andrea Facoetti^{c,d,**}

^a Language Acquisition Lab, Dipartimento di Psicologia dello Sviluppo e Socializzazione, Università di Padova, Italy

^b Child Language Research Lab, Speech, Language and Hearing Sciences Department, Purdue University, IN, USA

^c Developmental & Cognitive Neuroscience Lab, Dipartimento di Psicologia Generale, Università di Padova, Italy

^d Unità di Neuropsicologia dello Sviluppo, Istituto Scientifico "E. Medea" di Bosisio Parini, Lecco, Italy

^e Centro Medico di Foniatria, Casa di Cura "Trieste", Padova, Italy

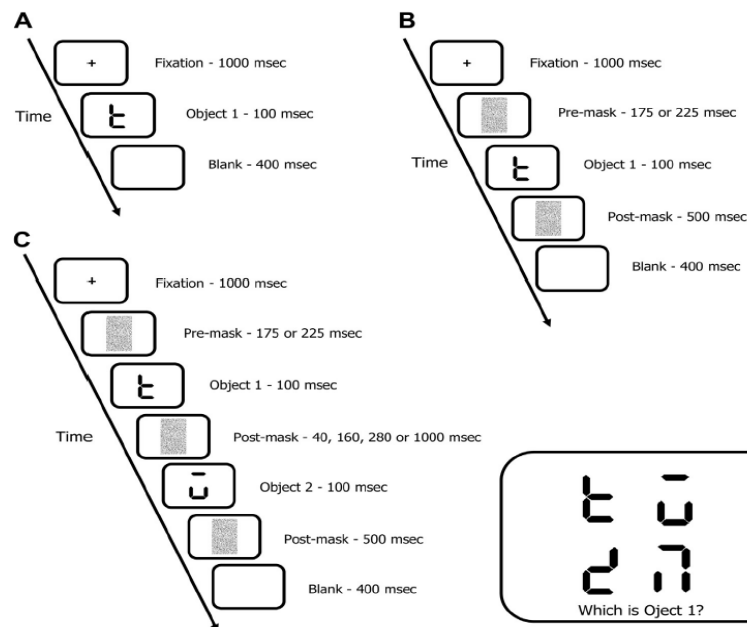
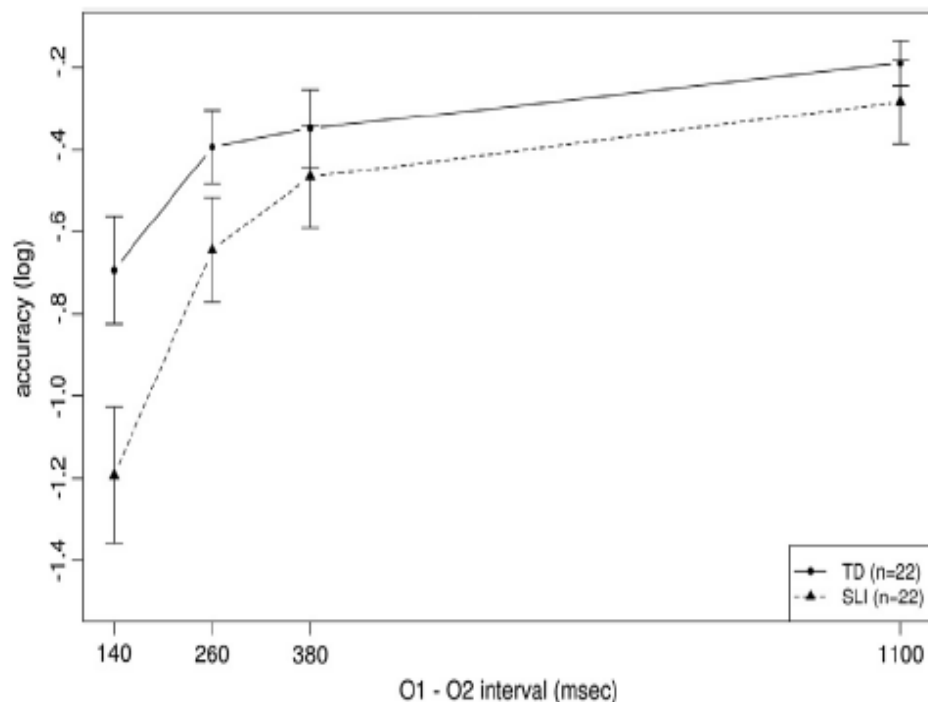


Table 6 – Multiple regression analysis on inverse efficiency in pronouns comprehension.

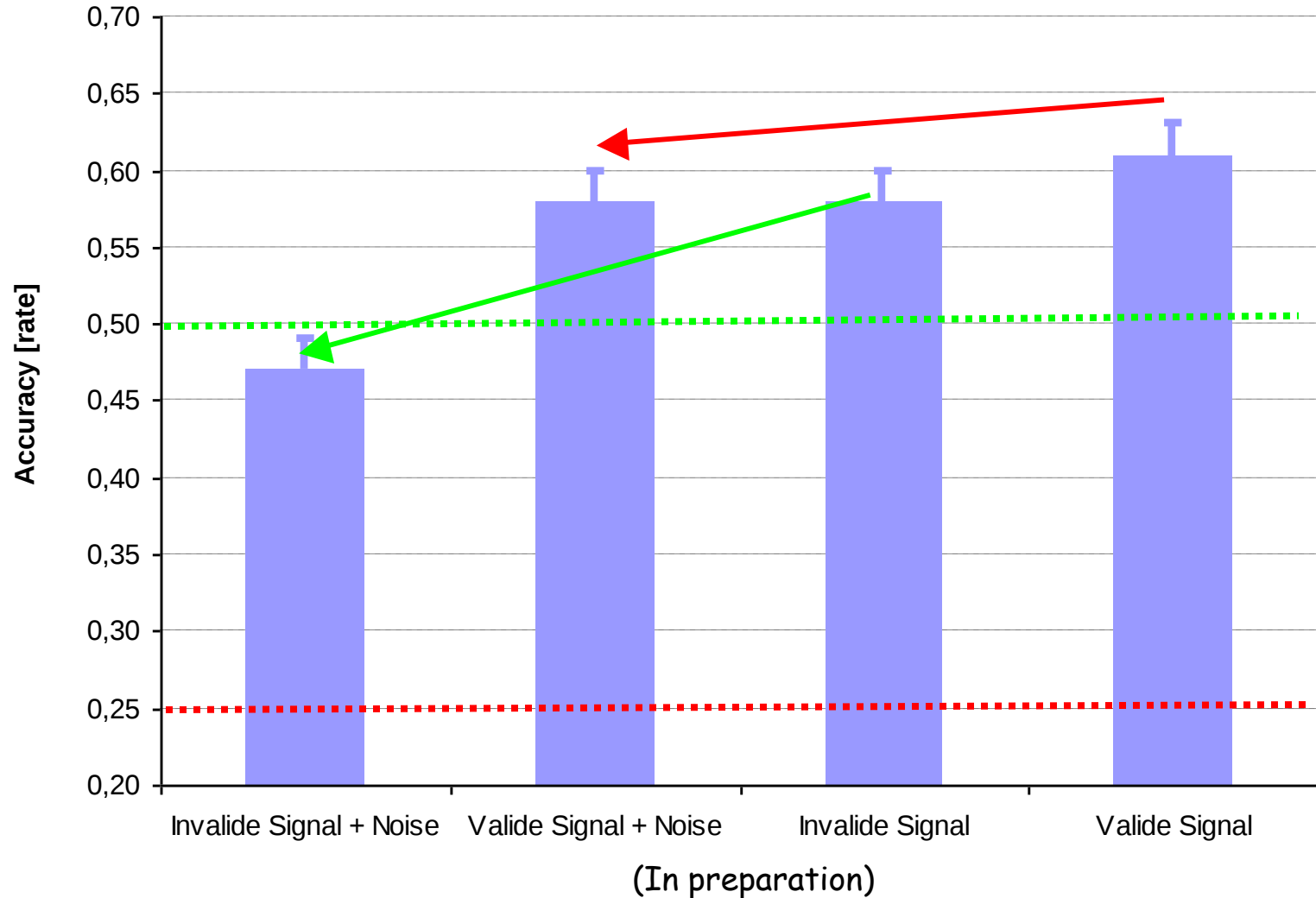
	Pronoun comprehension					
	SLI (n = 12)			TD (n = 22)		
	R ² change	β	p	R ² change	β	p
Step 1: Age	.206	-.454	.138	.183	-.428	.047
Step 2: AM	.484	.845	.005	.042	.225	.326

La visione periferica è disturbata dal crowding



Is Crowding Modulated by Spatial Attention???

