

## Scientific Advisory Panel – Highlights of 2017

Papers, books and activities

### Dr Angela Fawcett

Researcher into dyslexia and other developmental difficulties, Swansea University, UK

took part in the 1st SENIA conference for Malaysia on inclusion in Sibu, covering aspects beyond dyslexia: co-morbidity, Down's and physical handicaps. Sibu was the first school to attempt inclusion in Malaysia. The minister for women and families attended.

Also presented a keynote and took part in the panel discussion and the international session at Unite SpLD in Singapore in June 2017, organized by the Dyslexia Association of Singapore. This three-day conference on Uniting Ideas in Teaching Excellence has expanded over the last three years and now attracts over 500 delegates internationally from 10 countries, with 30 national and international speakers.

In November invited to become a member of the UK All-Party Parliamentary Group on dyslexia and attended her first meeting in early December. This Parliamentary committee meets twice yearly.

Published, with Ron Nicolson a Chapter in *Procedural learning, dyslexia and delayed neural commitment*

**Abstract:** In this chapter, we address the underlying causes of dyslexia, the developmental learning disability, rather than reading disability. In our breakthrough research over 25 years ago we demonstrated that the process of skill automatization was a problem for dyslexic children not only in reading-related skills but also in a range of other skills not obviously linked to reading. In this chapter, we report the subsequent development of this framework, first with identification of the cerebellum as a key structure in the automatization deficits, then a 'neural circuit' analysis suggesting that many developmental disorders are related to proceduralisation problems, with dyslexia associated with specific difficulties in the language / cerebellar procedural circuits. Here we bring this research to the present day, extending the analysis to consider how networks are grown from birth onwards, and introduce the concept of Delayed Neural Commitment (DNC) as a powerful explanatory developmental framework, proposing that dyslexic children are slower to build the connectivity networks on which reading acquisition and fluency depend. This analysis links back to the development of executive function and language networks, and is consistent with all the major theories of dyslexia. We hope that DNC will provide a fruitful and integrative framework for further theoretical and applied research.

## **Dr Maria Luisa Lorusso**

developmental neuropsychology and dyslexia, Universities of Pavia and Milan, Italy.

My scientific activity in 2017 has been mainly devoted to two research projects concerning

- 1) the relationship between language processing and music processing (more specifically, the interface between prosody and syntax) in children with language versus reading impairments. The results of the project have been presented at three international congresses (International Psycholinguistics Conference, Braga 5-8 April 2017, 38th Edition of TABU Dag Groningen, NL, 22-23 June 2017 and Experimental Psycholinguistics Conference, Menorca 28-30 June 2017) and two national conferences (VIII edition of CLASTA - Italian association for Research in Typical and Atypical Language Development, Padova, 13 May 2017 and XXVI Congress of AIRIPA – Italian association for Research and Intervention on Learning Disorders, Conegliano, 29-30 September 2017)
- 2) short-term memory processing in children with dyslexia versus other specific learning disorders with the aim to identify specific memory patterns with respect to the type of reading/spelling/mathematical disorder. We are currently analysing the data collected through an online platform designed in collaboration with the Catholic University of the Sacred Heart in Milan. The results of the project have been presented at one international congress (5th All European Dyslexia Conference – EDA - in Modena, 21-24 September 2016) and three national congresses (AIRIPA – Italian association for Research and Intervention on Learning Disorders, Giornate di Neuropsicologia dell'Età Evolutiva XI edizione, Brixen 20 - 23 January 2016; and 5th Congress of SINP - Italian Neuropsychological Society – Milan, 2-3 December 2016)

At the clinical level, I have been working on the development of two new online platforms:

- 1) for remote-controlled intervention on reading disorders ([www.tachidino.com](http://www.tachidino.com)). This programme has been presented at the National Congress of the Italian Dyslexia Association (AID) in Modena, 25 September 2016 and it has been included in the project "Telerehabilitation and instruction" for the Public Health Services of the Lombardy Region, presented and launched in Pavia, 17 May 2017.

