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SEGRETERIA DI STATO  
ISTRUZIONE E CULTURA

# Summer Seminars 2015

## Dyslexia in different perspectives

San Marino  
June 18–20, 2015



UNIVERSITÀ DEGLI STUDI  
DELLA REPUBBLICA DI SAN MARINO  
DIPARTIMENTO  
DI SCIENZE UMANE

**eda** | european  
dyslexia  
association

# Programme day 1

Day 1: Thursday June 18  
Chair: Michael Kalmar

Country  



12:30 Registration

13:00 – 13:30  OPENING CEREMONY

13:30 – 14:30  KEYNOTE – Rod Nicolson, University of Sheffield, United Kingdom  
*Positive Dyslexia.*

  
UK

14:30 – 15:15  COFFEE BREAK


15:15 – 15:45  ABSTRACT 1 – Angelica Benson  
*The Imagery-Language connection: Improving word reading and comprehension in students with learning difficulties.*

  
USA

15:45 – 16:15  ABSTRACT 2 – Michaela Bettinelli  
*Specific learning disabilities and Rotary youth exchange: Why not?*

  
Italy

16:15 – 16:45  ABSTRACT DISCUSSIONS

16:45 – 17:45  PANEL DISCUSSION  
*International perspectives of Dyslexia.*

Social event

19:30 SOCIAL DINNER for all participants














# Programme day 2

Day 2: Friday June 19		Country
Chair AM: Pernilla Söderberg		
9:00 – 9:30	 <b>ABSTRACT 3</b> – Giannis Karagiannakis, National & Kapodistian University of Athens <i>The effect of student's difficulties in maths and reading on mathematical skills based on a fourfold model.</i>	 Greece
9:30 – 10:00	 <b>ABSTRACT 4</b> – Giorgio Santi <i>Forms of generalization in students experiencing mathematical learning difficulties.</i>	 Italy
10:00 – 10:15	 <b>ABSTRACT DISCUSSIONS</b>	
10:15 – 10:45	 <b>COFFEE BREAK</b>	
10:45 – 11:15	 <b>ABSTRACT 5</b> – Deny Menghini, Floriana Costanzo & Stefano Vicari <i>Evidence for reading improvement following tDCS treatment in children and adolescents with Dyslexia.</i>	 Italy
11:15 – 11:45	 <b>ABSTRACT 6</b> – Jamie Smith-Spark <i>Prospective memory in adults with dyslexia.</i>	 UK
11:45 – 12:00	 <b>ABSTRACT DISCUSSIONS</b>	
12:00 – 13:00	 <b>KEYNOTE</b> – Gerd Schulte-Körne, University of Munich, Germany <i>Dyslexia: Neurobiological and genetics aspects.</i>	 Germany
13:00 – 14:45	 <b>LUNCH BREAK</b>	
Chair PM: Michael Kalmar		
14:45 – 15:45	 <b>KEYNOTE</b> – Åke Olofsson, Umeå University, Sweden <i>Phonologically related reading problems: Persistence and relevance for students with dyslexia.</i>	 Sweden
15:45 – 16:45	 <b>PANEL DISCUSSION</b> – Key Note speakers <i>R. Nicolson, Å. Olofsson, J. Stein</i>	
<b>Social event</b>		
17:00	<b>CITY TOUR OF SAN MARINO</b> for all participants	