[N=75 7 years old children]



+

e

+

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+

e

+

aeu

+ a e u

Extra-large letter spacing improves reading in dyslexia

Marco Zorzi^{a,1,2}, Chiara Barbiero^{b,1}, Andrea Facoetti^{a,c,1}, Isabella Lonciari^b, Marco Carrozzi^b, Marcella Montico^d, Laura Bravar^b, Florence George^e, Catherine Pech-Georgel^e, and Johannes C. Ziegler^f

^aDepartment of General Psychology and Center for Cognitive Science, University of Padova, 35131 Padua, Italy; ^bChild Neurology and Psychiatry Ward, Department of Pediatrics, Institute for Maternal and Child Health "Burlo Garofolo", 34137 Trieste, Italy; ^cDevelopmental Neuropsychological Unit, "E. Medea" Scientific Institute, 32842 Bosisio Parini (LC), Italy; ^dEpidemiology and Biostatistics Units, Institute for Maternal and Child Health "Burlo Garofolo", 34137 Trieste, Italy; ^eCentre de Références des Troubles d'apprentissages, Centre Hospitalier Universitaire Timone, 13385 Marseille, France; and ^fLaboratoire de Psychologie Cognitive, Aix-Marseille University and Centre National de la Recherche Scientifique, Fédération de Recherche 3C, Brain and Language Research Institute, 13331 Marseille, France

Edited by Michael Posner, University of Oregon, Eugene, OR, and approved April 23, 2012 (received for review April 4, 2012)

**Spatial attention deficits
in dyslexic children
might impair their ability
to focus on each
successive letter in a
visual word.**

Helping dyslexic children attend to letters within visual word forms

Bruce D. McCandliss¹

Department of Psychology and Human Development, Vanderbilt University, Nashville, TN 37203

Learning to read visual words aloud requires a novel integration of two distinct neurocognitive systems: a visual system that allows one to

metry may soon be changing. The study by Zorzi et al. (7) in PNAS provides a clear demonstration of an easily measured vi-

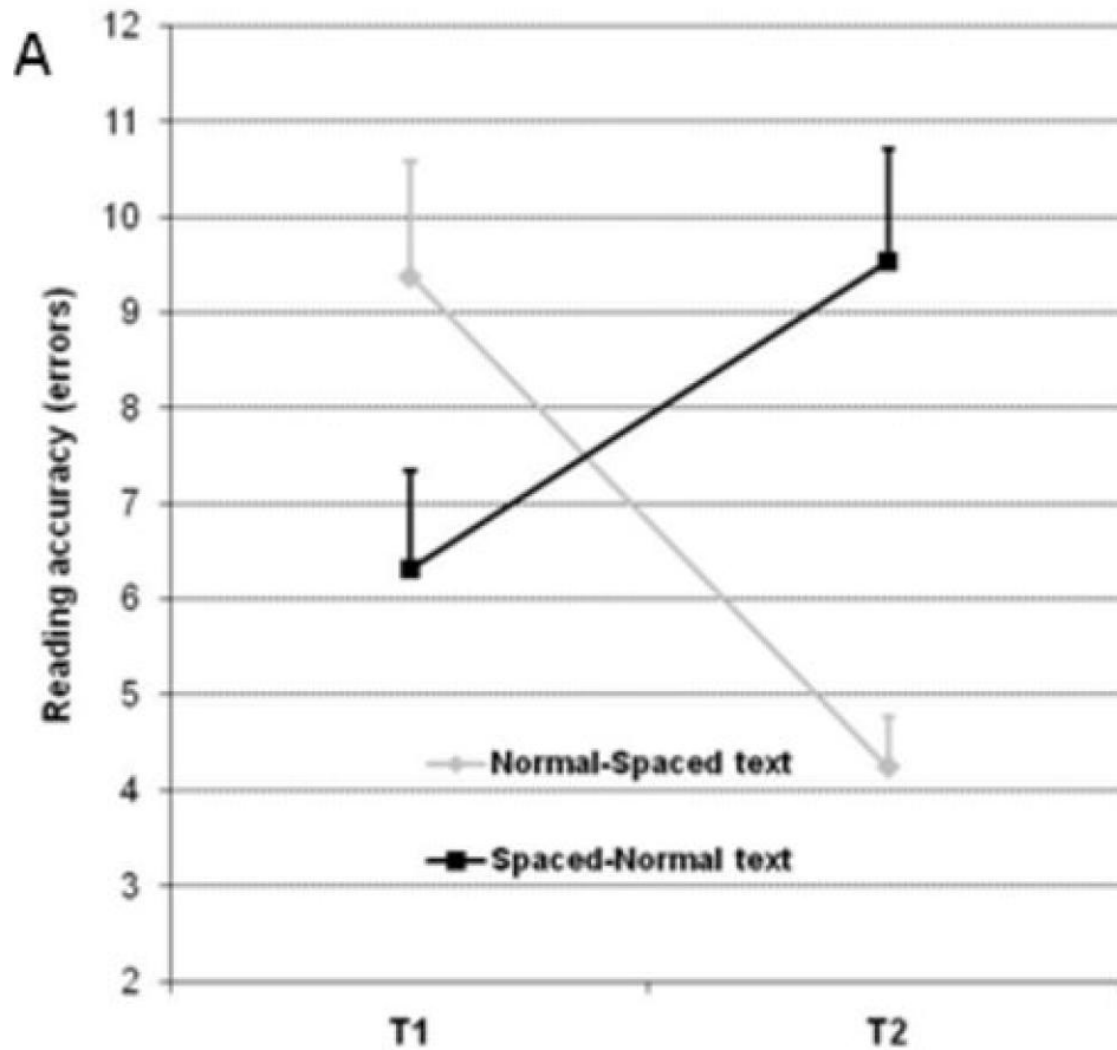
The letter-spacing effect in dyslexia apparently transcends geographical and linguistic boundaries, which is further evidenced by a study by Perea et al. (8)