Remediation programmes are remotely supervised by operators/clinicians. Supervision is intended as planning and checking the child's intervention

programme step by step, and can be done either at the same time while the child is doing the exercises (synchronous), with the child working on his own computer at home and the therapist checking from another PC at a distance, or non-synchronous, each one accessing the platform at different times (the operator checks what the child has been doing and programmes the next exercises for him/her).

- 2) for early identification of at-risk situations for the development of language and reading disorders (<https://smartapp.isasi.it/chisiamo>), in collaboration with the Italian National Health System and the national network of Pediatricians. This programme has been presented at the national congress “Neurodevelopmental disorders in the first 3 years of life; developmental trajectories and effective intervention” in Bosisio Parini, 27 October 2017.

Both programmes are currently available only for Italian but they may be adapted for use in other countries/languages in the future.

Further, I have been working on a programme supported by Italian Lions Clubs for the development of automatized systems for the production of personalized text files and audio-files of school books for dyslexic children (Seleggo Project, <http://www.seleggo.org/>), based on assessment of visual and auditory processing characteristics of the students with dyslexia. There are special agreements with some of the main editors of school books in Italy. The text and audio-files are provided free of charge to students with a diagnosis of dyslexia.

Moreover, I have been part of the group working on the national Consensus Conference on Specific Language Disorders that will be celebrated in 2018.

Finally, I have been working on the set-up of two Research projects starting in these months:

2018-2021: EU Project Horizon 2020 “MultiMind” (The Multilingual Mind, <https://www.multilingualmind.eu/>), Marie Skłodowska-Curie Innovative Training Network (ITN) European Training Network, in collaboration with University of Reading, UK, Universitat Konstanz, Germany, Università Milano-Bicocca, Italy, Uniwersytet Jagiellonski, Poland, Universidad Pompeu Fabra, Spain, Universiteit Leiden, the Netherlands, Aristotelio Panepistimio Thessalonikis, Greece, Universiti Putra Malaysia, Université De Genève, Switzerland, Adult Instruction Provincial Center of Palermo, Italy.

This project will take into consideration issues related to multilingualism and cognitive development, including the effects of multilingualism in children with language and learning disorders. The specific aims of our team will be the identification of language-specific markers of SLI and dyslexia in monolingual children speaking Italian, English, Polish, Mandarin, Wenzhounese, German, and the design of a battery of computerized tests for the assessment of language and reading abilities in bilingual and multilingual children.

2018-2019: 2017 Project of Cariplo Foundation “IBIS”: Tecnologie Innovative per il Benessere e l’Inclusione Scolastica” (Innovative Technologies for Wellbeing and Inclusion at School). In collaboration with University Milano-Bicocca, Catholic University of the Sacred Heart Milan, IRCCS Neurologic Institute Carlo Besta, involving various highschools of the Lombardy region and with the support of AID (Italian Dyslexia Association) and AD&F (Dyspraxia Families Association).

This project will provide in-depth instruction to high-school teachers about the use of new ICT-based technologies and practices (following the Education 3.0 model proposed by Wilfred Fong and described by Michael Horn and Jeff Borden, finding its application in “Classroom 3.0” learning environments). The specific aim of our team will be, among others, to develop and implement a computerized tool for the assessment of online reading and comprehension, inspired to the “ORCA” test developed by the US Ministry of Education.

Publications in 2017:

Cancer, A., Bonacina, S., Lorusso, M. L., Lanzi, P. L., & Antonietti, A. (2016). Rhythmic Reading Training (RRT): A computer-assisted intervention program for dyslexia. In S. Serino, A. Matic, D. Giakoumis, G. Lopez & P. Cipresso (Eds.), *Pervasive computing paradigms for mental health* (pp. 249-258). Cham: Springer. doi: 10.1007/978-3-319-32270-4\_25.

Lorusso, M.L., Biffi, E., Molteni, M. & Reni, G.L. (2017): Exploring the learnability and usability of a near field communication-based application for semantic enrichment in children with language disorders. *Assistive Technology*, DOI: 10.1080/10400435.2016.1253046.