# Programme day 3

## Neuroscience and education: synergies for inclusion

### *Neuroscienze e educazione: sinergie per l'inclusione*

Day 3: Saturday June 20 – Italian Day <i>Chair: Cristiano Termine, Varese</i>			Country 
9:00 – 10:00		<b>KEYNOTE</b> –John Stein (Dyslexia Research Trust and University of Oxford) <i>Wobbles, Warbles &amp; Fish- the magnocellular theory of dyslexia is gaining ground.</i>	 UK
10:00 – 10:40		Giacomo Stella (University of Modena and Reggio Emilia) <i>Imparare può essere difficile : la scuola può trasformarsi in un fattore di rischio. Learning can be difficult : the school as a possible risk factor.</i>	 Italy
10:40 – 11:20		Cristiano Termine (University of Insubria, Varese) <i>I DSA tra Neuroscienza e Scuola : dalla diagnosi alle buone prassi a scuola. Specific Learning Disabilities between Neuroscience and Education: from diagnosis to good practice in the classroom.</i>	 Italy
11:20 – 12:00		Marcella Peroni (Associazione Oltremodo and GiPA, Bologna) <i>Nuove tecnologie nella scuola: il loro ruolo per la costruzione dell'autonomia dei DSA. The role of Information and Communication Technology in schools: gaining autonomy for Specific Learning Disorders.</i>	 Italy
12:00 – 12:30		<b>PAUSE</b>	
12:30 – 13:10		Concetta Pacifico (Principal Istituto Comprensivo Primo Levi – Verona). <i>DSA in Classe: cosa può fare la scuola per gli studenti e per la formazione dei docenti? Specific Learning Disability in the classroom: What resources are available for students and teacher training?</i>	 Italy
13:10 – 13:50		Salvatore Giuliano (Principal IISS Majorana di Brindisi ) <i>La scuola per tutti. The school for all students.</i>	 Italy
13:50 – 14:30		Panel Discussion and Closing Ceremony	
14:30		Finish	

*The lectures on Saturday will be held in Italian (slides provided in English).*

*The lecture by Professor Stein will be in English and translated into Italian.*

Oral presentations and workshops will be delivered in English.  
During the “Italian Day” (20th of June) slides in English will be provided.

## Day 1: Thursday June 18

### ① The Imagery-Language Connection: Improving Word Reading and Comprehension in Students with Learning Difficulties in the United States, the United Kingdom, and Australia

*Angelica Benson, Ed.M., Nanci Bell, M.A. Lindamood-Bell Learning Processes, USA*

New research suggests that the dual coding of imagery and language is a critical factor in language comprehension and word reading. Imagery is a basic sensory-cognitive function connecting us to the language we hear and the print we read. There are two distinct types of imagery—symbol imagery and concept imagery—intrinsic to word reading and reading comprehension. Neurological and behavioral research validates the imagery-language connection indicating lasting effects on word attack, word recognition, comprehension, and specific areas of brain function in students with dyslexia. Word reading and comprehension gains were replicated with children with learning difficulties in the United States, the United Kingdom, and Australia. These students received imagery-based instruction to improve word reading or comprehension. A consistent, repeated finding is that students with reading difficulties have shown significant word reading and comprehension improvements with imagery-based sensory-cognitive instruction. These improvements hold true for students diagnosed with Dyslexia, Attention Deficit Hyperactivity Disorder, and Autism Spectrum Disorders. This presentation explores the universality of imagery and its key role in word reading and comprehension by highlighting student pre/post data disaggregated by the United States, the United Kingdom, and Australia.

#### *Citations*

- Bell, N. (2007). *Visualizing and Verbalizing® for Language Comprehension and Thinking*. San Luis Obispo, CA: Gander Publishing.
- Bell, N. (2013). *Seeing Stars®: Symbol Imagery for Phonological and Orthographic Processing in Reading and Spelling*. Avila Beach, CA: Gander Publishing.
- Bell, N. (2013). *Symbol Imagery Test: Examiner's Manual*. Avila Beach, CA: Gander Publishing.
- Berninger, V. (1990). Multiple orthographic codes: Key to alternative instructional methodologies for developing the orthographic-phonological connections underlying word identification. *School Psychology Review*, 19(4), 517-532.
- Krafnick, A.J., Flowers, L, Napoliello E.M. & Eden, G.F. (2011). Gray Matter Volume Changes Following Reading Intervention in Dyslexic Children. *NeuroImage*, 57(3), 733-741.
- Lindamood-Bell Learning Processes (2014). *Learning Center Results (Summer 2014)*. Retrieved from <http://www.lindamoodbell.com/research/results.html>
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- Paivio, A. (1986). *Mental Representations: A Dual Coding Approach*. New York, NY, Oxford University Press.
- Rajesh Kana, "The Impact of Language Remediation on Brain Connectivity in Children with Autism" (presentation, Annual Convention of the American Speech-Language-Hearing Association, Chicago, IL, November 13-16, 2013).