Reading and Crowding: the Spacing Effect in Children with Dyslexia

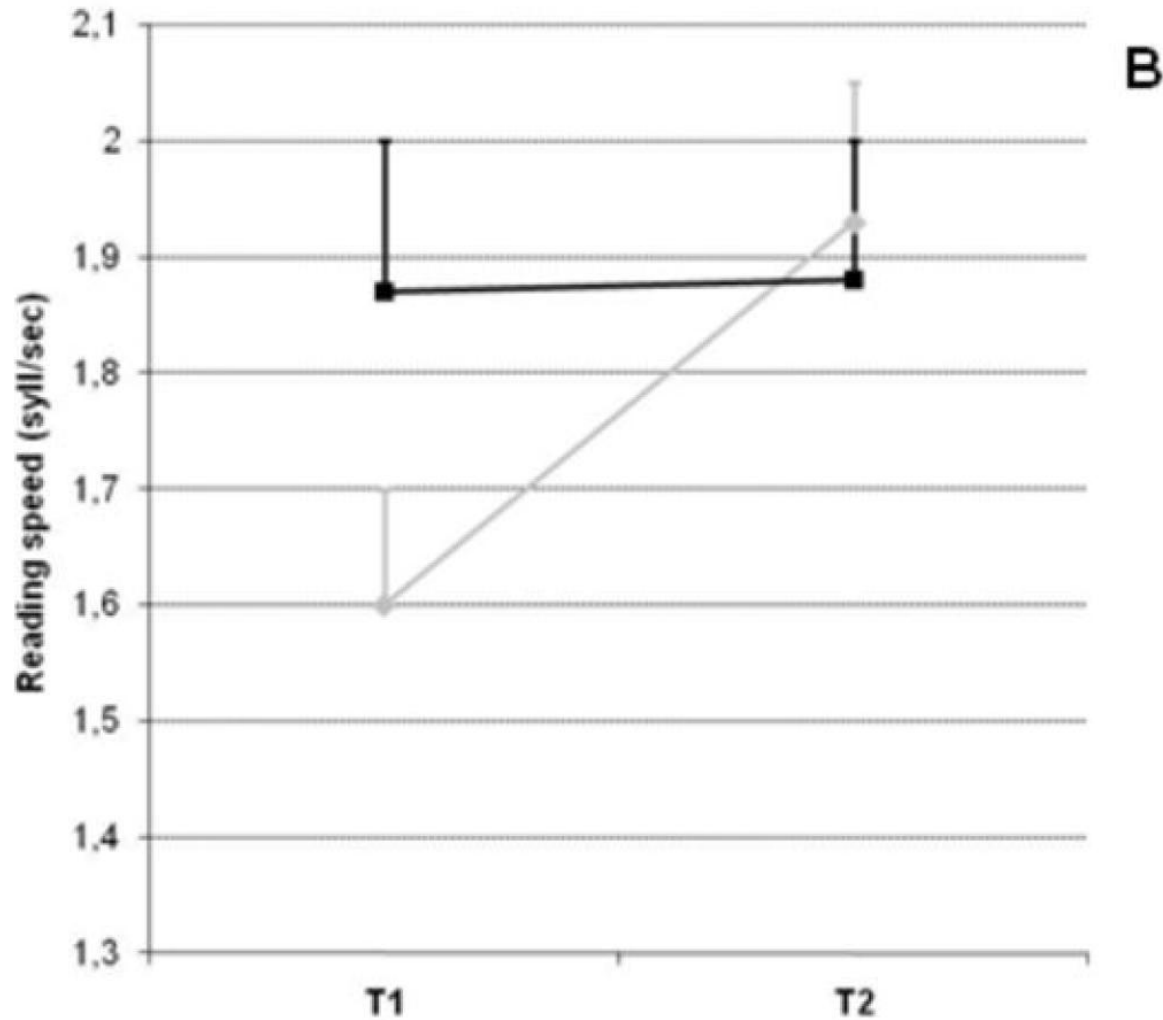
L'uomo sta mangiando la pera. La bambina asciuga il bicchiere. Il ragazzo che sta inseguendo il cavallo è magro. La quercia si trova nel mezzo della città. Non solo il cane, ma anche il fiore è rosso. La bambina aveva lo zaino verde. La stella, dentro cui c'è il cerchio, è viola. Il ragazzo non ha né cappotto né sandali. La stella è

L'uomo sta mangiando la pera. La bambina
asciuga il bicchiere. Il ragazzo che sta
inseguendo il cavallo è magro. La quercia si
trova nel mezzo della città. Non solo il cane,
ma anche il fiore è rosso. La bambina aveva lo
zaino verde. La stella, dentro cui c'è il cerchio,

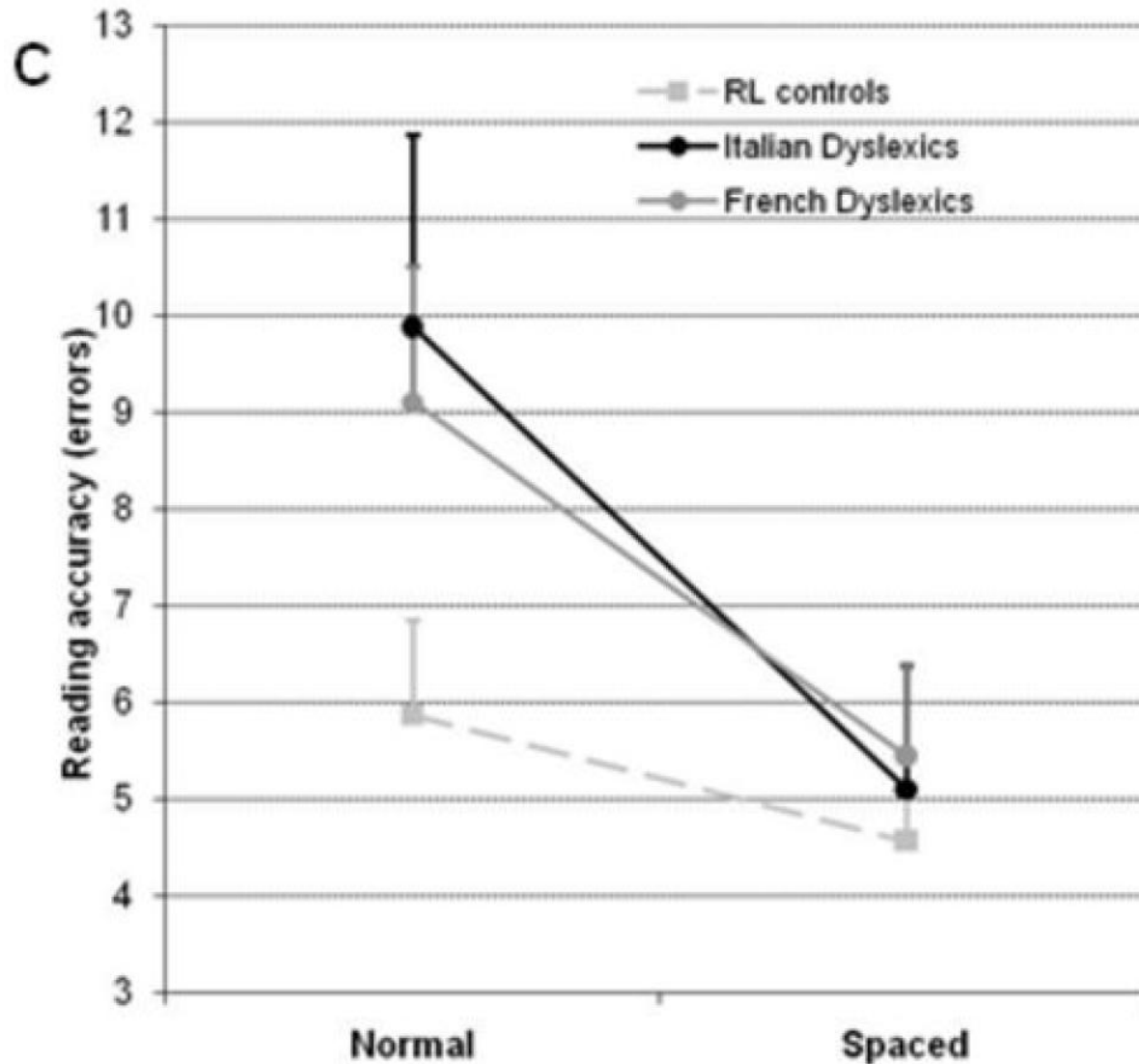
Spacing Effect on Reading Accuracy: WoW!!!