Lorusso, M.L., Giorgetti, M., Travellini, S., Greci, L., Zangiacomi, A., Mondellini, M., Sacco, M. & Reni, G. (2017) Giok: an alien stimulates pragmatic and social skills in pre-school children. In H.M. Fardoun, V. M. Penichet, M. Alghazzawi, P. Gamito, *Proceedings of the 4th Workshop on ICTs for improving Patients Rehabilitation Research Techniques*. ACM Digital Library, New York. ACM ISBN: 978-1-4503-4765-5.

Lorusso, M.L., Burigo, M., Tavano, A., Milani, A., Martelli, S., Borgatti, R. and Molteni, M. (2017). Learning and Using Abstract Words: Evidence from Clinical Populations. *BioMed Research International*, vol. 2017, Article ID 8627569, 8 pages, 2017. doi:10.1155/2017/8627569

Caccia, M., & Lorusso, M.L. (2017) Music and language in children with Developmental Dyslexia: relationships between musical perception and the syntax-prosody interface. In *Proceedings of the 38th annual linguistics conference “Tabu Dag”*, Groningen, June 22-23, pp 46-47. [http://www.let.rug.nl/tabudag/booklet\\_2017.pdf](http://www.let.rug.nl/tabudag/booklet_2017.pdf)

Piazza, C., Cesareo, A., Caccia, M., Reni, G & Lorusso M.L. (2017). A Tapping Device for Recording and Quantitative Characterization of Rhythmic/Auditory Sequences. *Proceedings of the 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society: Smarter Technology for a Healthier*

World, EMBC 2017 –IEEE Institute of Electrical and Electronics Engineers Inc., p. 1250-1253 4 p. 8037058

### **Professor Heikki Lyytinen**

University of Jyväskylä, Finland; researcher into neurophysiological and psychophysiological aspects of learning difficulties

published in 2017:

Lohvansuu, K., Hämäläinen, J., Tanskanen, A., Ervasti, L., Heikkinen, E., Lyytinen, H. & Leppänen, P.H.T. (2017). Enhancement of Brain Event-Related Potentials to Speech Sounds Is Associated with Compensated Reading Skills in Dyslexic Children with Familial Risk for Dyslexia. *International Journal of Psychophysiology*. <https://www.researchgate.net/publication/266914528> [accessed Nov 24 2017].

Lyytinen, H. (2017). Early Identification and Prevention of Difficulties in Learning to Read : A Global Perspective. *Japanese Journal of Learning Disabilities*, 26,2, 128-142.

Serpell, R., Jere-Folotiya, J., Chansa-Kabali, T., Munachaka, J., Maumbi, M.N., Yalukanda, C., Sampa, F. & Lyytinen, H. (2017). A Culturally Sensitive Approach to Promoting Initial Literacy Development in Africa: Ongoing and Planned Research and Development at the University of Zambia's Centre for Promotion of Literacy in Sub-Saharan Africa (CAPOLSA). In: Abubakar A., van de Vijver F. (eds). *Handbook of Applied Developmental Science in Sub-Saharan Africa*. Pp. 313-334. Springer, New York, NY.

Borleffs, E., Maassen, BAM, Lyytinen, H. & Zwarts, F. (2017). Measuring orthographic transparency and morphological-syllabic complexity in alphabetic orthographies: a narrative review. *Reading and Writing: An Interdisciplinary Journal*, 1-22. Springer. DOI: 10.1007/s11145-017-9741-5

### **Professor Elinor Saiegh-Haddad**

English Linguistics and Literature Department, Bar-Ilan University, Israel

published in 2017 as follows (a complete list is on our web site):

Journal articles

**Saiegh-Haddad, E.** (2017). MAWRID: A Model of Arabic Word Reading In Development. *Journal of Learning Disabilities*, 1 –9.

<https://doi.org/10.1177/0022219417720460>

**Saiegh-Haddad, E.** (2017). What is Phonological Awareness in L2? To appear in a special issue L. Verhoeven, C. Perfetti & K. Pugh (Eds.). The cross-linguistic study of reading in L2. *Journal of Neurolinguistics*.

<https://doi.org/10.1016/j.jneuroling.2017.11.001>

**Saiegh-Haddad, E. & Taha, T.** (2017). The role of phonological and morphological awareness in the early development of word reading and spelling in typical and disabled Arabic readers. *Dyslexia*, 23, 345–371.