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# Abstracts

## ② Specific learning disabilities and Rotary youth exchange: Why not?

*Michela Bettinelli Ph.D, Tecnico dell'apprendimento (AID Italian dislexia association, Cremona branch)*

There is the necessity for specific and structured intervention respecting the social needs of students with SLD, with the goal to concretely support the different educational phases, unavoidable to reach intended results both in all areas of education including school and therapy and in family and social life in general. For students with SLD, autonomy is the most important point in process of informing, learning and communication in all forms, without relying and depending on parents, teachers or peers.

The project was introduced in setting of activities of District Commission for Actions and Projects for New Generations linked to the activities of RYE Commission in order to collaborate and make international exchange of students with SLD possible and give them the opportunity for individual growth, learning improvement and psychological confirmation.

The resume of the project: to intervene in situations of learning disabilities by providing concrete opportunities for consolidation of learning through the experience of a different school system, learning the foreign language of the host country as a means of daily communication, based on oral communication and by providing the opportunity for successful development of the personality. To widen the perspectives of the RYE through involvement in youth exchange of students with SLD, recognizing the qualities and sensibility of RYE relevant for this project,

To reach the objectives above, it is needed: to individualize the training of experts involved in the students exchange to organize suitable forms of monitoring and support during the exchange and formalize the feedback of experiences after the exchange. Two students are already in the project.

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## Day 2: Friday June 19

### ③ The effect of student's difficulties in maths and reading on mathematical skills based on a fourfold model

**Giannis Karagiannakis**, Ph.D, BMATH, MMATH, Research Center of Psychophysiology & Education, National & Kapodistrian University of Athens, Greece

Although there have been increasingly important research findings on mathematical learning difficulties (MLD) from the fields of cognitive psychology and neuroscience these do not seem yet to have affected the field of mathematics education. In this presentation it will be presented empirical data for validating a Fourfold model: *Reasoning*, *Memory* (retrieval), *Core number* and *Visual-spatial* (Karagiannakis, Baccaglini-Frank & Papadatos, 2014) for detecting a student's cognitive difficulties in mathematics. A battery of mathematical tasks was designed and administered to 165 Greek students (5th and 6th grade) belonged to four achievement groups: students with difficulties in mathematics (MD-only), students with difficulties both mathematics and reading (MD-RD), students with difficulties in reading (RD-only), and typically achieving students (TA). Principal Component Analysis revealed a grouping of the tasks that is consistent with the Fourfold model, which further confirmed by Confirmatory Factor Analysis (Karagiannakis, Baccaglini-Frank & Roussos, under review). MD-RD students underperformed in all tasks compared to MD-only and RD-only. RD-only students were found to perform poorly as against TA students. With reference to students' performance in the single domains of the fourfold model, MD-only students ranked as the lowest performers in *Core number* domain, whereas RD-only had the poorest performance in the *Memory* domain. The innovation brought by this study is that the Fourfold model revisits the main MLD hypotheses intertwining them in a holistic way, giving the opportunity to sketch out both individual weaknesses and strengths of the student's basic mathematical skills outlining *individualized profiles in Mathematics* (Karagiannakis & Baccaglini-Frank, 2014); this makes the model potentially applicable in mathematics education contexts as an essential starting point for data-driven interventions (Karagiannakis & Cooreman, 2014).

#### References:

- Karagiannakis, G., Baccaglini-Frank, A. & Roussos, P. (under review). Detecting Difficulties in Mathematics through a Fourfold Model (working title). *Trends in Neuroscience and Education*.
- Karagiannakis, G., Baccaglini-Frank, A. & Papadatos, Y. (2014). Mathematical learning difficulties subtypes classification. *Frontiers in Human Neuroscience*, 8:57. doi: 10.3389/fnhum.2014.00057
- Karagiannakis, G., & Baccaglini-Frank, A. (2014). The DeDiMa Battery: A Tool for Identifying Students' Mathematical Learning Profiles. *Health Psychology Review*, 2(4), doi: 10.5114/hpr.2014.46329
- Karagiannakis, G., & Cooreman, A. (2014). Focused intervention based on a classification MLD model. In S. Chinn (Ed.), *The Routledge International Handbook of Dyscalculia and Mathematical Learning Difficulties* (pp. 265-276). London: Routledge.