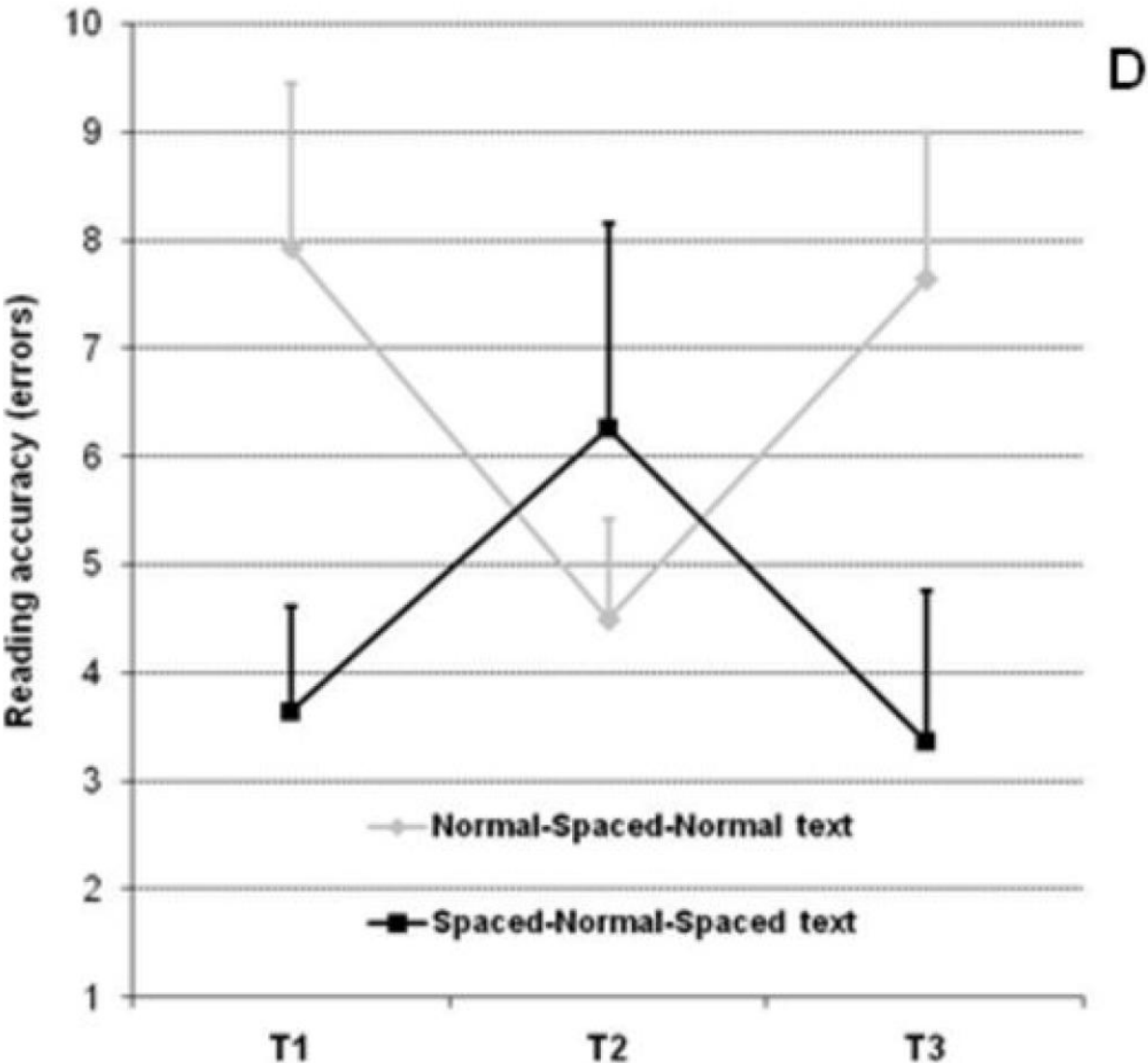
Spacing Effect on Reading Speed: No Speed/accuracy trade-off

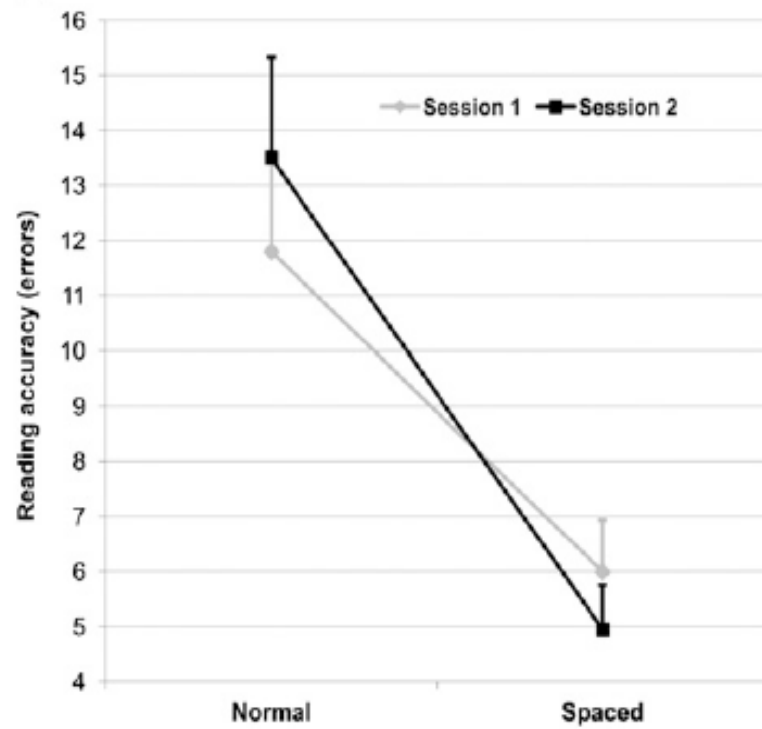
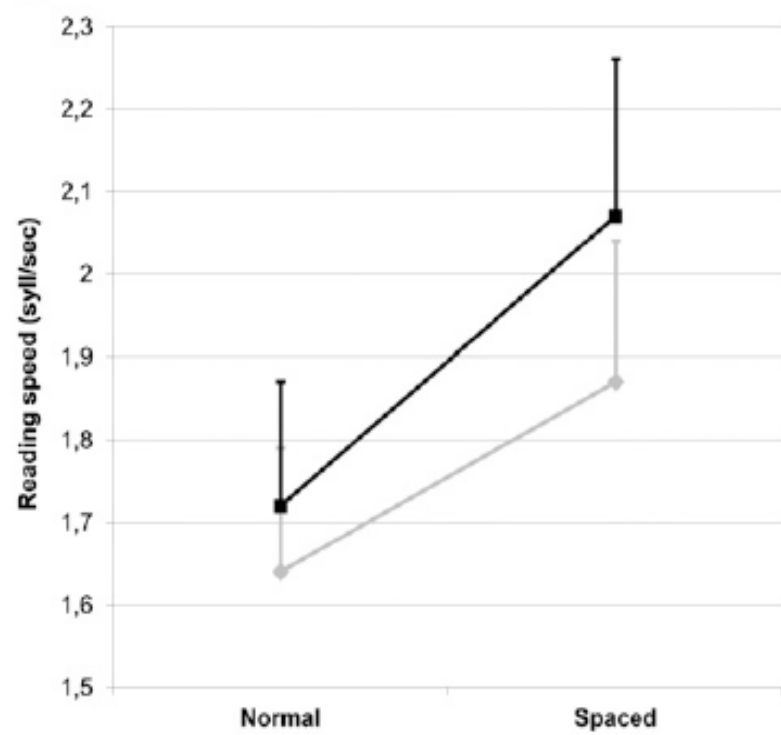


Spacing Effect on Reading Accuracy in French and Italian Dyslexics vs. Reading Level Controls