**Saiegh-Haddad, E. & Ghawi-Dakwar, O.** (2017) Impact of Diglossia on Word and Non-word Repetition among Language Impaired and Typically Developing Arabic Native Speaking Children. *Frontiers in Psychology*, 8, 2010.

doi: 10.3389/fpsyg.2017.02010

**Saiegh-Haddad, E. & Elouti, A.** (in press). Inflectional and Derivational Morphological Awareness in Arabic-speaking High versus Low EFL Literacy Students. *Written Language & Literacy*.

Taha, H. & **Saiegh-Haddad, E.** (2017). Morphology and spelling in Arabic: Development and interface. *Journal of psycholinguistic research*, 46:27–38.

Schiff, R. & **Saiegh-Haddad, E.** (2017). When diglossia meets dyslexia: The impact of diglossia on reading among Arabic native speaking dyslexic children. *Arabic. Reading & Writing: An Interdisciplinary Journal*, 30, 1089-1113.

Russak, S. & **Saiegh-Haddad, E.** (2017). What do phonological segmentation errors tell us about phonological representations? *Second Language Research*. 34, 1-14.

Hassunah, S.A., Aram, D., Korat, O. & **Saiegh-Haddad, E.** (2017). Continuity in literacy development from kindergarten to first grade: A Longitudinal study of Arabic speaking children. *Reading & Writing: An Interdisciplinary Journal*, 30, 989-1007.

#### Book chapters

**Saiegh-Haddad, E.** (2017). Learning to read in Arabic. In L. Verhoeven & C. Perfetti & (Eds.), *Reading acquisition across languages and writing systems: An international handbook* (pp. 127-154). Cambridge University Press.

**Saiegh-Haddad, E.** (2017). Impact of diglossia on phonological processing and reading in Arabic. In A. Chekayri (Ed.) *New approaches to the teaching of reading in Arabic المقاربات الجديدة في تدريس القراءة باللغة العربية*. Al Akhawayn University Press, Ifrane, Morocco [In Arabic]

صايغ-حداد. أ. (2017). تأثير ازدواجية اللغة أو "الديجلوسيا" على اكتساب مهارات المعالجة الصوتية والقراءة باللغة العربية. المقاربات الجديدة في تدريس القراءة باللغة العربية. عبدالله الشكايري (محرر). نشر جامعة الاخوين. افران , المغرب.

**Saiegh-Haddad, E. & Everatt, J. (2017).** Literacy Education in Arabic. In N. Kucirkova, C. Snow, V. Grover and C. McBride-Chang (Eds.). *The Routledge International Handbook of Early Literacy Education* (pp. 185-199). Taylor & Francis Routledge: USA

### **Professor Linda Siegel**

Professor of Educational and Counselling Psychology and Special Education,  
University of British Columbia, Canada

author of *Not Stupid, Not Lazy: Understanding Dyslexia and Other Learning Disabilities*. Published by the International Dyslexia Association

### **Dr Jenny Thomson**

*Reader*, Department of Human Communication Sciences, University of Sheffield, UK

published:

Kim, J, Hemphill, L., Troyer, M., **Thomson, J.**, Jones, S., LaRusso, M., & Donovan, S. (2017) Engaging struggling readers to improve reading skills. *Reading Research Quarterly*, 52, 357–382, doi: 10.1002/rrq.171

(This paper is perhaps the one that would be most interesting to a general audience, as essentially it is one of the few intervention studies to date that actually manages to yield notable improvements in literacy for adolescent struggling readers.)

Van der Steen, S., Samuelson, D., & **Thomson, J.** (2017). The effect of keyboard-based word processing on students with different working memory capacity during the process of academic writing. *Written Communication*, doi: 10.1177/0741088317714232

Lundetrae, K., & **Thomson, J.** (2017). Rhythm production at school entry as a predictor of poor word reading and spelling at end of grade 1. *Reading and Writing*. [doi.org/10.1007/s11145-017-9782-9](https://doi.org/10.1007/s11145-017-9782-9)