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# Abstracts

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## ④ Forms of generalization in students experiencing mathematical learning difficulties

*Giorgio Santi & Anna Baccaglini-Frank*

We shift the view of a special needs student away from the acknowledged view, that is as a student who requires interventions to restore a currently expected functioning behaviour, introducing a new paradigm to frame special needs students' learning of mathematics. We use the Theory of Knowledge Objectification and the new paradigm to look at (and characterize) students' learning experiences in mathematics as generalizing reflexive mediated activity. In particular, from this perspective, we present examples of shifts to higher levels of generalization of a student with mathematical learning difficulties working with Mak-Trace, a Logo-like educational software for the iPad.

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## ⑤ Evidence for reading improvement following tDCS treatment in children and adolescents with Dyslexia

*Menghini D.1, Costanzo F. 1, Rossi S. 1, Varuzza C. 1, Sdoia S. 1, Oliveri M. 2, Koch G. 2, and Vicari S.1*

*1: Department of Neuroscience, Children Hospital Bambino Gesù, Piazza Sant' Onofrio 4, I-00165 Rome, Italy*

*2: Clinical and Behavioural Neurology, Santa Lucia Foundation, Via Ardeatina 306, I-00179 Rome, Italy*

Traditional remedial treatment increases not only reading ability in dyslexics but also modifies brain activation in critical areas, as the left parieto-temporal cortices. There is also evidence that a facilitation of neural pathways underactive in dyslexics transiently modulates reading performance of expert readers and dyslexics. Transcranial direct current stimulation (tDCS) offers the possibility to induce changes in cortical excitability and it is an option as a remediation tool for the treatment of dyslexia. The study was aimed at investigating whether multiple sessions of Anodal tDCS will enhance reading abilities of children and adolescents with dyslexia. Sixteen children and adolescents with dyslexia received 18 sessions of active treatment over the left parieto-temporal cortex (Anodal tDCS; n= 8; mean age  $13.4 \pm 2.4$  years) or sham treatment over the left parieto-temporal cortex (Sham tDCS; n= 8; mean age  $13.2 \pm 2.6$  years), combined with a reading training. Reading measures (text, high and low frequency words, non-words) were collected before and after treatment (six weeks later) and in follow-up evaluations (one month and six months later). The tolerability of tDCS was also evaluated. Anodal tDCS improved reading abilities in both text and non-word task. The positive effects were stable even six months later the end of treatment. None of participants reported any discomfort or serious adverse effect. The study shows preliminary evidence of tDCS feasibility and efficacy in improving reading abilities of dyslexic children and adolescents and it opens new rehabilitative perspectives for the remediation of dyslexia.



## ⑥ Prospective memory in adults with dyslexia

*Jamie Smith-Spark, Adam Zięcik, and Chris Sterling, London South Bank University, UK*

Prospective memory (PM) is memory for delayed intentions or remembering to remember. Despite evidence to suggest that PM is likely to be impaired in dyslexia, PM in adults with dyslexia has not previously been explored. Research is necessary given that an increased susceptibility to PM failure is likely to have a serious impact on everyday life. Self-report questionnaires, clinical measures, computerized tasks, and naturalistic and semi-naturalistic measures were, therefore, administered to assess PM in adults with dyslexia. Two groups of university students, matched for age and short-form IQ and differing on standardized measures of reading and spelling, were compared. The adults with dyslexia reported themselves to be significantly more prone to PM failures, identifying particular problems with remembering intentions for non-habitual actions or those involving more self-initiated, non-environmentally-cued recall. Similar difficulties were found on the laboratory-based tasks, together with some differences on the naturalistic measures. Time-based PM and intentions requiring verbal responses were especially susceptible to dyslexia-related deficits. The difficulties experienced by the participants with dyslexia were not explicable simply in terms of problems with encoding PM instructions since there were no group differences in the recall of task instructions after testing. The PM deficits evident in adults with dyslexia are, therefore, considered in terms of executive functioning. A greater understanding of PM in adults with dyslexia should feed into workplace support, making employers aware of the type of PM task that employees with dyslexia will find particularly difficult and identifying ways in which these problems can be mitigated.