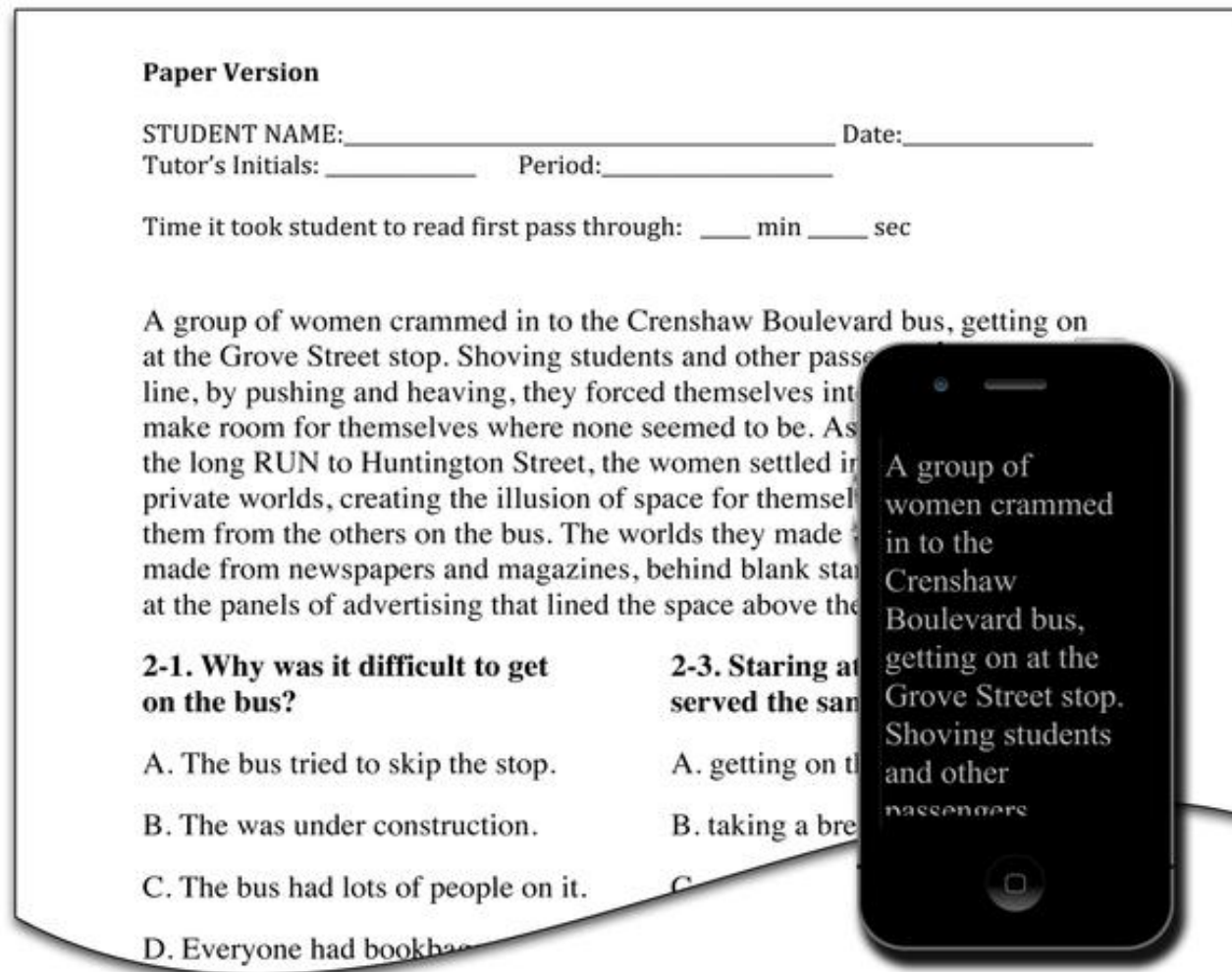
Spacing Effect on Reading Accuracy in Italian Dyslexics



A**B**

3. Training attention

Figure 2. Sample stimuli comparing paper and iPod conditions.



Schneps MH, Thomson JM, Chen C, Sonnert G, et al. (2013) E-Readers Are More Effective than Paper for Some with Dyslexia. PLoS ONE 8(9): e75634. doi:10.1371/journal.pone.0075634
<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0075634>

PERSPECTIVES

OPINION

Sensory theories of developmental dyslexia: three challenges for research

Usha Goswami

Abstract | Recent years have seen the publication of a range of new theories suggesting that the basis of dyslexia might be sensory dysfunction. In this Opinion article, the evidence for and against several prominent sensory theories of dyslexia is closely scrutinized. Contrary to the causal claims being made, my analysis suggests that many proposed sensory deficits might result from the effects of reduced reading experience on the dyslexic brain. I therefore suggest that longitudinal studies of sensory processing, beginning in infancy, are required to successfully identify the neural basis of developmental dyslexia. Such studies could have a powerful impact on remediation.

proposal of each theory have been presented, further studies testing these theories that did not use these research designs are omitted from this article (with the exception of chronological age (CA)-matched studies showing that dyslexic performance is unimpaired). Second, I consider the evidence for systematic and hypothesis-driven effects of the proposed sensory deficits on related cognitive skills. Last, when available, I discuss data from longitudinal and infant studies to assess evidence for the early fingerprints of sensory dysfunction. Developmental disorders of learning such as dyslexia represent the extreme bottom end of the normal distribution of a culturally acquired skill (reading). Pre-literate infants and children and illiterate (unschooled) adults are groups that are independent of this distribution, and so tests of sensory theories in these populations are of particular importance for identifying causality. It is also important to note that the behavioural manifestations of a sensory impairment can change over the

Pre-reading Visuo-spatial Attention deficits in Future Poor Readers

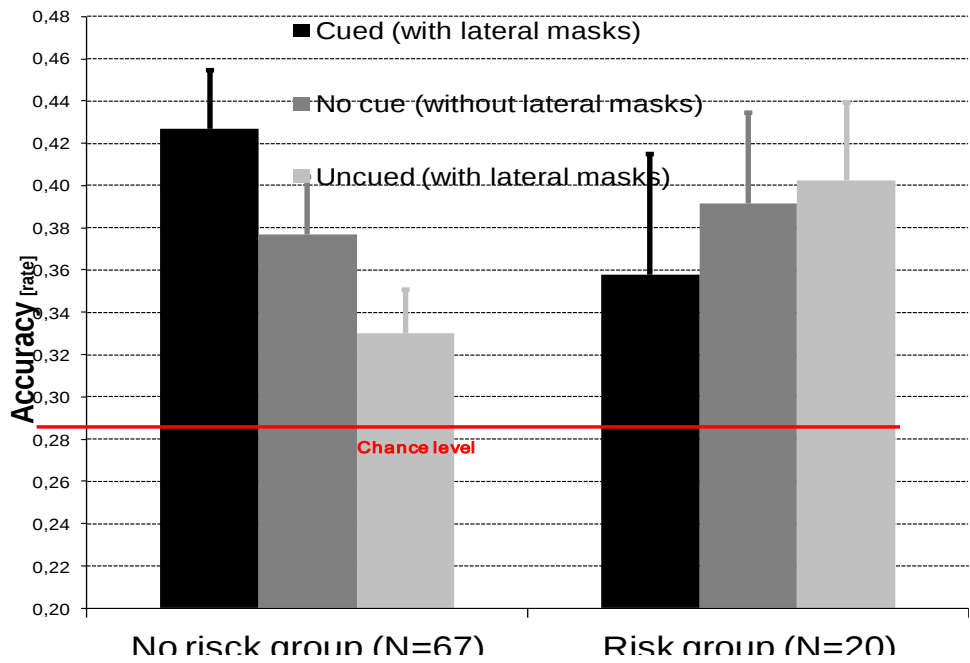
4. Attention Predict dyslexia

DYSLEXIA
Published online in Wiley InterScience
(www.interscience.wiley.com). DOI: 10.1002/dys.413

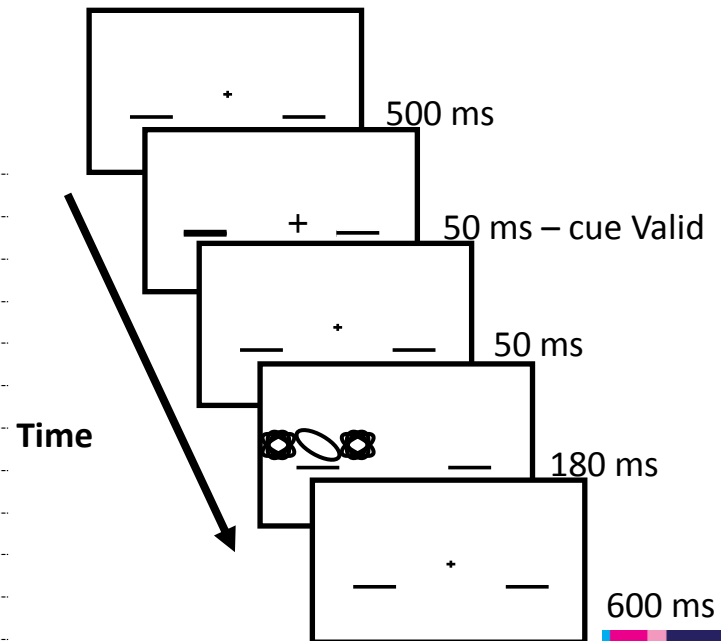
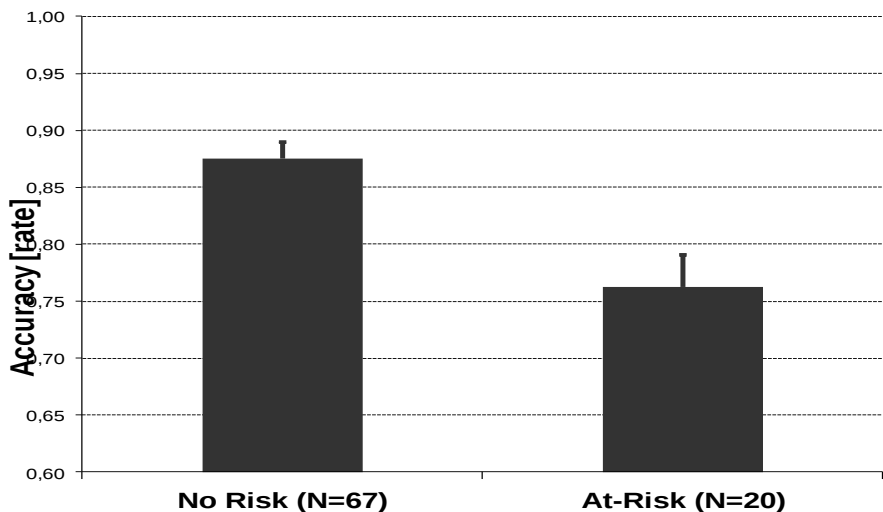
Visual Spatial Attention and Speech Segmentation are both Impaired in Preschoolers at Familial Risk for Developmental Dyslexia

Andrea Facoetti^{1,2,*}, Nicola Corradi¹, Milena Ruffino², Simone Gori¹ and Marco Zorzi¹
¹Dipartimento di Psicologia Generale e Centro di Scienze Cognitive, Università di Padova, Padova, Italy
²Unità di Neuropsicologia dello Sviluppo, Istituto Scientifico 'E. Medea' di Bosisio Parini, Lecco, Italy

Spatial cueing effect



Syllabic segmentation



4. Attention Predicts dyslexia

Current Biology 22, 1–6, May 8, 2012 ©2012 Elsevier Ltd All rights reserved DOI 10.1016/j.cub.2012.03.013

Report

A Causal Link between Visual Spatial Attention and Reading Acquisition

Sandro Franceschini,^{1,3} Simone Gori,^{1,2} Milena Ruffino,²

Katia Pedrolli,¹ and Andrea Facoetti^{1,2,3,*}

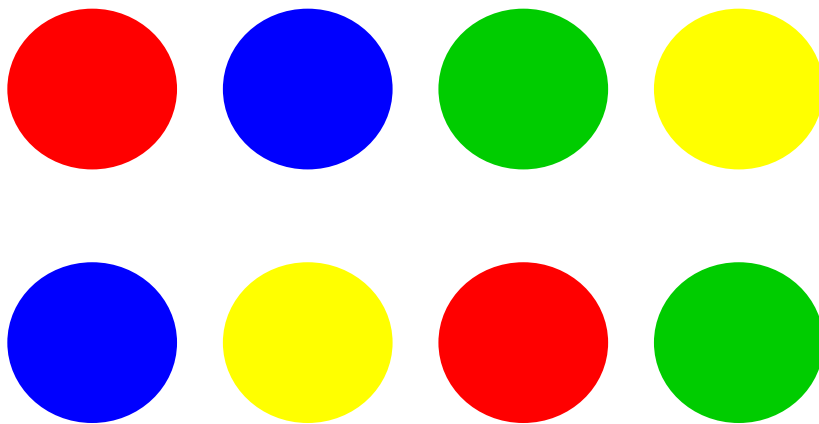
¹Developmental and Cognitive Neuroscience Lab,
Department of General Psychology, University of Padua,
Padova 35131, Italy

²Developmental Neuropsychology Unit,
Scientific Institute “E. Medea,” Bosisio Parini,
Lecco 23842, Italy

	N	Age T1 (years)	Block design T1 (standard score)	Text reading accuracy T2 (Z-score)	Text reading speed T2 (Z-score)
Poor readers (PR)	14	5.6	10.07	<u>-3.53</u>	<u>-2.31</u>
Normal readers (NR)	68	5.7	10.09	-0.09	-0.19

Denominazione Rapida

(misura dell'automatizzazione del recupero di informazioni fonologiche a partire da materiale visivo)



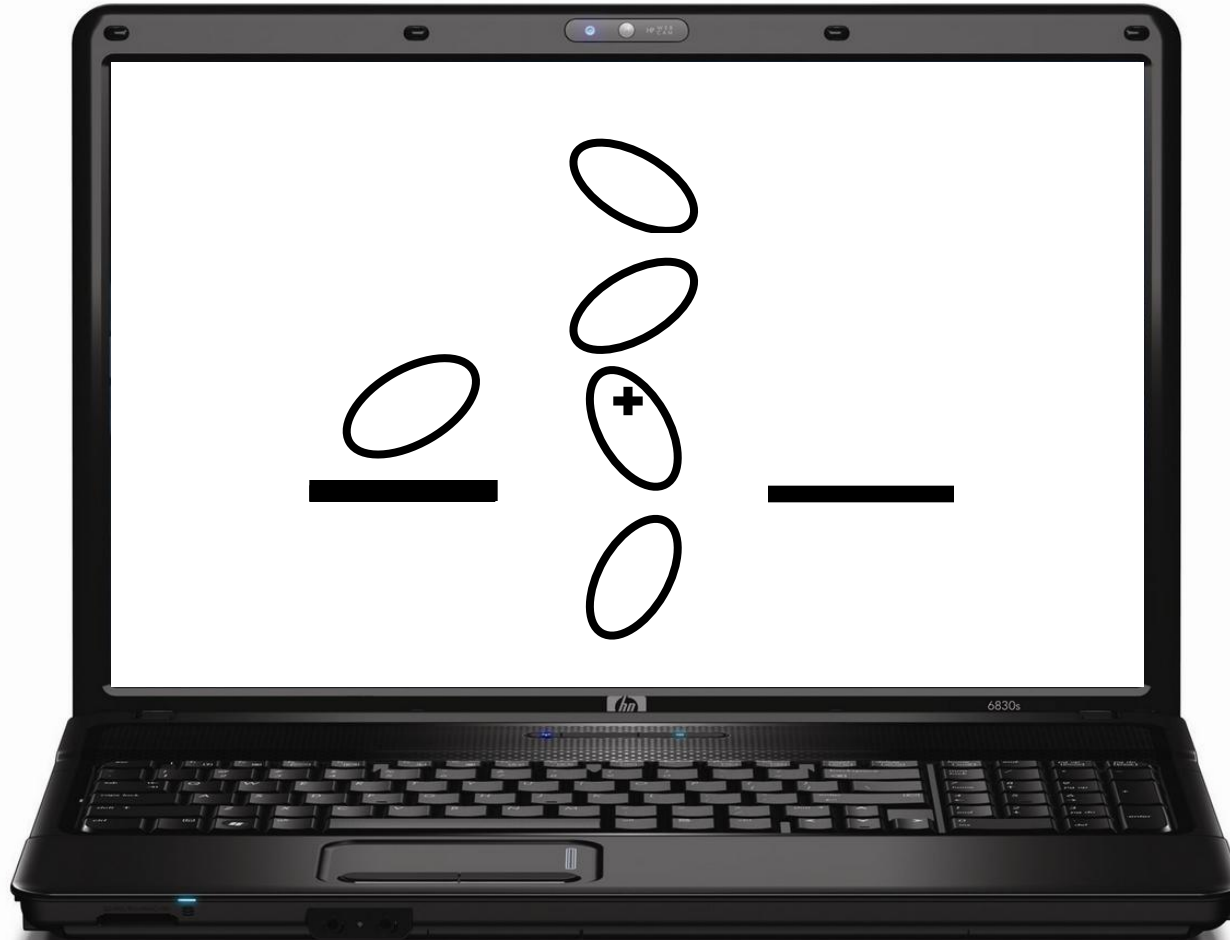
Ricerca Visiva

(componente visuo-attentiva di scansione e focalizzazione)