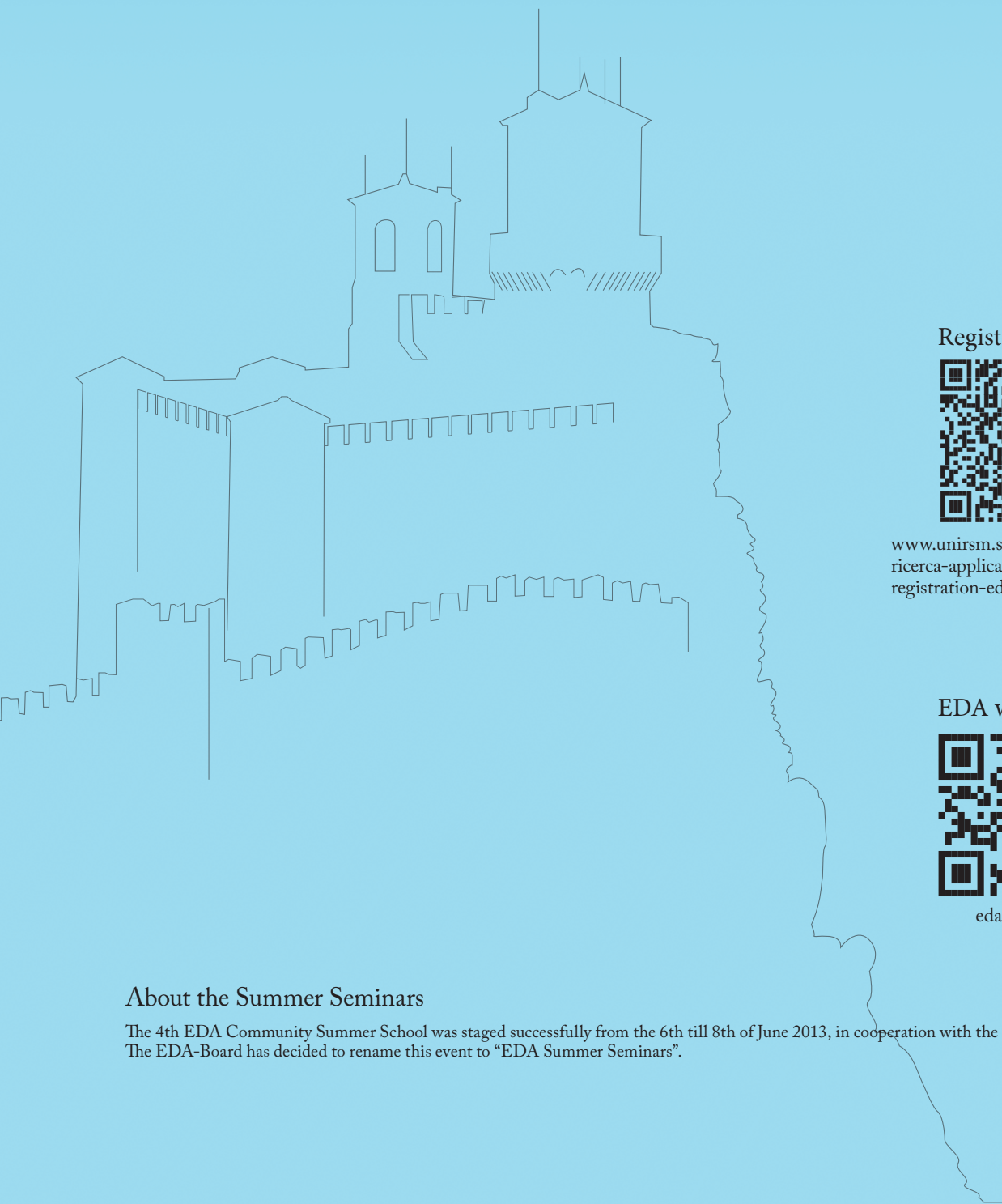
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EDA web site



[eda-info.eu](http://eda-info.eu)

### About the Summer Seminars

The 4th EDA Community Summer School was staged successfully from the 6th till 8th of June 2013, in cooperation with the University of San Marino. The EDA-Board has decided to rename this event to “EDA Summer Seminars”.