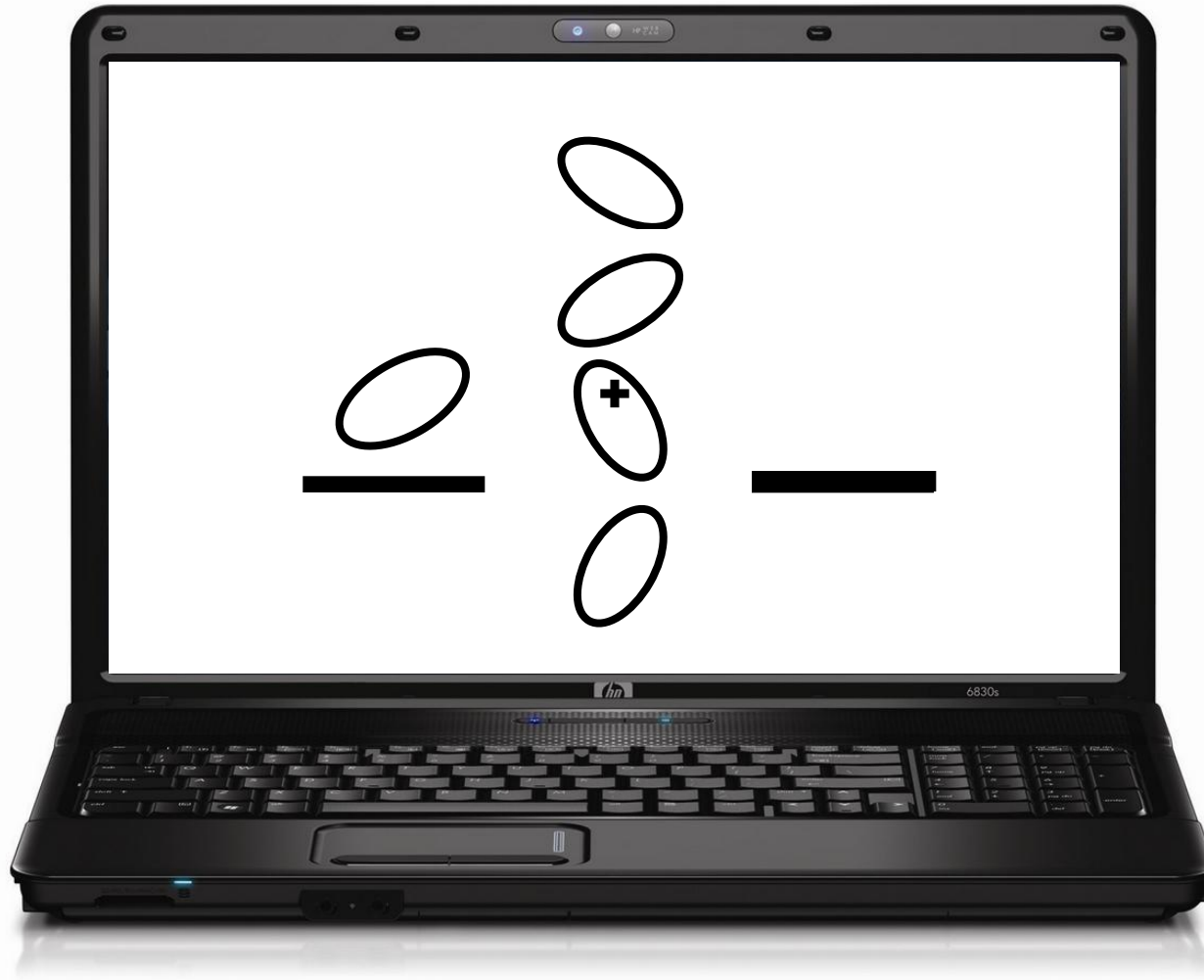
Accuratezza di Orientamento dell'Attenzione Visiva Spaziale

VALIDA



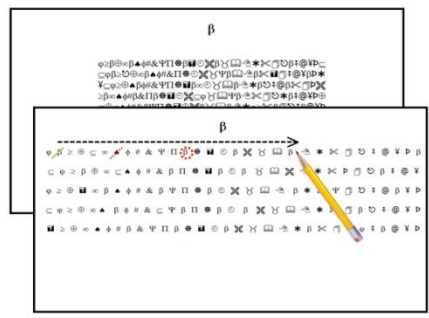
Accuratezza di Orientamento dell'Attenzione Visiva Spaziale

INVALIDA

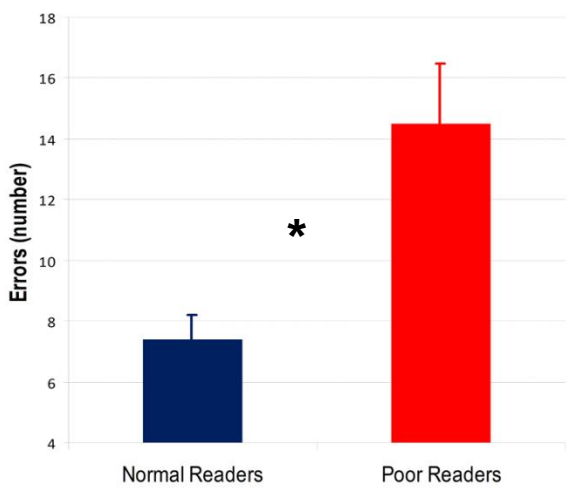


4. Attention Predicts dyslexia

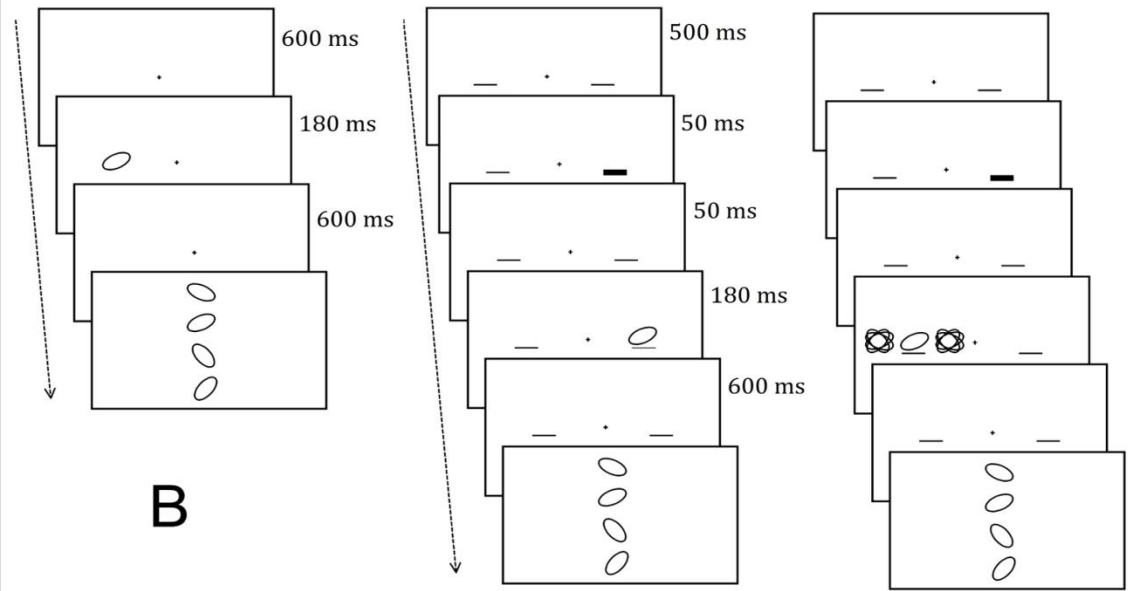
Serial Visual Search Task



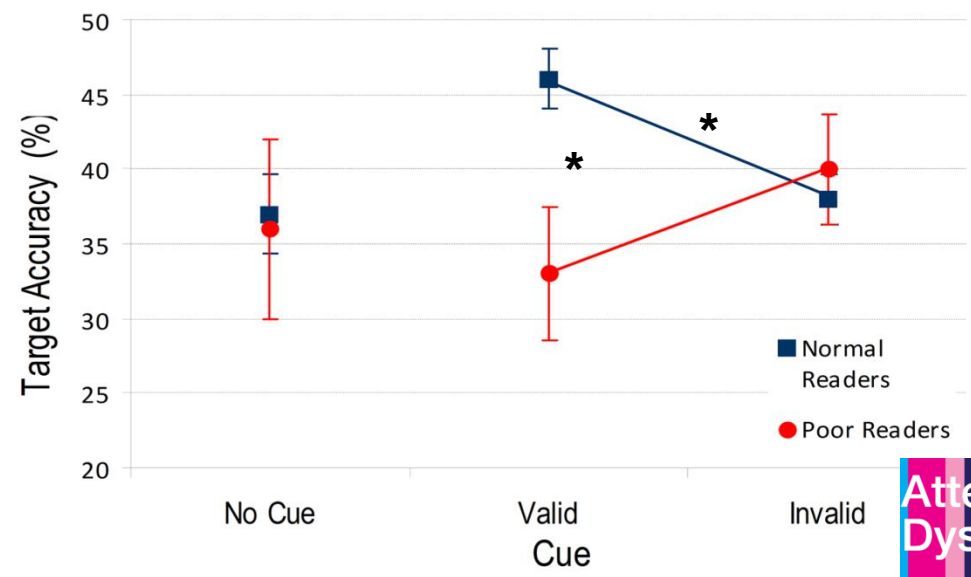
A



Spatial Cue Facilitation task



B



A Causal Link between Visual Spatial Attention and Reading Acquisition

Sandro Franceschini,^{1,3} Simone Gori,^{1,2} Milena Ruffino,²
Katia Pedrolli,¹ and Andrea Facoetti^{1,2,3,*}

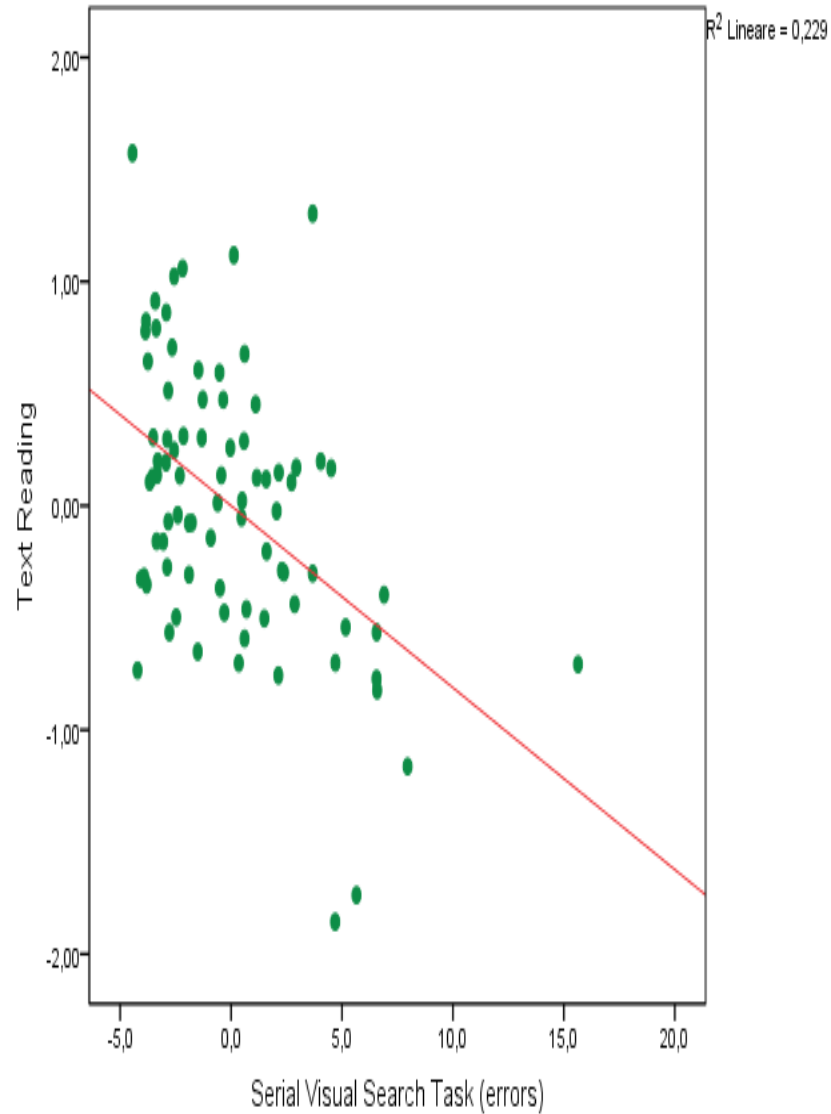
¹Developmental and Cognitive Neuroscience Lab,
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²Developmental Neuropsychology Unit,
Scientific Institute “E. Medea,” Bosisio Parini,
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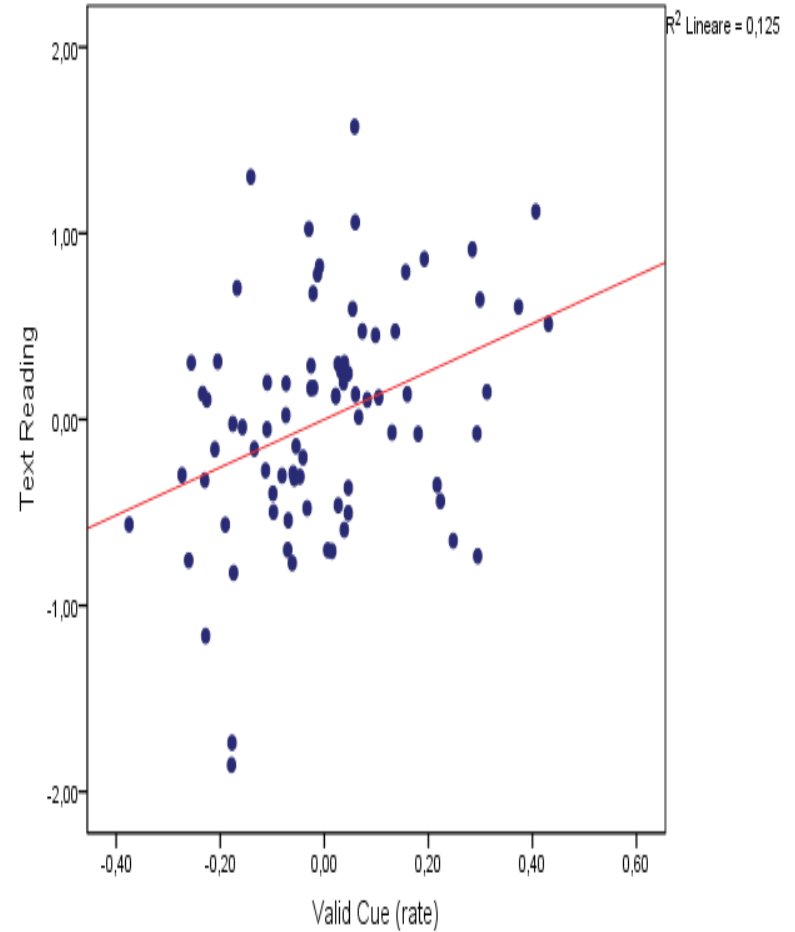
**Is pre-reading visuo-
spatial attention able to
predict reading skills in
Grade 2?**

4. Attention Predicts dyslexia

T3



YES!



RISULTATI:
PREDITTIVITÀ DELLE VARIABILI MISURATE IN
T1 SULLE ABILITÀ DI LETTURA BRANO IN T2

Modello	R ²	Variazione di R ²	Variazione di F	Sig. Variazione di F
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<u>“Fonologia”</u>	.05	.04	1.41	.251
AVS	.20	.15	6.90	.002

Fonologia: Fusione Sillabica (errori) e RAN Colori (tempi);
Attenzione Visuo-spaziale (AVS): Ricerca Visiva (errori) e
Orientamento Implicito (condizione valida, accuratezza).

RISULTATI:
PREDITTIVITÀ DELLE VARIABILI MISURATE IN
T1 SULLE ABILITÀ DI LETTURA BRANO IN T3

Modello	R ²	Variazione di R ²	Variazione di F	Sig. Variazione di F
Età e cubi	.03	.03	1.27	.288
<u>“Fonologia”</u>	.14	.11	4.73	.012
AVS	.33	.19	10.43	.0001

Fonologia: Fusione Sillabica (errori) e RAN Colori (tempi);
Attenzione Visuo-spaziale (AVS): Ricerca Visiva (errori) e
Orientamento Implicito (condizione valida, accuratezza).